

# Annual Report 2013–2014



**Indian Institute of Technology Guwahati**



*Techniche*



*Techniche*



*Prof. Gautam Biswas inaugurating Hindi Divas*



*Independence Day celebration*



*Republic Day celebration*



*49th Inter IIT Sports Meet hosted by IIT Guwahati*



*Alcheringa*



*Participating student teams of IIT Guwahati at 49th Inter IIT Sports Meet*





*Dr. Joao Cravinho (JR), Ambassador of the European Union, with Prof. Gautam Biswas and other officials at IIT Guwahati*



*Nanocomposite Melt Extrusion and Film Processing Line*



*Isothermal Titration Calorimeter*



*Nano-liter Dispenser*



*International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013)*



*A panoramic view of the campus*

# Annual Report 2013–2014



**Indian Institute of Technology Guwahati**

Guwahati 781039, INDIA





## Indian Institute of Technology Guwahati

Indian Institute of Technology Guwahati is the sixth member of the IIT family. Indian Institute of Technology–Assam Society was formed in February 1989. The foundation stone of IIT Guwahati was laid in July 1992 in Guwahati. The Institute of Technology (Amendment) Act 1994, passed by the Parliament, was notified in the Gazette of India on May 26, 1994, by which the IIT Guwahati–Assam Society was made into IIT Guwahati. By the Gazette of India notification of the Ministry of Human Resource Development dated September 1, 1994, the Central Government declared September 1, 1994, as the date on which the Institute of Technology (Amendment) Act 1994 (No. 35 of 1994) came into force and IIT Guwahati was established.

Enrollment of students started in 1995.

# Annual Report 2013–2014: Highlights

<b>Growth</b>			
<b>Particulars</b>	<b>2012–2013</b>	<b>2013–2014</b>	<b>Growth in %</b>
Student Strength	4506	4891	8.54
Faculty Strength	325	342	5.23
R&D Funds Received (In crores of ₹)	37.36	33.67	– 9.87
Total Research Publication	1140	1248	9.47
<b>Major R&amp;D Projects Received:</b>			
<ul style="list-style-type: none"> <li>○ Centre for excellence in research and development of nanoelectronics theranostic devices (Centre for Nanotechnology) - ₹ 5775.00 lakhs</li> <li>○ Centre of excellence on sustainable polymers (Department of Chemical Engineering) - ₹ 600.00 lakhs</li> <li>○ Exploration and characterisation of seri-bio resources of North East India for potential textile and non-textile applications (Centre for the Environment) - ₹ 154.25 lakhs</li> <li>○ Rural hybrid energy - enterprise system (Centre for Energy) - ₹ 82.68 lakhs</li> <li>○ Genotyping single nucleoside polymorphisms (SNPs) with fluorescently modified nucleoside/ oligonucleotide probes (Department of Chemistry) - ₹ 82.12 lakhs</li> </ul>			
<b>Major Conference Held:</b>			
<ul style="list-style-type: none"> <li>○ International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013), December 2013</li> <li>○ 12<sup>th</sup> Indo-European Winter Academy, December 2013</li> <li>○ International Conference on Magnetic Materials and Applications (MagMA-2013), December 2013</li> <li>○ Workshop on Xilinx FPGA Architecture and Design flow, November 2013</li> <li>○ Continuities and Discontinuities of Asian Engagement: Borders, Mobility and Identity in Northeast India and Asia, October 2013</li> <li>○ National Conference on Manufacturing: Vision for Future (MVF2013), October 2013</li> <li>○ National School on Sustainable Polymers and First Symposium on Advances in Sustainable Polymers (ASP-14), January 2014</li> <li>○ Workshop on Image and Speech Processing (WISP 2013), December 2013</li> </ul>			

# Annual Report 2013–2014: A Quick Look

Department/Centre	
Academic Department	11
Academic Centre	3
Service Centre	3

Grants	
MHRD	Rs. 285.11 crores
<b>Total</b>	<b>Rs. 285.11 crores</b>

Students Admitted		Students Strength	
Preparatory	4	Preparatory	4
BTech/BDes	647	BTech/BDes	2505
MTech/MDes	377	MTech/MDes	771
MSc/MA	152	MSc/MA	291
PhD/DUAL Degree	314	PhD/DUAL Degree	1320
<b>Total</b>	<b>1494</b>	<b>Total</b>	<b>4891</b>

Number of Degrees Awarded 15 <sup>th</sup> Convocation (8 June 2013)	
BTech/BDes	431
MTech/MDes	305
MSc	95
MA	44
PhD	65
<b>Total</b>	<b>940</b>

Faculty/Staff Strength	
Faculty	342
Scientific Staff	29
Non-Teaching Staff (Group A)	31
Non-Teaching Staff (Group B & C)	290
<b>Total</b>	<b>692</b>

Research Papers	
Journal Papers	784
Conference Papers	464
<b>Total</b>	<b>1248</b>

Consultancy Projects	
New Projects	120
Outlay (Rs. in crore)	1.30

Sponsored Research Projects	
New Projects	93
Outlay (Rs. in crore)	90.14





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## PART III

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## **PART I**

Organisation

IIT Council

Board of Governors

Finance Committee

Building and Works Committee

Senate

Executive Summary



# Organisation

Chairman, Council of IITs

**Dr. M. M. Pallam Raju**

Hon'ble Minister for Human Resource Development, Govt. of India

Chairman, Board of Governors

**Dr. R. P. Singh**

Former Chairman and Managing Director  
Power Grid Corporation of India Limited

Director

**Prof. Gautam Barua** (Up to 05.09.2013)

**Prof. Gautam Biswas** (From 06.09.2013)

Deputy Director

**Prof. S. Nandi**

Dean, Academic Affairs

**Prof. A. Khare**

Dean, Faculty Affairs

**Prof. A. Srinivasan**

Dean, Research and Development

**Prof. D. Chakraborty**

Dean, Students' Affairs

**Prof. B. K. Patel**

Dean, Institute Works

**Prof. A. Dutta**

Dean, Alumni Affairs and External Relations

**Prof. S. K. Bose**

Dean, Outreach Education Programme

**Prof. A. K. Gogoi** (From 10.10.2013)

Associate Dean, Institute Works

**Dr. Rajib Kumar Bhattacharjya**

Associate Dean, Research and Development

**Prof. Chitralkha Mahanta**



Registrar

**Dr. B. N. Raychoudhury**

Head, Department of Biotechnology

**Prof. V. V. Dasu**

Head, Department of Chemical Engineering

**Prof. V. S. Moholkar**

Head, Department of Chemistry

**Prof. A. Chattopadhyay**

Head, Department of Civil Engineering

**Prof. A. K. Sarma**

Head, Department of Computer Science and Engineering

**Prof. S. B. Nair**

Head, Department of Design

**Prof. D. Chakrabarti**

Head, Department of Electronics and Electrical Engineering

**Prof. R. Bhattacharjee**

Head, Department of Humanities and Social Sciences

**Prof. R. M. Punekar**

Head, Department of Mathematics

**Prof. B. K. Sarma**

Head, Department of Mechanical Engineering

**Prof. P. Mahanta**

Head, Department of Physics

**Prof. S. Basu**

Head, Centre for Energy

**Prof. A. K. Ghoshal**

Head, Centre for the Environment

**Prof. G. Das**

Head, Centre for Nanotechnology

**Prof. S. S. Ghosh** (Up to 31.05.2013)

**Prof. R. P. Paily** (From 01.06.2013)

Head, Central Instruments Facility

**Prof. A. K. Saikia** (Up to 31.05.2013)

**Dr. G. Krishnamoorthy** (From 01.06.2013)

Head, Centre for Educational Technology

**Prof. P. Yammiyavar**

Head, Computer Centre

**Prof. D. Goswami**

Librarian

**Dr. T. Guha** (From 24.06.2014)

## IIT Council

Minister in charge of Technical Education in the Central Government (Ex-Officio)	<b>Chairman</b>
Chairman of Board of Governors of all Indian Institutes of Technology (Ex-Officio)	<b>Member</b>
Director of all Indian Institutes of Technology (Ex-Officio)	<b>Member</b>
Chairman, University Grants Commission (Ex-Officio)	<b>Member</b>
Director General, Council of Scientific and Industrial Research (Ex-Officio)	<b>Member</b>
Chairman, Indian Institute of Science, Bangalore (Ex-Officio)	<b>Member</b>
Director, Indian Institute of Science (Ex-Officio)	<b>Member</b>
Three nominees of the Central Government	
To represent the Ministry concerned with Technical Education	<b>Member</b>
To represent the Ministry of Finance	<b>Member</b>
To represent any other Ministry	<b>Member</b>
Nominee of the All India Council for Technical Education (AICTE)	<b>Member</b>
Nominees of the Visitor (minimum 3 and maximum 5)	<b>Member</b>
Three Members of Parliament (two from Lok Sabha and one from Rajya Sabha)	<b>Member</b>
Secretary to the Council	

## Board of Governors

### Chairman

#### **Dr. R. P. Singh**

Former Chairman and Managing Director  
Power Grid Corporation of India Limited  
29, Paschimi Marg, First Floor  
Vasant Vihar, New Delhi 110 057

### Member (Ex-Officio)

**Prof. Gautam Barua** (Up to 05.09.2013)

**Prof. Gautam Biswas** (From 06.09.2013)

Director  
IIT Guwahati

### Member-Nominees of the IIT Council

**Shri Provash Chandra Neogy** (Up to 07.04.2013)

EC-126, Sector-I  
Salt Lake  
Kolkata 700 064

**Shri K. Shankar Narayanan** (Up to 07.04.2013)

H 87, Bag Mugalia Extension  
Bhopal, Madhya Pradesh 462 043

**Shri N. K. Sinha**

Joint Secretary  
Bureau of Distance Learning and Scholarships  
MHRD, Dept. of Higher Education  
Shastri Bhavan, New Delhi 110 115

**Prof. Asis Datta**

Professor of Eminence  
National Institute of Plant Genome Research  
Aruna Asaf Ali Marg, Post Box No. 10531  
New Delhi 110 067

**Prof. M. K. Chaudhuri** (From 01.04.2013)

Vice-Chancellor  
Tezpur University  
Napaam, Tezpur 784 028



**Mr. Pydah Venkatanarayana** (From 03.04.2013)  
Member, Pydah Educational Academy  
3-16B-115, Santhi Nagar, Kakinada - 533 003

**Dr. D. B. Goel**

Former Professor, IIT Roorkee  
268/5, 16 Civil Lines  
Roorkee - 247 667

**Member-Nominee of the Govt. of Assam**

**Shri H. K. Sharma**, IAS  
Commissioner and Secretary to the Govt. of Assam  
Higher Education (Technical) Department  
Dispur, Guwahati 781 006

**Member-Nominee from North Eastern Region**

**Shri P. D. Sawyan** (Up to 06.07.2013)  
Architect/Industrialist  
Hotel Centrepoint  
Police Bazar  
Shillong 793 003

**Mr. Er. Liansanga** (From 01.07.2013)  
Ex Engineer-in-Chief, PWD  
Shivaji Tillah, Khatla  
Aizawl, Mizoram

**Member-Nominees of the Senate**

**Prof. P. S. Robi**  
Professor  
Department of Mechanical Engineering  
IIT Guwahati

**Prof. M. Jawed** (Up to 31.12.2013)  
Professor  
Department of Civil Engineering  
IIT Guwahati

**Prof. A. Chattopadhyay** (From 01.01.2014)  
Professor  
Department of Chemistry  
IIT Guwahati

**Secretary (Ex-Officio)**

**Dr. B. N. Raychoudhury**  
Registrar  
IIT Guwahati

## Finance Committee

**Dr. R. P. Singh**

Former Chairman and Managing Director  
Power Grid Corporation of India Limited  
29, Paschimi Marg, First Floor  
Vasant Vihar, New Delhi 110 057

**Chairman (Ex-Officio)**

**Prof. Gautam Barua** (Up to 05.09.2013)

**Prof. Gautam Biswas** (From 06.09.2013)

Director  
IIT Guwahati

**Member (Ex-Officio)**

**Director (IITs)**

Department of Higher Education  
Ministry of Human Resource Development, Govt. of India  
Shastri Bhavan, New Delhi 110 115

**Member**

**Director (Finance)**

Integrated Finance Division  
Department of Higher Education  
Ministry of Human Resource Development, Govt. of India  
Shastri Bhavan, New Delhi 110 115

**Member**

**Shri Nilmoni Bhakta**

A 801, BPCL CHS Ltd. Plot No. 3  
Sector 46 A, Nerul  
Navi Mumbai 400 706

**Member**

**Prof. S. Dandapat**

Professor  
Department of Electronics and Electrical Engineering  
IIT Guwahati

**Member**

**Dr. B. N. Raychoudhury**

Registrar  
IIT Guwahati

**Secretary**

## Building and Works Committee

**Prof. Gautam Barua** (Up to 05.09.2013)

**Prof. Gautam Biswas** (From 06.09.2013)

Director  
IIT Guwahati

**Chairman**

**Dr. Hem Chandra Bora**

Former Deputy General Manager, Oil India Ltd.  
Debdaru Path, Dispur, Guwahati 781 006

**Member**

**Shri Debi Charan Bora**

Former Commissioner and Secretary, PWD, Govt. of Assam  
Monalisa Path, Hatigarh Chariali  
Zoo Narangi Road, Guwahati 781 024

**Member**

**Prof. S. Nandi**

Deputy Director and  
Professor Department of Computer Science and Engineering  
IIT Guwahati

**Member**

**Prof. A. Dutta**

Dean, Institute Works and  
Professor, Department of Civil Engineering  
IIT Guwahati

**Member**

**Chief Engineer (Buildings)**

PWD, Govt. of Assam  
Chandmari, Guwahati 781 003

**Member**

**Superintending Engineer**

Assam Central Circle-II  
CPWD Complex, Garchuk, NH Bye Pass 37  
Opposite DY 365 Office, Guwahati 781 035

**Member**

**Dr. B. N. Raychoudhury**

Registrar  
IIT Guwahati

**Member Secretary**



# Senate

## Chairman

**Prof. Gautam Barua** (Up to 05.09.2013)

**Prof. Gautam Biswas** (From 06.09.2013)

Director  
IIT Guwahati

## Member Secretary

**Dr. B. N. Raychoudhury**, Registrar

## Members

**Prof. Sukumar Nandi**, Deputy Director and Professor, Department of Computer Science and Engineering

**Prof. Alike Khare**, Dean of Academic Affairs and Professor, Department of Physics

**Prof. A. Srinivasan**, Dean of Faculty Affairs, and Professor, Department of Physics

**Prof. Debabrata Chakrabarty**, Dean of Research and Development and Professor, Department of Mechanical Engineering

**Prof. B.K. Patel**, Dean of Students' Affairs and Professor, Department of Chemistry

**Prof. Anjan Dutta**, Dean of Institute Works and Professor, Department of Civil Engineering

**Prof. Sanjay Kr. Bose**, Dean of Alumni Affairs and External Relations and Professor, Department of Electronics and Electrical Engineering

**Prof. Anup K. Gogoi**, Dean of Outreach Education Programme and Professor, Department of Electronics and Electrical Engineering

**Prof. V.V. Dasu**, Professor and Head, Department of Biotechnology

**Prof. V. S. Moholkar**, Professor and Head, Department of Chemical Engineering

**Prof. Arun Chattopadhyay**, Professor and Head, Department of Chemistry

**Prof. Arup K. Sarma**, Professor and Head, Civil Engineering

**Prof. S. B. Nair**, Professor and Head, Department of Computer Science and Engineering

**Prof. Debkumar Chakrabarti**, Professor and Head, Department of Design

**Prof. R. Bhattacharjee**, Professor and Head, Department of Electronics and Electrical Engineering

**Prof. Rohini Mokashi Punekar**, Professor and Head, Department of Humanities and Social Sciences

**Prof. Bhaba K. Sarma**, Professor and Head, Department of Mathematics

**Prof. Pinakeswar Mahanta**, Professor and Head, Department of Mechanical Engineering

**Prof. Saurabh Basu**, Professor and Head, Department of Physics

**Prof. Alope K. Ghoshal**, Head, Centre for Energy and Professor, Department of Chemical Engineering

**Prof. Gopal Das**, Head, Centre for the Environment and Professor, Department of Chemistry

**Prof. R. Roy Paily**, Head, Centre for Nanotechnology and Professor, Department of Electronics and Electrical Engineering

**Prof. S. S. Ghosh**, Professor, Department of Biotechnology

**Prof. Arun Goyal**, Professor, Department of Biotechnology

**Prof. Latha Rangan**, Professor, Department of Biotechnology

**Prof. Lingaraj Sahoo**, Professor, Department of Biotechnology

**Prof. Pranab Goswami**, Professor, Department of Biotechnology

**Prof. R. Swaminathan**, Professor, Department of Biotechnology

**Prof. Rakhi Chatruvedi**, Professor, Department of Biotechnology

**Prof. Vikas Kumar Dubey**, Professor, Department of Biotechnology

**Prof. Arbind K. Singh**, Professor, Department of Civil Engineering

**Prof. Baleshwar Singh**, Professor, Department of Civil Engineering

**Prof. Chandan Mahanta**, Professor, Department of Civil Engineering

**Prof. M. Jawed**, Professor, Department of Civil Engineering

**Dr. Rajib Bhattacharjya**, Associate Dean, Institute Works and Associate Professor, Department of Civil Engineering

**Prof. Sajal K. Deb**, Professor, Department of Civil Engineering

**Prof. Saswati Chakraborty**, Professor, Department of Civil Engineering

**Prof. Subashisa Dutta**, Professor, Department of Civil Engineering

**Prof. Sudip Talukdar**, Professor, Department of Civil Engineering

**Prof. Anugrah Singh**, Professor, Department of Chemical Engineering

**Prof. Bishnupada Mandal**, Professor, Department of Chemical Engineering

**Prof. Pallab Ghosh**, Professor, Department of Chemical Engineering

**Prof. Prabirkumar Saha**, Professor, Department of Chemical Engineering

**Prof. Rama Gopal V. S. Uppaluri**, Professor, Department of Chemical Engineering

**Prof. T. Punniyamurthy**, Professor, Department of Chemistry

**Prof. Abu T. Khan**, Professor, Department of Chemistry

**Prof. Anil K. Saikia**, Professor, Department of Chemistry

**Prof. Jubaraj B. Baruah**, Professor, Department of Chemistry

**Prof. Manabendra Ray**, Professor, Department of Chemistry

**Prof. P. K. Iyer**, Professor, Department of Chemistry

**Prof. V. Manivannan**, Professor, Department of Chemistry

**Prof. G. Sajith**, Professor, Department of Computer Science and Engineering

**Prof. Purandar Bhaduri**, Professor, Department of Computer Science and Engineering

**Prof. S. V. Rao**, Professor, Department of Computer Science and Engineering

**Prof. Diganta Goswami**, Professor, Department of Computer Science and Engineering

**Prof. Gautam Barua**, Professor, Department of Computer Science and Engineering

**Prof. Amarendra K. Das**, Professor, Department of Design

**Prof. Pradeep G. Yammiyavar**, Professor, Department of Design

**Prof. Ravi Mokashi Punekar**, Professor, Department of Design

- Prof. H. B. Nemade**, Professor, Department of Electronics and Electrical Engineering
- Prof. Chitralekha Mahanta**, Associate Dean, Research and Development and Professor, Department of Electronics and Electrical Engineering
- Prof. Prabin K. Bora**, Professor, Department of Electronics and Electrical Engineering
- Prof. S. R. M. Prasanna**, Professor, Department of Electronics and Electrical Engineering
- Prof. Samarandra Dandapat**, Professor, Department of Electronics and Electrical Engineering
- Prof. Somanath Majhi**, Professor, Department of Electronics and Electrical Engineering
- Prof. Archana Barua**, Professor, Department of Humanities and Social Sciences
- Prof. Krishna Barua**, Professor, Department of Humanities and Social Sciences
- Prof. Saundarjya Borbora**, Professor, Department of Humanities and Social Sciences
- Prof. Durga Charan Dalal**, Professor, Department of Mathematics
- Prof. Jiten Ch. Kalita**, Professor, Department of Mathematics
- Prof. M. G. P. Prasad**, Professor, Department of Mathematics
- Prof. Rafikul Alam**, Professor, Department of Mathematics
- Prof. Rajen K. Sinha**, Professor, Department of Mathematics
- Prof. S. N. Bora**, Professor, Department of Mathematics
- Prof. S. Natesan**, Professor, Department of Mathematics
- Prof. Anoop K. Dass**, Professor, Department of Mechanical Engineering
- Prof. Manmohan Pandey**, Professor, Department of Mechanical Engineering
- Prof. P. S. Robi**, Professor, Department of Mechanical Engineering
- Prof. Rajiv Tiwari**, Professor, Department of Mechanical Engineering
- Prof. S. C. Mishra**, Professor, Department of Mechanical Engineering
- Prof. S. K. Dwivedy**, Professor, Department of Mechanical Engineering
- Prof. S. K. Kakoty**, Professor, Department of Mechanical Engineering
- Prof. Uday S. Dixit**, Professor, Department of Mechanical Engineering
- Prof. Ujjwal K. Saha**, Professor, Department of Mechanical Engineering
- Prof. P. K. Giri**, Professor, Department of Physics
- Prof. Pratima Agarwal**, Professor, Department of Physics
- Prof. S. B. Santra**, Professor, Department of Physics
- Prof. S. Ravi**, Professor, Department of Physics
- Dr. K. V. Krishna**, Chairman HAB and Associate Professor, Department of Mathematics
- Dr. Tamal Kumar Guha**, Librarian, Central Library

**Members (External)**

- Prof. Kulendu Pathak**, Former Vice-Chancellor of Dibrugarh University
- Dr. Pranab Bharali**, Former Director (Operations), Oil India Limited
- Prof. A. C. Bhagabati**, Former Vice-Chancellor of Arunachal University

**Invitees**

All Associate Professors of the Institute

# Executive Summary



## INTRODUCTION

IIT Guwahati has entered the elite list of top 100 young universities of the world under 50 years. IIT Guwahati is the only Indian entry. With this India has joined the top 100 under 50 for the first time. The Times Higher Education 100 Under 50 2014 ranks IIT Guwahati at 87th. The ranking provides 'a glimpse into the future, showcasing not those institutions with centuries of history, but the rising stars which show great potential.' We are proud of this achievement and would like to congratulate all the members of the Institute for this remarkable milestone.

The year 2013 has seen its fifteenth batch of students taking their degrees in the month of June. The Institute takes pride in the achievements of

its students and gladly announces that almost all the passed out students have been well placed in various government organisations and multi-national companies in India and abroad. All the achievements in academic and research areas have been successful only because of the relentless efforts of dedicated faculty members and the commendable cooperation of all other non-teaching employees of the Institute.

Here is a brief report on the activities and achievements of the Institute during the year 2013-2014.

## THE BOARD OF GOVERNORS

Prof. Gautam Barua's term as the Director of the Institute has come to an end on 5 September 2013. Under his able leadership of ten years the Institute has grown in all the areas and reached new heights. On behalf of the Board, I offer our heartfelt gratitude and wish him all the best for his new role as the Mentor Director of IIT Guwahati.

Mr. Liansanga, former Engineer-in-Chief, PWD, Mizoram, joined the Board as the nominee of the North Eastern Region on 1 July 2013. Prof. Arun Chattopadhyay, Professor, Chemistry, IIT Guwahati, joined the Board in January 2014 as a nominee of the Senate.

On behalf of the Board, I welcome them all to the Board and thank the outgoing Board members, Prof. Gautam Barua, Shri P. D. Sawyan and Prof. M. Jawed, for their contributions during their tenure.

To put on record, I took charge as the Director of this Institute on 6 September 2013.

## ACADEMIC ACTIVITIES

The Institute has 11 academic departments, 3 inter-disciplinary academic centres and 3 service centres. No additions were made this year. These are:

### Departments

Biotechnology (BT), Chemical Engineering (CL), Chemistry (CH), Civil Engineering (CE), Computer Science and Engineering (CSE), Design (DE), Electronics and Electrical Engineering (EEE), Humanities and Social Sciences (HSS), Mathematics (MA), Mechanical Engineering (ME), and Physics (PH)

### Academic Centres

Centre for Energy, Centre for the Environment, Centre for Nanotechnology

### Service Centres

Computer and Communication Centre, Central Instruments Facility, Centre for Educational Technology

The Institute offers academic programmes covering a wide range of science, engineering, and humanities disciplines as given below:

**Bachelor of Technology (BTech)** programmes in Biotechnology (BT), Chemical Engineering (CL), Chemical Science and Technology (CT), Civil Engineering (CE), Computer Science and Engineering (CS), Electronics and Communication Engineering (EC), Electronics and Electrical Engineering (EE), Engineering Physics (EP), Mathematics and Computing (MC), and Mechanical Engineering (ME),

**Bachelor of Design (BDes)** programme in the Department of Design,

**Master of Technology (MTech)** programmes in BT, CL, CE, CS, EE and ME,

**Master of Design (MDes)** programme in DE,

**Master of Science (MSc)** programmes in Chemistry (CH), Mathematics and Computing (MC), and Physics (PH),

**Master of Arts (MA)** programme in Development Studies (DS) in the Department of Humanities and Social Sciences (HS),

**Doctor of Philosophy (PhD)** programmes in all departments and in the Centres for Energy (EN), the Environment (EV), and Nanotechnology (NT),

**A Dual (MTech+PhD) programme** in the Department of Computer Science and Engineering started in July 2011.

The total number of enrolled students in 2013-2014 is 4891. Of these, 48.70% are post-graduate students. The detailed break up is:

Course	2012-2013	2013-2014
Preparatory	7	4
BTech and BDes	2320	2505
MTech and MDes	759	771
MSc	229	243
MA	72	48
Dual Degree (MTech+PhD)	6	10



Dr. M. M. Pallam Raju (C), Hon'ble Union Minister of Human Resource Development, Govt. of India; Dr. R. P. Singh (L), Chairman, BoG and Prof. Gautam Barua, Director, IIT Guwahati along with the gold and silver medal winners at the 15th Convocation





Dr. R. P. Singh while addressing the gathering

Course	2012-2013	2013-2014
PhD	1113	1310
<b>Total</b>	<b>4506</b>	<b>4891</b>

### Fifteenth Convocation

In the Fifteenth Convocation held on 8 June 2013, a total number of 940 students received their BTech, BDes, MA, MSc, MTech, MDes and PhD degrees as given below:

Programme	Nos.
<b>BTech/BDes</b>	
Biotechnology	32
Chemical Engineering	44
Chemical Science and Technology	27
Civil Engineering	46
Computer Science and Engineering	59
Design	23
Electronics and Communication Engineering	57
Electronics and Electrical Engineering	24
Engineering Physics	26
Mathematics and Computing	31
Mechanical Engineering	62
<b>Total</b>	<b>431</b>
<b>MSc</b>	
Chemistry	31
Mathematics and Computing	32
Physics	32
<b>Total</b>	<b>95</b>



Dr. M. M. Pallam Raju, conferring the President of India Gold Medal to Shri Mandar Narsinh Kulkarni, BTech, Electronics and Communication Engineering



Programme	Nos.
<b>MA</b>	
Development Studies	44
<b>Total</b>	<b>44</b>
<b>MTech/MDes</b>	
Biotechnology	30
Chemical Engineering	38
Civil Engineering	59
Computer Science and Engineering	57
Design	20
Electronics and Electrical Engineering	46
Mechanical Engineering	55
<b>Total</b>	<b>305</b>
<b>PhD</b>	
Biotechnology	4
Chemistry	18
Chemical Engineering	2
Civil Engineering	5
Computer Science and Engineering	1
Design	2
Electronics and Electrical Engineering	8
Humanities and Social Sciences	3
Mechanical Engineering	3
Mathematics	3
Physics	8
Centre for Energy	4
Centre for the Environment	3
Centre for Nanotechnology	1
<b>Total</b>	<b>65</b>
<b>Grand Total</b>	<b>940</b>

## ACADEMIC INFRASTRUCTURE DEVELOPMENT

A number of new equipment have been added to the laboratories of the Departments and Centres. Some of the major equipment and facilities acquired by the Institute during the last year are –

- o High Temperature Gel Permeation Chromatography – ₹ 68 lakh (CIF)
- o Micro Particle Image Velocimetry – ₹ 65 lakh (CIF)
- o Lab-Scale In-situ Sterilisation Bio-Reaction

Calorimeter – ₹ 58 lakh (Dept. Biotechnology)

- o Isothermal Titration Calorimeter – ₹ 51 lakh (CIF)
- o Super Critical Fluid Extraction with Particle Formation System – ₹ 48 lakh (Dept. Chemical Engineering)
- o Bench Top CNC Milling Machine – ₹ 46 lakh (Workshop)
- o Nano-liter Dispenser – ₹ 42 lakh (Dept. Biotechnology)
- o Nanocomposite Melt Extrusion and Film Processing Line – ₹ 42 lakh (Dept. Chemical Engineering)

The Central Library is the central hub for academics and research with an excellent print collection of about 1.64 lakh books, back volumes and theses. As most of the research activities are heavily dependent on journal publications, the Institute emphasises on regular subscription to current journals. Further, for better accessibility of the contents, efforts have been made to increase the online journals over the printed journals. Presently we are subscribing to 525 titles across all academic areas of which 306 are online journals. In addition, the Institute is having access to 12350 online journals through 'INDEST-AICTE Consortium' and 'DeLCON: DBT – Electronic Library Consortium'. Apart from the above, Central Library has also procured some of the world's most renowned abstract database like SciFinder, MathSciNet, Scopus, Web of Science, INSPEC, etc. during the reporting period. For the benefit of the students, teachers, researchers and general public alike the library remains open from 8 in the morning till 12 midnight round the year.

To improve the infrastructure for better management and control of data processing and IT equipment and in order to meet its high uptime demands, work for construction of a data centre in the Computer and Communication Centre has already been taken up. The work is expected to be completed within the current financial year.

## RESEARCH AND DEVELOPMENT

The number of PhD students on campus is increasing every year. This year has seen a big jump in numbers, growing from 1113 students last year to 1310 this year. The current faculty to PhD students' ratio stands at a satisfactory 3.83. The number of graduating PhD students has considerably increased to 106 from 65 in the previous year.

The other component of our research programme is sponsored (or directed) research. There are 250

research personnel engaged in various research projects at the Institute.

We offer a 'Start-up Research Grant' to newly-joined faculty members of the Institute to start their research activities. During this year, 13 projects worth ₹ 64.75 lakh have been sanctioned under this scheme. A total of 129 projects were sanctioned till date.

During the year 2013-2014 over 350 research and development projects were in progress, having a total sanctioned value of ₹ 198 crores. In the year 2013-2014, IIT Guwahati received new projects of about ₹ 90.14 crores. This is in comparison to ₹ 42.6 crores last year, while the total funds received were ₹ 33.67

crores as compared to ₹ 37.4 crores. The R&D projects were mainly sponsored by Government Ministries and Departments with major support coming from Ministries of Environment (MoE), Human Resource Development (MHRD), Steel, Departments of Science and Technology (DST), Biotechnology (DBT), Atomic Energy (DAE), Electronics and Information Technology (DeitY), Council of Scientific and Industrial Research (CSIR) and Defence Research Labs (DRL). The following table provides a comparison of this year's R&D project profile with that of last year. Even though the numbers of new sponsored research projects have decreased by a few numbers from the previous year, the total sanctioned value of the projects has increased substantially from ₹ 42.60 crores to ₹ 90.14 crores.

Comparison of R&D project profiles of the year 2013-2014 and 2012-2013:

Particulars	2012-2013	2013-2014
New sponsored projects received	103	93
New consultancies received	133	120
Total sanctioned value of the new sponsored projects (in crores of ₹)	42.60	90.14
Total sanctioned value of the new consultancy projects and others (in crores of ₹)	2.30	1.30
Total amount received for all projects (new and ongoing) (in crores of ₹)	37.36	33.67
Total amount received for all consultancy projects and others (new and ongoing) (in crores of ₹)	3.08	3.99

**Table-1**

Major research projects received during the year 2013-2014:

Project Title	Funding Agency	Dept. / Centre	Amount Sanctioned (₹ in lakhs)
Development of a cost effective process for biodiesel production through direct trans esterification of wet algal biomass from high density heterotrophic cultivation	DST	Energy	50.00
Stem cell based Bioengineering of annulus fibrosus in an intervertebral disc model using North East silk biomaterials	SERB	Biotechnology	54.50
Dual mechanical port motor based electric vehicle power train	SERB	Electronics and Electrical Engineering	54.99
Molecular mechanism of ribosome assembly in bacteria	DBT	Biotechnology	58.80
Study on lowering of mixing and compaction temperatures of bituminous mixes through warm mix asphalt addition	SERB	Civil Engineering	59.00
Structural and functional characterisation of adaptation stage of CRISPR-Cas system in mycobacterium tuberculosis	DBT	Biotechnology	59.18
In vitro production of doubled-haploids in tea	DBT	Biotechnology	64.58
Silk2Heal - combining Indian silk and functionalised recombinant spider silk	DBT	Biotechnology	74.70

Genotyping single nucleoside polymorphisms (SNPs) with fluorescently modified nucleoside/oligonucleotide probes	DBT	Chemistry	82.12
Rural hybrid energy - enterprise system	DST	Energy	82.68
Exploration and characterisation of seri-bio resources of North East India for potential textile and non-textile applications	DBT	Environment	154.25
Centre of excellence on sustainable polymers	Dept. of Chemical and Petrochemicals	Chemical Engineering	600.00
Centre for excellence in research and development of nanoelectronics theranostic devices	DeitY	Nanotechnology	5775.00

**Table-2**

DBT – Department of Biotechnology, Govt. of India

DST – Department of Science and Technology, Govt. of India

DeitY – Department Electronics and Information Technology, Govt. of India

SERB – Science and Engineering Research Board, Govt. of India

In addition to sponsored Research Projects, IIT Guwahati undertakes consultancy assignments for various State Government Departments, Railways, National Highways Authority of India, Oil and Gas Sector, Construction and Infrastructure Companies, Power Sector, Educational Institutes, Health and Pharmaceutical Industries and Financial Institutions. Consultancy projects are contributing to the industrial, economic and social growth of the country with special emphasis on this region.

A total of 120 consultancy projects were carried out during the year. The total value of consultancy projects undertaken during this year is ₹ 1.30 crores, and ₹ 3.99 crores was received for all consultancies.

The IIT Guwahati Technology Incubation Centre (IITG-TIC) was established to facilitate co-operation and interaction between the Institute and entrepreneurs in various sectors of science and engineering and promote innovation. Six incubatees are currently working in IT, Electronics, bio-engineering and innovative design related projects.

### FACULTY AND STAFF

The faculty strength at the end of March 2014 was 342. This is an increase of 17 from 325 at the end of last year.

The number of non-teaching staff at the end of the financial year 2013-2014 was 350 which is 7 less from the previous year.

### PUBLICATIONS

The faculty members of the Institute have been actively publishing research papers in international and national journals as well as in conference proceedings. The number of publications during the past one year is:

Papers in Journals: 784

Papers in Conference Proceedings: 464

In the previous year 592 papers in journals and 548 papers in conference proceedings were published by the faculty of the Institute.

### CONFERENCES/WORKSHOPS/SCHOOLS/COURSES

Various conferences, seminars, workshops and schools were organised by the Departments and Centres of the Institute during the year. A few of them are –

- National Conference on Manufacturing: Vision for Future (MVF2013), October 2013
- Continuities and Discontinuities of Asian Engagement: Borders, Mobility and Identity in Northeast India and Asia, October 2013
- Workshop on Xilinx FPGA Architecture and Design flow, November 2013
- International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013), December 2013



*Prof. Gautam Biswas lighting the inaugural lamp of the National Conference on Manufacturing: Vision for Future*

- 12th Indo-European Winter Academy, December 2013
- International Conference on Magnetic Materials and Applications (MagMA-2013), December 2013
- IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2013), December 2013
- Workshop on Image and Speech Processing (WISP 2013), December 2013

- National School on Sustainable Polymers and First Symposium on Advances in Sustainable Polymers (ASP-14), January 2014
- Asia Sweden Meeting on Understanding Functional Materials From Lattice Dynamics (ASMFLD 2014), January 2014
- Belle Analysis Workshop 2014 (BAW 2014), February - March 2014
- National Seminar cum Workshop on Translation and Assamese Literature, March 2014

#### MEMORANDA OF UNDERSTANDING AND INTERNATIONAL RELATIONS

The Institute currently has forty four active Memoranda of Understanding (MoUs) with various educational and research institutes across the world. The MoUs are mainly on academic and research collaborations. Eleven international and national MoUs were signed during the year under report. Some of these institutes are Macquarie University (Australia), Technological Units of Santander Bucaramanga (Columbia), Tallinn University of Technology (Estonia), Polytech Group (France), HOF University of Applied Sciences (Germany) and University of Porto (Portugal). The Institute has renewed 3 international MoUs with ENST, Bretagne (France), Ecole Centrale de Nantes (France) and Ecole Polytechnique Montreal (UK).

Currently there are 34 foreign students enrolled for various fulltime programmes at IIT Guwahati. Eight out of them will receive degrees in this Convocation.

Five students and one faculty member of the Institute obtained fellowships under Erasmus Mundus (Interweave) Programme. Two staff members of the Institute have also obtained fellowships under Erasmus



*The inaugural programme of the 12th Indo-European Winter Academy*





*Participants and organisers of the Workshop on Image and Speech Processing*

Mundus Interweave and Euphrates Programme, respectively. Besides, three foreign students from Spain and Portugal will also visit IIT Guwahati for full time MTech and part of the PhD programme under the above programme which aims at enhancing quality in higher education through scholarships and academic co-operation between Europe and the rest of the world.

Four foreign students also visited IIT Guwahati from international universities/institutions of repute having academic MOUs with IIT Guwahati under student exchange programme. Besides, three students of the Institute have been selected for DAAD Masters Sandwich Scholarship 2014 and eleven students have been selected for the JENESYS 2.0 short-term programme in Japan. Seven faculty members from RWTH Germany, Trinity College, Cambridge and Karlsruhe Institute of Technology, Germany also visited IIT Guwahati under DAAD and other programmes.



*Dr. Vikash Kumar Dubey receiving B. M. Birla Science Prize in Biology from Nobel Laureate Prof. Venkatraman Ramakrishnan*

## FACULTY ACHIEVEMENTS

A number of faculty received awards during their year. Some of the major awards were:

Dr. Ranjan Tamuli, Associate Professor, Biotechnology, awarded Indo-US Research Fellowship 2013 by the Indo-US Science and Technology Forum (IUSSTF) for research at the University of California Riverside, USA.

Dr. Vikash Kumar Dubey, Associate Professor, Biotechnology, received B. M. Birla Science Prize in Biology for Year 2012 given in December 2013.

Dr. Biman B. Mandal, Assistant Professor, Biotechnology, received the National Academy of Sciences, India - Young Scientist Platinum Jubilee Award 2013.

Prof. Arun Goyal, Biotechnology, received J. V. Bhat Award (2013) from Association of Microbiologists of India for Best Paper published in Indian Journal of Microbiology (Springer) in 2012.

Dr. D. Bandyopadhyay, Assistant Professor, Chemical Engineering, Visiting Faculty, Yeungnam University South Korea, June 2013.

Prof. A. Chattopadhyay, Chemistry, Fellow of Royal Society of Chemistry (2014).

Prof. Arun Chattopadhyay, Chemistry, Member, Task Force on Nanobiotechnology, Department of Biotechnology, Govt. of India.

Prof. Parameswar K. Iyer, Chemistry, awarded "Head of Max Planck India Partner Group" in India by Max Planck Society, Germany and DST, India (2012-2017).

Mr. Avinash Shende, Assistant Professor, Design, received Good Design Award (USA) for 2012-2013 for designing wired CU! chair.

Mr. Keyur Sorathia, Assistant Professor, Design, was among the 'Top 30 Innovation' of the India Innovation Growth Programme – a joint initiative of DST, 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.

Dr. M.K. Bhuyan, Assistant Professor, Electronics and Electrical Engineering, received Fulbright Academic and Professional Excellence Fellowship (Fulbright Senior Research Fellowship 2013-14) to carry out a combination of teaching and research at School of Engineering and Technology, University of Purdue, Indiana, USA.

Dr. Amaresh Dalal, Assistant Professor, Mechanical Engineering, Visiting Faculty in the Department of Mechanical Engineering at Texas A&M University, USA, June - July 2013.

Dr. Deepak Sharma, Assistant Professor, Mechanical Engineering, received DAAD's "Research Stays fellowship" to carry out research at Karlsruhe Institute of Technology, Germany, May - July 2013.

Dr. Pankaj Biswas, Assistant Professor, Mechanical Engineering, received IEI Young Engineers Award 2013-2014.

Dr. Amarendra Kumar Sarma, Associate Professor, Physics, is awarded Dr. Biraj Mohan Das Memorial Science Award in 2014 for his work on 'Theory and application of Solitons and non-linear optics'.

The Institute congratulates them all.

## CONSTRUCTION AND CAMPUS DEVELOPMENT

The construction activities of the Institute are increasing considerably in conformity with the increase in student intake.

### Hostels for Boys and Girls

Construction activities of the tenth boys' hostel are progressing well. The hostel shall have 184 rooms with attached toilet for research/foreign students and 772 normal single seated rooms. Out of 772 normal single rooms, 400 rooms are going to be ready for occupation by the beginning of the new academic session. On completion of the tenth boys' hostel the total capacity

of boys' hostel will be 5156.

Extension work of the only girls' hostel with additional 156 rooms is completed and will be in use from this academic session. Due to the positive trend of large number of girl students getting admitted in the Institute, construction of another girls' hostel of 500 capacity was started in October 2012. 336 rooms with kitchen, dining hall and other common facilities will be ready for the new academic session. On completion, the total capacity of girls' hostels will be around 1200.

The Institute has 108 flatlets designed for married scholars. We have taken up construction works of additional 96 flatlets taking in view of the present requirement. These units will be ready for academic session 2015.

### Extension of Academic Complex

The Academic Complex which houses all departments and centres of the Institute had an initial floor area of about 74,000 m<sup>2</sup>. Due to the continuous expansion of academic activities of the Institute, the Academic Complex of the Institute is also under continuous expansion. Following areas are added to different departments in phased manner. Phase-I and Phase-II works were completed in last financial year while the Phase-III works has been completed this year.

#### Phase-I:

Dept. of Physics: 1730 m<sup>2</sup> (Ground and 1st floor)

Dept. of Chemistry: 1000 m<sup>2</sup> (Ground floor)

Dept. of Electronics and Electrical Engineering: 1730 m<sup>2</sup> (Ground and 1st floor)

#### Phase-II:

Dept. of Design: 1730 m<sup>2</sup> (Ground and 1st floor)



A view of the extended portion of the girls' hostel





The newly constructed Students' Activity Centre

Dept. of Chemical Engineering: 1730 m<sup>2</sup> (Ground and 1st floor)

Central Instruments Facility: 2500 m<sup>2</sup> (Ground and 1st floor)

**Phase-III:**

Academic Complex expansion (Phase-III) started in December 2010. Under this phase, expansions in the following departments were taken up:

Dept. of Chemistry: 1000 m<sup>2</sup> (1st floor)

Dept. of Mathematics: 1730 m<sup>2</sup> (Ground and 1st floor)

Dept. of Humanities and Social Sciences: 880 m<sup>2</sup> (Ground floor)

Dept. of Civil Engineering : 2275 m<sup>2</sup> (Ground and 3rd floor)

Dept. of Computer Science and Engineering: 1680 m<sup>2</sup> (Ground and 1st floor)

**Phase-IV:**

The expansion work in this phase is in progress as given under:

Dept. of Chemistry: 1994 m<sup>2</sup>

Dept. of Electronics and Electrical Engineering: 2044 m<sup>2</sup>

Dept. of Mechanical Engineering: 3200 m<sup>2</sup>

The expansion in the Department of Chemistry



The newly constructed main gate of IIT Guwahati

and Electronics and Electrical Engineering will be completed before the new academic session. The work of the Department of Mechanical Engineering will be completed within September 2014.

#### **Phase-V:**

Buildings, which were partially completed during Phase-I, II and III are proposed to be taken up in this phase as given below:

Dept. of Design: 1730 m<sup>2</sup> (2nd and 3rd floors)

Dept. of Computer Science and Engineering: 1730 m<sup>2</sup> (2nd and 3rd floors)

Dept. of Physics: 1730 m<sup>2</sup> (2nd and 3rd floors)

Dept. of Chemical Engineering: 1730 m<sup>2</sup> (2nd and 3rd floors)

Central Instruments Facility: 2500 m<sup>2</sup> (2nd and 3rd floors)

Dept. of Humanities and Social Sciences: 2595 m<sup>2</sup> (2nd and 3rd floors)

Dept. of Mathematics: 1730 m<sup>2</sup> (2nd and 3rd floors)

Centre for Educational Technology and clean room are also under planning in this phase.

#### **Class Room Complex:**

At present the number of class rooms in the Institute is 51, out of which 32 class rooms are of 50-90 capacity, 15 class rooms of 100-160 capacity and a separate lecture hall complex has 4 halls of 300 capacities each. With the increase in student intake, the Institute is facing a shortage of class rooms. Based on the projected student intake for the next five years and available class rooms, an assessment of required class rooms were made and it was decided to construct a class room complex having 6 lecture halls of 200 capacity and 18 class rooms of 120 capacities with provision of future vertical expansion. The proposed floor area to be constructed in the first phase is 9,875 m<sup>2</sup>. The structural work of the complex is going on and it is expected that the work will be completed within March 2015.

#### **Research Building Complex**

Presently, academic activities including research work of various departments are being done in the respective departments and centres. The laboratories in the Academic Complex are used both for sponsored research projects as well as for projects of student perusing undergraduate, postgraduate and PhD programmes. As such there arises shortage of laboratory space in Academic Complex as and when new project grants are obtained. Therefore, it has been

decided to construct a multi-storied research building for housing the research facilities and catering to the requirements of time bound funded research projects of various departments. The building is designed as 10 storeyed framed structures having 1850 m<sup>2</sup> per floor. Presently, the construction including HVAC and electrical works will be taken up upto 4th floor and only civil works excluding partitions and false ceiling from 5th to 10th floor have been planned. The work was allotted in March 2013 and foundation work is completed and the structural work has been started. The scheduled date of completion is March 2016.

#### **Kendriya Vidyalaya**

The expansion work of the school building, residential quarters for principal, teachers, staff and an open auditorium of IIT Guwahati Kendriya Vidyalaya has been completed and handed over to the Kendriya Vidyalaya authority.

#### **Residential Quarters**

The work of 35 units of F-type residential quarters in 7 blocks is completed and handed over for occupation. With these the total units of F-type stand at 79. In order to meet the demand of residential buildings for faculty, the Institute is planning to take up about 100 units (G+9) of F-type multi-storeyed buildings. Empanelment of architect for these buildings is finalised.

The construction of 30 units of E-type in 5 blocks is almost completed. Out of these 5 blocks, 2 blocks were already handed over in June 2013 and the balance 3 blocks (18 units) will be completed very soon. On completion of these quarters, the total units of E-type will be 114.

Construction of 28 units of B-type (Phase-III) residential quarters were completed in October 2013. On completion of these quarters, the total units of B-type quarter is 175.

For conducting activities of welfare, cultural and technical boards, construction of another Student Activity Centre building, a covered stage at the cricket ground which can also be used for cultural activities as well as a pavilion during cricket matches and two canteens were awarded in November 2010. All these works have been completed and are in use.

The construction of a separate sports complex with badminton hall having five courts with wooden base and a weight lifting hall was completed in November 2013 and inter IIT sports meet was held successfully in the complex.

### Guest House 2

The existing guest house is having 72 rooms, out of which 12 rooms are for VIP suites. Considering the present and future expansion of the Institute it was decided to construct another guest house. The new guest house will have 153 general rooms and 8 VIP suites. The work, awarded in March 2013, is under progress. In the first phase, 80 general rooms and 8 VIP suites are expected to be completed by December 2014.

### Community Hall Near D-Type Quarters

For social get-together and different cultural activities of the Institute community, two community halls were constructed till date. Among the two community halls, one is for Institute faculty and staff and the other is for students. As the members of campus residents are increasing day by day, it was decided to construct one more community hall and accordingly work was started in 2013. The community hall is expected to be completed by the end of July 2014.

### Boundary Wall (Phase-IV)

The construction work of the boundary wall of the entire campus was originally assigned to CPWD. The CPWD completed about 6 km length on eastern, northern and partially on southern and western side out of the total of about 9 km of boundary wall in the campus. Subsequently, the remaining length of the boundary wall was allotted to the BRTF in 1999. However, due to land dispute in the southern and western side, the BRTF could complete only about 800 m. The remaining portion of the wall measuring about 2.5 km was taken up by the Institute after discussion with families residing near the boundary wall on the southern side of the campus. As these walls were constructed by different agencies and at different times, the designs of the walls are different and the height of the wall has gone down due to developmental activities on both sides of the wall. The height of the existing boundary walls is not enough to stop trespassers. Moreover in many locations, the walls

have tilted and are showing distress. In few locations on the hills, the walls are totally broken, thus posing serious threat to campus security.

A new design of boundary wall has been evolved by the Institute by engaging an architect consultant and a portion of 250 m length was done as per new design near the entrance gate on the northern side. Subsequently, another 135 m was extended beyond the already constructed 250 m.

It was proposed to construct boundary wall as per the approved design from the Faculty School gate to the main entrance gate. The total length proposed to be taken up is 4.7 km, out of which 1.3 km is on the hills and the balance 3.4 km is on low lying areas. The work was allotted in December 2013. The foundation work of the boundary wall in few stretches is going on.

### Augmentation of Electrical and AC Infrastructure

With the expansion and growth of the Institute, electrical demand has grown substantially. In order to cater to the increased demand, augmentation works of electrical substation in the academic area along with standby power supply through installation of new DG sets have already been completed in the last financial year. In the current financial year, augmentation of the main 33KV substation by installation of one 7.5 MVA new transformer has been taken up. Simultaneously, augmentation work of the 11KV substations in the hostel areas are also taken up. To reduce the growth of electrical demand to an optional level, energy conservation and energy efficiency measures are also being emphasised. As a part of such initiatives, solar water heaters will be installed in the 10th boys' hostel which is under construction. The same hostel will also be lit by energy efficient LED lights.

### INSTITUTE EXPENDITURE

The details of expenditure during the year 2013-2014 are as follows (in crores of ₹):

Recurring:	110.80
Non-recurring:	176.30
Sponsored Research:	49.07
Total Expenditure:	336.17

In comparison, in 2012-2013, ₹ 271.67 crores were spent.

### STUDENTS' ACTIVITIES

#### Alcheringa 2014

Alcheringa, the annual cultural festival of IIT Guwahati,







was held during 30 January – 2 February this year. Alcheringa is now regarded as a much anticipated students' cultural event of the North-East where thousands of students across the country take part in various youth oriented competitions, workshops, seminars and informal events. The performances of musicians and performing artistes of repute are the real crowd puller. In the past Alcheringa has featured some exhilarating performances from some of the biggest names in the entertainment industry, namely Sonu Niigaam, Shaan, Strings, KK, Euphoria, Parikrama, The Raghu Dixit Project, Shankar Ehsaan Loy, Mohit Chauhan, Javed Ali, Anoushka Shankar, the Swiss folk metal band Eluveitie, Orphaned Land – Israeli progressive metal band, etc. This year the well known playback singer Shilpa Rao and Michael Angelo Batio, American instrumental rock guitarist, performed before huge crowds.

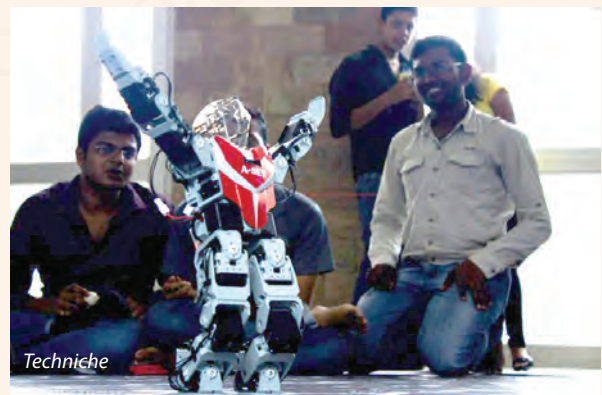
### Techniche 2013

Techniche-2013 – the annual techno-management festival of the Institute – was held during 29 August–1 September 2013. Started in 1999, Techniche was conceptualised with an aim to motivate the youth to think out of the box, expand their horizons and

reach the zenith of success in all technomanagement spheres. It has stayed true to its vision since; and from its humble beginnings, Techniche now revels in being one of the premier techno-management festivals of the nation. With a reach of thousands of college and school students from across the country, Techniche plays a phenomenal role in bringing out the true potential of the young generation. In the past, Techniche has brought great and accomplished personalities from all over the world, all branches of study and all walks of life under the same roof to provide an



unparalleled learning experience to all its participants and attendees. Techniche has been an extra-ordinary platform to showcase the latest inventions, exhibitions and technological advances from all over the globe and organises a plethora of events and competitions all designed to make the participants step outside their comfort zones and challenge the institution of conventional thinking. The 2013 edition of this festival saw the congregation of eminent personalities like Jonathan Grudin—Principal Researcher at Microsoft Research in the fields of human-computer interaction (HCI) and computer-supported cooperative work (CSCW), Anil Kakodkar—nuclear scientist, Jayant Vishnu Narlikar—astrophysicist, Arun Shourie—illustrious journalist, author and politician, Roger Hunter—Kepler Project Manager at NASA, Shekhar





Gupta—Editor-in-Chief, The Indian Express, Pat Spain—National Geographic programme host, and Rakeysh Omprakash Mehra—filmmaker.

Following are the other regular events organised by the students during the year:

- Manthan – the intra-IIT cultural festival
- Spirit – the inter-college invitation sports competition
- Spardha – the annual sports meet
- Zest – the annual athletics meet

Along with these, there have been regular events and competitions organised by the various clubs and societies of the Institute such as the Movie Club, the Fine Arts Club, the Literary Club, the Photography Club, etc.



### Inter-IIT Sports Meet 2013

The 49th Inter IIT Sports Meet – the biggest sporting extravaganza of the entire IIT community consisting of 16 IITs – was held at IIT Guwahati during 16-23 December 2013. IIT Guwahati hosted this grand sport



49th Inter IIT Sports Meet

event for the second time after successfully conducting the 42nd Inter IIT Sports Meet in 2006. All the sixteen IITs took part in this event. It witnessed 3000 participants participating in different sports like Athletics, Aquatics, Basketball, Badminton, Cricket, Football, Hockey, Table Tennis, Tennis, Squash, Volleyball and Weight Lifting. Moreover, the Inter IIT Sports Meet was also held for



49th Inter IIT Sports Meet

the employees of various IITs separately.

The general championship for the boys was awarded to IIT Kanpur and girls to IIT Roorkee. The first and second runner up of general championship for the boys were awarded to IIT Madras and IIT Kharagpur sharing with IIT Bombay, respectively, while the girls were awarded to IIT Guwahati and IIT Kanpur, respectively. IIT Guwahati's Mr. Mahesh Dangi and Mr. Praveen Patidar made new records in weight lifting (Clean & Jerk and SNATCH Category).

### STUDENTS' ACHIEVEMENTS

Mr. Mohit Chhajed, BTech student of Computer Science and Engineering was selected for Aditya Birla Scholarship 2013 with a scholarship amount of Rs.



65000/- per annum.

Mr. Surojit Ganguli, BTech, Mechanical Engineering, was recommended by the Institute for ONGC Gold Medal. The ONGC Gold Medal is awarded to the topper of BTech in Mechanical Engineering. The medal includes one lakh rupees and a medallion.

Mr. Aritra Sasmal, BTech, Mechanical Engineering, Mr. Saurabh Sharma, MTech, Mechanical Engineering, Ms. Bipasha Paul, MSc, Physics and Mr. Aniket Mishra, MSc, Chemistry were recommended by the Institute for ONGC Scholarship. The scholarship amount is Rs. 5000/- per month for a year.

Mr. Aritra Sasmal, BTech, Mechanical Engineering, Mr. Manish Garg, BTech, Civil Engineering, and Mr. Kumar Biswaranjan, BTech, Electronics and Electrical Engineering were selected for O. P. Jindal Engineering and Management Scholarship (OPJEMS) 2013. The scholarship amount is Rs. 65000/- for a year.

Mr. Shohin Mukherjee, BTech, Mechanical Engineering, and Mr. Shashank Goyal, BTech, Electronics and Communication Engineering have been selected (out of 14 selected students among all IITs) for Honda YES (Young Engineer and Scientist) Award 2013. The award recognises brilliant students who would drive future society towards an ecotechnological orientation. He will receive US \$ 3000 in equivalent Indian Rupees.

Mr. Aadi Moolam Ramesh, doctoral student in Biotechnology under supervision of Prof. L. Rangan received Young Scientist Award for the best paper in area of Biochemistry and Molecular Biology during national conference on Science of Omics for Agricultural Productivity: Future Perspectives held at G.B. Pant University of Agriculture and Technology, Pantnagar during 4-6 March 2014.

Mr. Surojeet Das, second year MTech student in Biotechnology under Dr. B. B Mandal was selected for Gandhian Young Technological Innovation Award (GYTI) 2014 by National Innovation Foundation (NIF) and SRISTI for his MTech work on 'Injectable silk fibroin hydrogels for tissue engineering and drug delivery'.

Ms. Shraddha Shukla, doctoral student in Biotechnology under Prof. Arun Goyal successfully completed joint international collaborative research project with University of Helsinki, Finland under Centre for International Mobility (CIMO) fellowship for doctoral



*Mohit Chhajed while receiving Aditya Birla Scholarship*

programme during June 2013 to December 2013.

Mr. Saurav Prasad, MTech Student in Biotechnology under Dr. S. Senthikumar received best project award as well as best oral presentation award for his postgraduate project thesis entitled "D-Lactic acid production from whey permeate using *Lactobacillus* sp." at national level Young Researcher's Conference (YRC) 2013, ICT Mumbai.

Mr. Kelothu Suresh, Mr. Debashis Kundu, MTech, Chemical Engineering, received Ambuja Young Researcher's Award 2012 and Mr. Rahul Mayank, BTech, Chemical Engineering, received the Chemical Weekly Prize for Best Research Paper 2012 by the Indian Institute of Chemical Engineers (IICChE).

Mr. Ramalingam Anantharaj, doctoral student in Chemical Engineering received Thermax Asset Award for Best PhD Thesis 2013 in the field of separation science by BARC, Mumbai on 28 February 2014 and "ProSPER.Net - Scopus Young Scientist Award 2013" for Sustainable Development in Transport Category.

Mr. Chinna Kaniganti, doctoral student in Chemical Engineering received best paper award in International Conference on Chemical and Bioprocess Engineering (ICCBPE), NIT Warangal, 16-17 November 2013.

Ms. Richa Sharma, doctoral student in Chemical Engineering received best paper award in CHEMCON 2013.

Mr. Santosh Kumar Sahoo, doctoral student in Chemistry, received Eli Lilly and Company Asia Outstanding Thesis Awards for Best Thesis. The award was given at IISER Bhopal during 9th J- NOST Meeting



held during 4-6 December 2013.

Dr. Atul Kumar Dwivedi, doctoral student in Chemistry was awarded 2nd Prize of Lilly Outstanding Thesis Awards 2013. The award consists of US \$ 1000 and a Lilly plaque.

Dr. Krishna Chaitanya Nadimpally, doctoral student in Chemistry selected for Gandhian Young Technological Innovation Awards / Appreciations 2014 (GYTI) for his project: "Concept of  $\beta$ -Breaker Dipeptides and its Application in Alzheimer's Amyloid Disruption". The award was given at IIM Ahmedabad on 29 March, 2014.

Mr. Syed Humayun Basha, a PhD student in Department of Civil Engineering, received Best Paper Award at International Conference on Structural Engineering and Mechanics (ICSEM-2013), 20-22 December 2013, NIT Rourkela.

Mr. Thainswemong Choudhury, a PhD student in Department of Civil Engineering, received Erasmus Mundus scholarship to work at Milan, Italy for a period of eight months.

Mr. Rishi Barua and Mr. Parag Agrawal, BTech, Computer Science and Engineering, received innovative student project 2013 award from the Indian National Academy of Engineering (INAE).

Mr. R. Pamula, doctoral student in Computer Science and Engineering, received Best Paper award in the second international conference on business and information management for his research paper titled "An outlier detection method based on cluster pruning".

Mr. Sandip Chakraborty, doctoral student, and Mr. Subhrendu Chattopadhyay, MTech student in Computer Science and Engineering, received Best Paper award in the Seventh IEEE ANTS conference for their research work titled "Surpassing Flow Fairness in a Mesh Network: How to Ensure Equity among End Users?"

'Pill Time' – a mobile application designed to increase patient adherence rates, designed by Ms. Soumya Tiwari, a third year BDes student won Annual Student Academic Project competition under User Interface Design category at Pune Design Festival.

Mr. Himanshu Seth, an MDes student, won Gandhian Young Technological Innovation Award 2014 for his low cost TB adherence medikit – Parichaya.

Ms. Shruti Hemani, doctoral student, Design, received 'Outstanding Paper Award' at the IADIS International Conference on Sustainability, Technology and Education (STE) 2013 for her paper 'Design Education for Sustainability – Envisioning a Sustainable Guwahati Railway Station Complex of the Future'.

Mr. Harshvardhan Upadhyay, an MDes student, was awarded Indira Gandhi Priyadarshini Award for his Master's Thesis Project based on National Unity and Integration. Award was presented by All Indian National Unity Conference on 20 November 2013 at the India International Centre, New Delhi.

Mr. N. Yadaiah, doctoral student in Mechanical Engineering, was awarded first best paper in the International Conference on Advances in Mechanical Sciences held in Hyderabad during 9-11 January 2014.

Mr. Biswajit Pathak, doctoral student in Physics won the best paper award under the category of Optical Instrumentation and Techniques in OPTICS14: International Conference on Light held at NIT Calicut in March 2014.

## TRAINING AND PLACEMENT

The placement scenario at IIT Guwahati for the year 2013-2014 has been good so far. A total of 109 companies from various sectors have participated in the recruitment process. Out of a total of 1038 students [BTech (478), BDes (37), MTech (315), MDes (27), MSc (75), MA (16) and PhD (90)] registered for placement, 60.58% BTech and BDes have been placed so far.

The percentage of placement till now for the MTech and MDes is reasonable and stands at 33.04%.

For MSc programmes, 6 students have been placed out of the 75 registered candidates. 9 PhD students have also received job offers through the Institute placement cell in education and research sectors.

Companies from various sectors have participated in the campus recruitment process. The percentages of participation from various sectors are 22% in Core Engineering, 52% in IT and 26% in others.

The branch-wise placement details are:

Discipline	UG (BTech/BDes)			PG (MTech/MDes/MA/MSc)		
	No. of Student Reg.	No. Student Placed	% of Student Placed	No. of Student Reg.	No. Student Placed	% of Student Placed
CS	74	65	88	48	35	73
EC	67	52	81	51	11	22
EE	41	21	51	–	–	–
ME	71	29	41	73	23	31
CE	56	15	27	71	21	29
CL	50	25	50	42	4	10
BT	28	18	64	30	3	10
MC	39	30	77	–	–	–
CST	29	13	45	–	–	–
EP	23	12	52	–	–	–
DE	37	32	86	27	16	59
PH (MSc)	–	–	–	15	3	20
CH (MSc)	–	–	–	26	–	–
MC (MSc)	–	–	–	34	3	9
DS (MA)	–	–	–	16	–	–

## CLOSING REMARKS

The Institute has to develop the Mission, Vision, Goal and Values that would be instrumental in placing IITG among the top 200 academic institutions of the world. The strategies that we develop must create new opportunities for the faculty and the students for enhancement of knowledge, performing cutting edge research and development of professional skills. The ultimate aim is to provide the students with an educational training that emphasizes innovation and social awareness. Also there is a serious need to promote the spirit of creativity amongst our researchers.

The challenge to the Institute is to create the optimum research ambiance. Each individual should be encouraged for performing. In particular, to promote quality research, the Institute must identify and reward excellence in research. The system must ensure active participation of majority of the faculty members in order to improve research accomplishments. The patents and publications in the top tier journals should be valued most while taking a stock of the human inventory.

Today, the yearly publication in the top tier journals in the best performing IIT is around two (2) per faculty. This number at IITG has to be doubled in coming three years. The faculty members have to be guided, motivated and encouraged in order to accomplish this feat.

IITG needs improved student care system for the research scholars. When we select a student for a PhD programme, we actually select a future faculty member. The PhD programme should train them in such a way that they should develop a mind-set of world leaders in their field.

We require setting up a strong link with the Industry. An expansion of industrial problem-based research is essential. In a renewed drive towards Industrial impact, successful and timely execution of small and medium size Industrial problems should be attempted. As such the need of MSME clusters can be the excellent basis of collaboration.

IITG needs to focus on creating world class research infrastructure. Close collaborations with the WELL KNOWN FOREIGN UNIVERSITIES and the NATIONAL LABORATORIES are needed.

A synergy between teaching and research is the real need. Postgraduate and PhD level courses may be given strong research orientation. The method of evaluation should be shifted FROM FORMAL EXAMINATION TO FINDING OUT SOLUTION OF OPEN ENDED PROBLEMS.

Also IITG must initiate special drive with Industry and National Laboratories for interdisciplinary research in some of the following areas: Roads and Infrastructure; Electric Power from Gas; Petroleum Engineering; Modern Manufacturing (including Fabronics) and Underwater Robotics. CSIR and DRDO Laboratories can be the partners in this initiative.

IITG has immense potential to become a centre of excellence in quite a few areas. Readily collaborations are possible with other IITs, IISc and some CSIR Laboratories, such as, CSIR-National Chemical Laboratory (NCL) and CSIR-Institute of Genomics and Integrative Biology (IGIB) in the areas of Computational Fluid Dynamics, Nanotechnology, Green Chemistry, Bioengineering and Biotechnology.

Keeping in view recent disaster in Uttarakhand, the faculty members can take the lead for programmes such as Developing Early Warning System, Disaster Mitigation, Structural Health Monitoring etc. CSIR Laboratories, Geological Survey of India, ONGC, etc. can be made partners in this initiative.

With proper team work, mission mode projects, Industry-Institute partnership and encouraging mentorship, IITG has potential to find a place among the Global Leaders in many other areas that I have not been able to mention in this text. Every faculty member will be supported if he/ she is proactive with research initiative. Faculty members will be strongly encouraged and supported for their aspirations for winning national and international awards and honours.

Undergraduate programmes can be revised following recent developments across the top ranking Universities in the world. Concept of one Major with two Minors is to be considered seriously. Usage of open source portals, like MOOCS have to be experimented in order to internationalise the system.

An effective and Vibrant Counseling Service is to be introduced. The service will try to make the stay of the new students in the Institute as comfortable and as memorable as possible. This will help the new entrants

adjust to the system at the earliest so that they strive to achieve academic excellence in addition to the overall growth of their personality. The counseling service will effectively eradicate the menace of ragging.

The Counseling Service should have several teams comprising of faculty counselors and the student guides. The role of the faculty counselor is to establish a vibrating rapport with the students that will last during their stay in the Institute and beyond.

The student guides will help in removing difficulties at all levels, giving the new entrants mental stability and helping them in academic matters.

Both undergraduate and post-graduate students should be formally encouraged to enhance reasoning skills through some method of interaction. The academic interaction will create an environment of care and concern in the hostels.

For the undergraduates the aspect of reasoning skills has to be included in the curriculum of Mathematics, Physics, Chemistry and the core level engineering courses (Thermodynamics, Basic Electronics, Computing, Solid and Fluid Mechanics etc).

LEARNING MUST BE A FUN FOR THE STUDENTS. THE INITIATIVES FOR LEARNING MUST COME FROM WITHIN. THE ACADEMIC ECHO SYSTEM HAS TO BE DEVELOPED IN THAT DIRECTION. IITG HAS TO MAKE A MARK AMONGST THE UNDERGRADUATE COMMUNITY FOR ITS LEARNING-CENTRIC ACADEMIC ORIENTATION. INSTRUCTORS AND STUDENTS HAVE TO WORK TOGETHER FOR THIS NOVEL TEACHING-LEARNING PARADIGM. THE STUDENTS SHOULD BE ENCOURAGED FOR CREATIVE ACTIVITIES, BE IT IN THE REALM OF ESOTERIC WORLD, OR IN THE AREA OF HANDS-ON EXERCISES. THE COMPONENT OF CREATION SHOULD BE A PART OF THE COURSES IN CURRICULUM.

The academic departments should offer research professionals in national laboratories and Industries opportunity to serve as the faculty members over a specified duration and to interact with faculty and graduate students in research. Such interactions are possible through introducing visiting professorships or adjunct professorships. There is a lot to be gained by such interaction in the future. Some of the potential benefits are:

Enhanced competitive base for pursuing external research awards.

Enhanced ability to undertake interdisciplinary research efforts.

National Research Centers can be benefited by the expertise and services of faculty, staff and the post-graduate students for research without having to make permanent commitments for employment.

Academic departments can obtain the expertise and services of research professionals or staff without having to make permanent commitments for employment.

National laboratories, Industries and academic departments can share the expensive equipment or research facilities.

There are two other major reasons for better interaction between the academic departments and the research centers. First, academic departments need to learn to be more responsive to the timeliness of research. The delivery of the project outcomes in time, particularly in the shorter time frame projects, plays an important role in confidence building. And second, the research professionals, and industry-champions many of whom are excellent at developing practical solutions, often neglect the potential for extending the basic body of knowledge in their research. More interaction between academic departments and the research professionals could provide the balance between the complementary components

Indian engineers and technologists have done miracles in Information Technology. Such miracles are indeed needed in other areas, involving Design and Manufacturing. The miracles in the areas of Power Generation and Distribution, Construction Technology, Affordable Health Care, Materials Science and Biotechnology are essential.

The role of humanities and social sciences in Engineering Education is to be revisited. A perfect blend of humanities would imbibe intellectual honesty, professional ethics and capacity for teamwork in the face of new challenges. A rejuvenated humanities education will develop a paradigm where there will be no space for disharmony, hatred or enmity.

The courses in social science would contribute in the

following way

developing inner and outer strength of the individuals

nurturing higher level of cognition up to creativity

development of emotional intelligence

Liberal Arts must find a place in curriculum. This will be a good starting point of learning through creativity.

All the issues enumerated above can be successfully steered towards success if the Institute becomes repository of excellent human resources. Faculty members, students, staff members at all levels have to maintain this special quality.

The Institute has to be proactive in attracting good faculty from world over.

Many of the bright students who are on the verge of completing their PhD in several good schools all over the world (including India) are willing to dedicate themselves to the service of the nation.

The Institute must try to develop a data base of such brilliant scholars (Web of Science is of great help in this endeavor). Proper encouragement, career counseling and creation of new facilities are the key components to attract such youngsters.

IITG has already been able to get success in such initiatives. However, in the recent past all IITs have become extremely competitive in this drive. Once a group of such young mind responds to this initiative, the Institute has to be extremely concerned in attracting them and mentoring them.

Important thing here is to evolve a strong and healthy tradition for recognition and encouragement of talent and a good yardstick for calibrating performance.

The Institute should earn the reputation of "a place to grow". If the trend can be maintained over a period of five years, the tradition will continue.

A non-trivial issue instrumental in attracting good faculty, is "diversity". The diversity in language, religion and in cultural heritage is the strength of Indian society. The campus will be far more attractive to people of any region, if there is diversity in population in the Institute.

The campus should grow into a culturally vibrant place. Student body has to take a lead for establishing closer links with organisations like Spic-Macay.

IITG has to take a lead in showcasing a Green Campus too. Optimum utilisation of electric power, proper utilisation of solar energy, rain water harvesting, special treatment for harmful chemical wastes, etc. have to be integrated with the campus.

FINALLY IITG HAS TO DO SOMETHING SUBSTANTIAL TO MAKE THE LIFE OF MILLIONS IN THE NORTH-EAST COMFORTABLE. IITG HAS TO SPREAD THE BREADTH OF HIGH QUALITY EDUCATION IN ALL THE PROVINCES OF NORTH EAST. THE OUTREACH PROGRAMME HAS TO BE MUCH MORE FORTHCOMING. THE FACULTY MEMBERS HAVE TO BE PASSIONATE TO TAKE THE OUTREACH PROGRAMME TO NEXT LEVEL SO THAT THE BENEFIT IS FELT AND APPRECAITED BY THE PEOPLE OF NORTH EAST.



## **PART II**

### **ACADEMIC DEPARTMENTS**

Biotechnology  
Chemical Engineering  
Chemistry  
Civil Engineering  
Computer Science and Engineering  
Design  
Electronics and Electrical Engineering  
Humanities and Social Sciences  
Mathematics  
Mechanical Engineering  
Physics

### **ACADEMIC CENTRES**

Centre for Energy  
Centre for the Environment  
Centre for Nanotechnology

### **CENTRALISED SERVICES AND PROGRAMME**

Central Library  
Centre for Educational Technology  
Central Instruments Facility  
Computer and Communication Centre





# DEPARTMENT OF BIOTECHNOLOGY

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**

2002

**ACADEMIC PROGRAMMES OFFERED:****Bachelor of Technology (BTech) in**

o Biotechnology

**Master of Technology (MTech) in**

o Biotechnology

**Doctor of Philosophy (PhD)****STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 50
- MTech: 31
- PhD: 32

**FACULTY STRENGTH:**

- Professor: 9
- Associate Professor: 9
- Assistant Professor: 14

**NUMBER OF NEW FACULTY JOINED DURING 1 APRIL 2013 – 31 MARCH 2014:**

- Assistant Professor: 2

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

The department spans the N and O blocks of the institute occupying approximately 3637 squared meters. Around 40% of the total are is dedicated for running the laboratory courses of the B. Tech. and M. Tech. academic programmes. These laboratories include "Plant Biotechnology Laboratory (O-block,

ground floor)", "Biochemistry and Microbiology Laboratory (O-block, first floor)", and "Biochemical Engineering Laboratory (N-block, second floor) that are used for conducting the wet-lab courses of the academic curricula. The dry lab courses are conducted in the "Computational Biology Laboratory located on the second floor of the O-block. In addition, the department houses a "Bioinformatics Infrastructure Facility" funded by the Department of Biotechnology, India. The laboratories are well-equipped for smoothly carrying out the experiments of the academic curricula.

Approximately 40% of the total space is dedicated to the research laboratories. The research laboratories are used for carrying out the routine experiments. For specialized experiments, department hosts a "Cell Culture Laboratory", a "Spectroscopy Laboratory". Apart from the departmental instruments housed at different locations within the department, the department has a DBT funded Program Support Instrument Facility (N-block, ground floor) include Research laboratories I, II, and III spanning both the blocks.

The state of the art laboratory facilities are available for biochemistry, plant biology, biochemical engineering and other experiments. The technical staffs of the department support the smooth conduct of experiments and maintenance of the laboratories. Most of the laboratories and faculty rooms are equipped with centralized air conditioning facilities. The laboratories are equipped with adequate furniture, chemical, glassware, and water supply units, maintained by the individual project grants and the IIT facility.

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

Sl. No.	Equipment	Qty.	Location	Make & Model	Actual Expenditure
1.	Analytical HPLC (with IR, UV and fluorescence)+ Autosampler	01 No.	DCIF (Departmental Central Instrument Facility)	i)Make: Shimadzu Model: LC-20 AD	INR 25,36,218.00 (FOR IITG, inclusive of taxes)
2.	Ice flaker	01 No.	'N' Block	Make: Simag Model: SPR-80	Euro 3,274.05 INR 2,84,810.00 (Inclusive of customs) 1Euro= INR 86.99 as on the date of P.O. release
3.	Refrigerated Centrifuge	01 No.	Biochemical Engg. Lab	Make: Thermo Fisher Scientific Model: Sorvall Legend XTR	Euro 9,750.975 INR 8,47,360.00 (Inclusive of customs) 1Euro= INR 86.90 as on the date of P.O. release
4.	Spectrofluor-ometer	01 No.	Lab	Make: Horiba Instruments Model: Fluoromax-4C	USD 33,791.70 INR 21,42,394.00 (Inclusive of customs) 1US\$ = INR 63.4 as on the date of P.O. release
5.	Biometric Attendance System	01 No.	Office	Make: ESSL Model: X990	
6.	Mini dual electrophoresis system	01	Lab	Make : Tarson	
7.	Rotary vacuum pump	01	Lyophilizer	Make: HHV Pumps Model: FD-12	INR 49,922.00
8.	OHP	01	Conference room, 'N' Block	Make: BENQ Model: Native XGA	INR 71,563.00
9.	Laptop computer	01	Dept.	Make: HP Model: ProBook 4440s	INR 49,560.00
Total					60,64,482.00

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The major thrust of the department includes biochemical engineering, tissue engineering, plant biotechnology, environmental biotechnology, nanobiotechnology, molecular biology, stem cell biology, gene therapy, computational biology, cancer

biology, infectious diseases and proteomics. Keeping in mind the demands of the modern biotechnological research, the plans for establishing advanced research facilities are underway. In addition department is also involved in promoting science and education in the north east pertaining to the field of biotechnology by organizing workshops, symposium and seminar.

### MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

1. The mechanism of miltefosine resistance in Leishmania mediated through the redox system seems to be an adaptive change in the parasites resulting from the indiscriminate use of drugs. (Dr. V.K. Dubey lab)
2. oxabicyclo[3.3.1]nonanones are identified as novel antileishmanial and Molecular mechanism was investigated. Further, Molecular Mechanisms of in vitro betulin-induced apoptosis of Leishmania donovani was reported. (Dr. V. K. Dubey lab)

3. Cas5d that facilitates the maturation of pre-crRNA for CRISPR interference in bacteria exhibits a metal dependent DNase activity. Remarkably, the active site that renders RNA hydrolysis may be tuned by metal to act on DNA substrates too. Dr B. Anand lab has unravelled the possibility of hitherto unknown alternative role of Cas5d in adaptation and interference stages of CRISPR immunity wherein interaction with DNA substrates is involved

4. Dr. B. Anand lab research group has been recognized as "Unit of Excellence in RNA Biology" by DBT in the form of a research award.

### RESEARCH PROJECTS

#### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Pranab Goswami	Development of Bioelectrodes for Biofuel Cell Applications.	MNRE	33.73	P. Mahanta	3 years
V. K. Dubey	X-ray crystallographic structure elucidation of key drug target enzymes of Leishmania donovani.	DBT	72.69	S. Patra	3 years 2013-2014
Biman B Mandal	Stem Cell Based Bioengineering of Annulus Fibrosus in an Intervertebral Disc model using North-East Silk Biomaterials.	DST	54.50	NIL	2013-2017
Biman B Mandal	Understanding the role of cellular cross talks for cartilage tissue repair using a 3D co-culture tissue model.	DBT	37.06	S. Sivaprakasam	2013-2016
Biman B Mandal	Bioartificial Pancreas to Treat Diabetes.	DST	35.00	NIL	2013-2018
Biman B Mandal	Development of novel tissue engineered silk biomaterial based wound dressing patch for diabetic foot ulcers.	DBT	56.96	P. Sukumar N. Chaudhary	2014-2017
Biman B Mandal	Silk2Heal.	DBT	74.70	P. Sukumar	2014-2017
Shankar Prasad Kanaujia	Understanding the mechanism of substrate delivery through solute-binding proteins related to ABC transporters	DST	47.19	None	4 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Shankar Prasad Kanaujia	Elucidation of the substrate delivery and specificity mechanism of solute-binding proteins cognate to the ABC transporters	DST	24.0	None	3 years
B. Anand	"Molecular Mechanism of Ribosome Assembly in Bacteria" under "Unit of Excellence in RNA Biology"	DBT	58.80	-	18 months
Piruthivi Sukumar	Role of store operated calcium entry in diabetes and hyperlipidemia induced vascular smooth muscle dysfunction	SERB	24.9	-	2.5 Yrs
Manish Kumar	Deciphering the role and architecture of CRISPR/Cas defense system in <i>Leptospira interrogans</i>	DBT	47.95	Shankar Prasad Kanaujia	2013-2016
Sanjukta Patra	Process for thermostable gene prospecting from metagenome.	CSIR	34	None	2013-2016
Sanjukta Patra	Unraveling the rationale behind solvent stability of proteins	DBT	101	Karthe - Madras University & S.P. Kanaujia IITG	2014-2017
R.Chaturvedi	In vitro production of doubled haploids in Tea ( <i>Camellia sinensis</i> L.)	DBT	64.58	Vishal Trivedi	3 years
Senthilkumar Sivaprakasam	Design and Application of a Robust Process Analytical Technology (PAT) Platform for Real-time Monitoring and Control of Hyaluronic Acid Production	DBT	78.348	Guhan Jayaraman, IIT Madras	2013-2016
Senthilkumar Sivaprakasam	Application of Dielectric Spectroscopic Measurements for Real-time Monitoring and Control of High Cell Density Cultivation (HCDC) of <i>Pichia pastoris</i> for Production of Glycosylated Human Interferon Alpha2b	DST	20.57		2013-2016

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Ajaikumar B Kunnumakkara	An investigation on the expression of various protein tyrosine kinases and their phosphorylated forms in different stages of the development of oral squamous cell carcinoma	DBT	47	Madumita Roy, CNCI, Kolkata	2013-2016
Anil M Limaye	Real-time quantitative RT-PCR based expression profiling of matrix metalloproteinases and their inhibitors in prostate cancer cell lines.	DST	24	Bithiah J Jagannathan	2013-2015
V. Venkata Dasu	Bioprocess development for the L-asparaginase production by recombinant strain and its evaluation as food additive for acrylamide free products	DBT	60.69	Prakasham Reddy Shetty, Indian Institute of Chemical Technology, Hyderabad	2013-2016
V. Venkata Dasu	Production of Recombinant Human Interferon Gamma (IFNG) from <i>Kluyveromyces lactis</i>	ICMR	For 1st year grant from Dec 2013 to March 2014 Rs. 2.88	Nil	2013-2016

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Pranab Goswami	Studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices and other applications	DBT	437.53	V. K. Dubey, P. Mahanta	3 years
Pranab Goswami	Studies and application of redox enzymes for bioelectronics devices	DBT	94.96	S. Patra	5 years
Kannan Pakshirajan	Strategy Development for the mitigation of heavy metals in surface waters around coal mining areas using native cyanobacterial strains	DBT	14.65	Nil	Two years starting June 2012

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
L Rangan	Molecular and physico-chemical characterization of selected ginger species from North Eastern Region	DBT	52.75	A Parida (MS-SRF Chennai); S Mitra (JNU New Delhi)	3 years (2011-2014)
R. Swaminathan	Single molecule fluorescence investigations on the mechanism of lysozyme aggregation and RNA helicase activity	DBT	60.50	Dr. B. Anand and Dr. S. Maiti (TIFR, Mumbai)	3+ years (2011-2014)
Ranjan Tamuli	Studies on the cellular roles of calcium signaling proteins in <i>Neurospora crassa</i> (NE-Twining project)	DBT	72.88 (Total), 50.70 (IITG)	Dr. Utpal Bora (IITG)	24. 03. 2011 to 23. 03. 2014
V K Dubey	Studies on peptide conjugated nanoparticles mediated antileishmanial drug delivery to macrophages	DBT	31.83	Patra S, IITG	3 years 2011-2014
V K Dubey	Betraying the parasite's redox system: Studies on spermidine synthase of <i>Leishmania donovani</i> .	DBT	82.18	Trivedi, P.K.Iyer, IITG; S. Sundar, IITD; MV Jagannadham, BHU	3 years 2011-2014
V K Dubey	Deciphering the molecular mechanism underlying the activity of antitumor agents as antileishmanial agents and their potential for therapy	DBT	65.0	-	5 years 2010-2015
V K Dubey	Studies on trypanothione synthetase, a key enzyme of redox metabolism of <i>Leishmania donovani</i>	DBT	27.73	-	3 years 2011-2014
V K Dubey	Variation in proteome profile of legume plants in response to heavy metal toxicity	DST	23.5	Anil Verma, IITG	3 years 2011-2014
Biman B Mandal	Bioengineered silk vascular grafts for blood vessel engineering.	DAE - BRNS	17.00	NIL	2012-2015
Biman B Mandal	Stimulation of stem cell differentiation on silk fiber reinforced composite with tunable strength and degradation towards enhanced osteogenesis.	DST	23.00	NIL	2013-2016
Biman B Mandal	Mechanically strong silk composite matrices for bone tissue engineering.	ICMR	10.00	NIL	2012-2015



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Shankar Prasad Kanaujia	Structural determinants and protein engineering of metal binding of Phospholipase A2	IIT Guwahati	5.00	None	2 years
Shankar Prasad Kanaujia	Structural and functional studies of translation initiation factors from <i>Pyrococcus horikoshii</i> OT3	DBT	52.90	Vikash Kumar Dubey	3 years
B. Anand (PI, IITG); Prof. S. Ramaswamy (PI, inStem)	Molecular Mechanism of Target Recognition and Cleavage by the CRISPR-Cas Bacterial Immune System	DBT	122.96	-	3 years
B. Anand	Structural and Functional Characterization of Adaptation Stage of CRISPR-Cas System in <i>Mycobacterium tuberculosis</i>	DBT	59.182	Nitin Chaudhary	3 years
B. Anand	Structural Basis for the Maturation of the Prokaryotic siRNA	DBT	40.43494	-	3 years
B. Anand	Dynamical Aspects of Era GTPase - 16S rRNA Interactions and its Implication in Ribosome Assembly	DAE-BRNS	16.85	-	3 years
Biplab Bose	Integrative investigation on critical transcriptional modules involved in proliferation of malignant cells	DBT	37.2	Sudip Sen, AIIMS, New Delhi	2012-2015
Biplab Bose	Combination therapy using suicide genes and recombinant antibody (This project is part of DBT Program support)	DBT	97.32	S. S. Ghosh	2008-2014
Bithiah Grace Jagannathan	Role of Rho GTPase RhoA on interaction between Human Mesenchymal Stem Cells and Hematopoietic Stem Cells	DBT	39.26	Anil M Limaye and Bosanta Boruah	03 years
Bithiah Grace Jagannathan	Cytoskeletal organization and migration potential of Mesenchymal Stem Cells (MSC) during different stages of differentiation	DST	24.2	None	03 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Bithiah Grace Jagannathan	Study of Apoptotic Signaling Pathways in Mesenchymal Stem Cells during Normal and Differentiated State	DBT	91.05	Rajesh Singh (Univ. of Baroda)	03 years
Lingaraj Sahoo	Development of Transgenic Cowpea for Virus Resistance Using the Tool of RNA Interference (RNAi)	DBT	83.34	Sunil Kumar Mukherjee, UDSC, New Delhi	3 years
Lingaraj Sahoo	Development of Pod Borer Resistant Transgenic Pigeonpea and Chickpea	ICAR	795.30 (58.00 For IITG for 3 years)	Coordinator: S. K. Sen, BREF Biotech, IIT Khraggpaur	5 years
Sachin Kumar	Improved Infectious Bursal Disease Virus Vaccines Using Newcastle Disease Virus Vector	DBT	47	Nitin Chaudhary	3 Years
Sachin Kumar	Role of N-glycans of Newcastle disease virus fusion protein in host immune signaling molecules	DAE	17	NIL	3 Years
Sachin Kumar	Inspire Faculty Award for Newcastle disease virus	DST	35	NIL	5 Years
Manish Kumar	Purification and characterization of putative outer membrane protein of Leptospira interrogans	IITG	5	NIL	2012-14
Manish Kumar	Purification and characterization of recombinant outer membrane proteins of Leptospira interrogans for vaccine and diagnostics	ICMR	10	NIL	2013-16
Manish Kumar	Modulation of gene expression in Leptospira interrogans exposed to human catecholamine hormone	SERB	23.5	None	2013-2016
Arun Goyal	Molecular and functional characterization of dextran production in Weissella spp. - Superior dextran producers for cereal applications	Indo-Finland Joint Project DBT	77.03	M. Tenkanen and K. Katina, Univ. of Helsinki	Mar 2012 -Mar 2015

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Debasish Das	Process optimization for microbial synthesis of Hyaluronic Acid from new isolates: Development of structured kinetic model and experimental validation	CSIR	14.0	Arun Goyal	Jan 2012 -Jan2015
VibinRamakrishnan	Design synthesis and Characterization of self-assembled molecular materialsfromheterotactic polypeptide constructs. Application in drug delivery and nanoscale energy storage devices.	Department of Biotechnology, Government of India	51.00 (2012-2013); 60.00 (2012-2015)	Senthil Kumar S	3 years.
Sanjukta Patra	Structure, Function, Dynamics and Inhibition of Matrix Metalloproteinases (MMPs)	DBT	61	V. Subramaniam, CLRI and V.K. Dubey, IIT Guwahati	2012-2015
Sanjukta Patra	Purification of caffeine from waste tea leaves and their transformation to potent pharmaceutical molecules	DBT	60	M.S.Thakur-CFTRI and P.K.Iyer-IIT Guwahati	2011-2014
Utpal Bora	Identification and characterization of bioactive molecules from some indigenous medicinal plants of NE region of India with special reference to anti-oxidant and hypolipidemic properties	Department of Biotechnology, Govt. of India	84.8	Rajlakshmi Devi (PI & Coordinator, IASST, Guwahati); Dr. K. Suresh Babu (PI at IICT, Hyderabad)	3 years (2012-15)
Utpal Bora	Development of silk protein derived artificial nerve growth conduits for neural tissue engineering	Ministry of textiles, Govt. of India	45.30	RanjanTamuli	3 years (2011-14)
Utpal Bora	Development of aptamer based molecular diagnostics for breast cancer	Department of Biotechnology, Govt. of India	154.85	RanjanTamuli (IITG), A.C. Katakai (BBCI); BibhutiBhusanBorthakur (BBCI), Jagannath Dev Sharma (BBCI); P. Nahar (IGIB)	3 years (2011-14)

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Utpal Bora	Silk based scaffolds for Neural Tissue Engineering	Department of Biotechnology, Govt. of India	58.44	Ranjan Tamuli	3 years (2011-14)
S.S.Ghosh	Fundamental Molecular Investigations in Biotechnology (Core Project) (Project coordinator)	DBT	1133.68	P. Goswami, L. Sahoo; B. Bose; A. Ramesh; S. Patra	6 years
S.S.Ghosh	Investigations on the molecular mechanism of nanomaterial-cellular interactions			B. Bose, A. Ramesh	
S.S.Ghosh	Novel nanoscale materials targeted towards anti-microbial and anticancer activities.	DBT (Implemented at the Centre for Nanotechnology)	169	A. Chattopadhyay (Chemistry), Biplab Bose (BT)	3 years
R. Chaturvedi	Yield enhancement strategies for production of therapeutic compounds by cell and tissue cultures of <i>Tinospora cordifolia</i> (willd.) Miers ex Hook. F. & Thoms.	DBT-Twinning	82.52	B.K. Patel, IITG; V.S. Bisaria, IIT Delhi; B.S. Bhau, NEIST, Jorhat	3 Years
Nitin Chaudhary	Understanding the role of cation- $\pi$ interaction in the self-assembly of amyloidogenic and de novo designed peptides	DBT	30.03 (for IIT Guwahati)	R. Nagaraj (CCMB, Hyderabad)	2011-2014
Ajaikumar B Kunnumakkara	An Investigation of the Therapeutic Potential of Butein Isolated from <i>Toxicodendron vernicifluum</i> Against Human Oral Squamous Cell Carcinoma	DST	22.55	Nil	2013-2015
Anil M Limaye	Modulation of estrogen regulation gene expression by the green tea polyphenol EGCG in ER positive breast cancer cells: A microarray study	ICMR	9.8	NIL	2012-2015

c) **Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
L Rangan	DNAB (DNA Barcoding) based biodiversity inventory in Zingiberaceae of Northeast India	DIT, Ministry of Information Tech, Govt of India	71.18	U Bora, L Sahoo	5 years (2008-2013)
Aiyagari Ramesh	Evaluation of probiotic attributes of lactic acid bacteria based on bacteriocinogenic activity and in vitro adhesion properties	CSIR	11.30	Biplab Bose	3 years (2010-2013)
Ranjan Tamuli	Functional analysis of calcium signaling proteins in <i>Neurospora crassa</i> .	DST	15.352	None	2010-2013
V K Dubey	Studies on effect of small molecule compounds on folding and amyloid formation of proteins	CSIR	21.50	Patra S, IITG	3 years 2010-2013
V K Dubey	An integrated computational and biochemical approach to target Ornithione decarboxylase, a key enzyme involved in synthesis of trypanothione for antileishmanial drug discovery	ICMR	40.00	Trivedi V, IITG	3 years 2010-2013
Biman B Mandal	Silk based biomimetic scaffolds for tissue engineering applications.	IITG	5.00	NIL	2011-2013
Biplab Bose	Inhibitor Based Selection of Blocking Antibodies against Heparin-binding EGF-like Growth Factor: Developing Potent Molecules for Antibody-based Cancer Therapy	DBT	11.72	S. S. Ghosh	2007 - 2010
Biplab Bose	Development of Therapeutic Human Antibodies Against Cripto-1: Targeting Oncogenic Signaling. (Funded by DST, 2007 - 2010)	DST	10.34	-	2007-2010
Bithiah Grace Jaganathan	Study of bone marrow microenvironment in patients with acute leukemia from north east India	ICMR	9.988	Jina Bhat-tacharyya, Damodar Das, Anil Agarwal (GMCH)	1 year



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Bithiah Grace Jaganathan	Isolation of Stem Cells from Human Limbal and Extra ocular muscle tissues and differentiation into retinal progenitor cells	ICMR	4.99	Damaris Magdalene (Sri Sankaradev Nethralaya Hospital)	2 years
Lingaraj Sahoo	Development and evaluation of transgenic mungbean over expressing AtNHX1 and AVP1 for salt tolerance	DBT	103.03	-	5 years
Arun Goyal	Cloning, expression, biochemical and structural studies of family 5 Glycoside Hydrolase (GH5) cellulase and its derivatives from Clostridium thermocellum	DBT	14.5	-	Mar 2013- Nov 2013
Arun Goyal	Development and application of recombinant and other cellulases for large scale recycling of cellulosic biomass	DBT	64.35	D. Goyal, Thapar University	Apr 2011 -Mar 2014
Vibin Ramakrishnan	Computational engineering of protein folding pathways: Implication on stability, misfolding and aggregation	DBT India Scheme: Innovative Young Biotechnologist Award IYBA Extension	20.48149 Lakhs (2011-13)	NA	2 Years
R. Swaminathan	Conjugating luminescent quantum dots to proteins: Consequences on protein function and development of sensitive assays.	CSIR	12.50	None	3+ years (2009-2013)
R. Swaminathan	Protein aggregation: Early molecular events, mechanisms and inhibition	DST	53.39	None	3 years (2010-2013)
Utpal Bora	Synthesis of biodegradable nanocarriers for targeted drug delivery	DBT	14.686 lakhs	Pranab Goswami	2006-2009
Utpal Bora	Nanoparticle mediated targeted siRNA delivery to cancer cell lines	DST	12.96 lakhs	-	2007-2010
Utpal Bora	Electrospun Nanofiber Scaffolds for Hepatic Tissue Engineering	DBT	52.55 lakhs	Pranab Goswami	2007-2010

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Utpal Bora (PI) (Ecology and Biodiversity group, IITG) National Coordinator & PI Vinod Tare, IITK	Ganga River Basin Environment Management Plan (Ecology and Biodiversity group)	MOEF	1600.00 lakhs	Ranjan Tamuli, IITG; M.K. Dutta, IITG; M.D. Behera, IIT-KGP; Naveen Navani, IITR; Ravindra-Mathur, IITK	2010-2012
Nitin Chaudhary	Fatty acylation mediated membrane targeting of proteins and peptides	Start-up grant by IIT Guwahati	5.00	N.A.	2011-2013
Anil M Limaye	Characterization of the rat ventral prostate specific PBPC1BS and S00RVP gene promoters	IITG Startup Grant	5.0	Nil	2009-2011
Anil M Limaye	The SHBG-RSHBG pathway: Insights from prostate cancer cell lines	DST Fast-track	19.0	NIL	2010-2013
V. Venkata Dasu	Purification, Characterization and Production of Microbial Cutinase	DST	33.49	Nil	2008-2012

**Consultancy:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
G. Pugazhenth, Chemical Engineering, IIT G	Investigation of guar gum samples for its properties	Jyothi Laboratories Limited, Mumbai	0.56	Kannan Pakshirajan	Six months
G. Pugazhenth, Chemical Engineering, IIT G	Investigation of polymer samples for its properties	Jyothi Laboratories Limited, Mumbai	2.78691	Kannan Pakshirajan	Six months

**RESEARCH PUBLICATIONS****Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Madhuri Das, Lepakshi Barbora, Priyanki Das, Pranab Goswami	Biofuel cell for generating power from methanol substrate using alcohol oxidase bioanode and air-breathed laccase biocathode	Biosensors and Bioelectronics	DOI: 10.1016/j.bios.2014.03.016.		2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Somasekhar R. Chinnadayala, Ankana Kakoti, Mallesh Santhosh, Pranab Goswami	A novel amperometric alcohol biosensor developed in a 3rd generation bioelectrode platform using peroxidase coupled ferrocene activated alcohol oxidase as biorecognition system.	Biosensors and Bioelectronics	55	120-126	2014
Priyamvada Jain, Babina Chakma (equal 1st author contribution), Sanjukta Patra, and Pranab Goswami	Potential biomarkers and their applications for rapid and reliable detection of malaria.	BioMed Research International	2014 (Article ID: 852645)	1-20	2013
Priyanki Das, Lepakshi Barbora, Madhuri Das, Pranab Goswami	Highly sensitive and stable laccase based amperometric biosensor developed on nano-composite matrix for detecting pyrocatechol in environmental samples.	Sensors & Actuators B. Chemical	192	737-744	2014
Sushovan Chatterjee, Dipti Yadav, Lepakshi Barbora, Pinakeswar Mahanta, and Pranab Goswami	Silk-Cocoon Matrix Immobilized Lipase Catalyzed Transesterification of Sunflower Oil for Production of Biodiesel	Journal of Catalysts	2014, Article ID 868535	1-7	2014
Mitun Chakraborty, Manish Goel, Somasekhar R. Chinnadayala, Ujjwal Dahiya, Siddhartha Sankar Ghosh and Pranab Goswami	Molecular characterization and expression of a novel alcohol oxidase from <i>Aspergillus terreus</i> MTCC 6324	PlosOne	Article ID: PONE-D-13-53121R1	-	2014
N.K. Sahoo, K. Pakshirajan and P.K. Ghosh	Biodegradation of 4-bromophenol by <i>Arthrobacter chlorophenolicus</i> A6 in batch shake flasks and in a continuously operated packed bed reactor	Biodegradation	25	265-276	2014
K. Pakshirajan and J. Mal	Biohydrogen production using native carbon monoxide converting anaerobic microbial consortium predominantly <i>Petrobacter</i> sp.	International Journal of Hydrogen Energy	38	16020-16028	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
K. Pakshirajan, A.N. Worku, M.A. Acheampong, H.J. Lubberding and P.N.L. Lens	Cr(III) and Cr(VI) removal from aqueous solutions by cheaply available fruit waste and algal biomass	Applied Biochemistry and Biotechnology	170	498-513	2013
M.A. Ahceampong, K. Pakshirajan and P.N.L. Lens	Assessment of the effluent quality from a gold mining industry in Ghana	Environmental Science and Pollution Research	20	3799-3811	2013
S Ghosh, TI Ozek, N Tabanca, A Ali, J ur Rehman, IA Khan, L Rangan	Chemical composition and bioactivity studies of essential oils from <i>Alpinia nigra</i> (Gaertn.) B. L. Burt	Industrial Crops and Products	53	111-119	2013
AM Ramesh, S Basak, RR Choudhury, L Rangan	Flow cytometric estimation of nuclear DNA content and determination of mitotic chromosome count in <i>Pongamia pinnata</i> , a valuable biodiesel plant	Applied Biochemistry and Biotechnology	172 (1)	533-548	2013
Rimjhim R Choudhury, S Basak, AM Ramesh, L Rangan	Nuclear DNA content of <i>Pongamia pinnata</i> L. and genome size stability in in vitro regenerated plantlets.	Protoplasma	DOI: 10.1007 / s00709 -013-0545-4.		2013
V Kesari, AM Ramesh, L Rangan	<i>Rhizobium pongamiae</i> sp. nov. from Root Nodules of <i>Pongamia pinnata</i>	BioMed Research International	DOI: 10.1155 /2013/ 165198		2013
L Rubia, L Rangan, RR Choudhury, P Dobrev, J Malbeck, M Kamínek, M Fowler, A Slater, N Scott, J Bennett, S Peng, GS Khush, M Elliott	Changes in the chlorophyll content, rate of senescence and cytokinin levels in the top three leaves of new plant type rice during grain filling	Journal of Plant Growth Regulation	33(1)	66-76	2013
S Ghosh, K Indukuri, S Bondalapati, A K Saikia, L Rangan	Unveiling the mode of action of antibacterial labdane diterpenes from <i>Alpinia nigra</i> (Gaertn.) B. L. Burt seeds.	European Journal of Medicinal Chemistry	66C	101-105	2013
S Ghosh, GF Padilla-González, L Rangan	<i>Alpinia nigra</i> seeds: a potential source of free radical scavenger and antibacterial agent.	Industrial Crops and Products	49	348-356	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
A Das, V Kesari, MS Vinod, A Parida, S Mitra, L Rangan	Genetic diversity in ecotypes of the scarce wild medicinal crop Zingiber moran revealed by ISSR and AFLP marker analysis and chromosome number assessment	Plant Biosystems	DOI:10.1080/1263504.2013.795197		2013
S Ghosh, L Rangan	Alpinia: The gold mine of future therapeutics.	3Biotech	3(3)	173-185	2013
AM Ramesh, V Kesari, L Rangan	Characterization of a stearyl-acyl carrier protein desaturase gene from potential biofuel plant, Pongamia pinnata L. Gene	Gene	10.1016/j.gene.2014.03.047		2014
M. D. Adhikari, S. Goswami, B. R. Panda, A. Chattopadhyay and A. Ramesh	Membrane-directed high bactericidal activity of gold nanoparticle-polythiophene composite for niche applications against pathogenic bacteria.	Advanced Healthcare Materials	2 (4)	599-606	April 2013
S. Goswami, M. D. Adhikari, C. Kar, D. Thiyagarajan, G. Das and A. Ramesh	Synthetic amphiphiles as therapeutic antibacterials: Lessons on bactericidal efficacy and cytotoxicity and potential application as an adjuvant in antimicrobial chemotherapy	Journal of Materials Chemistry B	1 (20)	2612-2623	28 May 2013
Mukherjee, S., Singh, A. K., Adhikari, M.D. and Ramesh, A.	Quantitative appraisal of probiotic attributes and in vitro adhesion potential of anti-listerial bacteriocin-producing lactic acid bacteria	Probiotics and Antimicrobial Proteins	5 (2)	99-109	June 2013
Datta, B. K., Mukherjee, S., Kar, C., Ramesh, A. and Das, G.	Zn <sup>2+</sup> and pyrophosphate sensing: Selective detection in physiological conditions and application in DNA-based rapid estimation of bacterial cell numbers	Analytical Chemistry	Vol. 85 Issue 17	8369-8375	3 September 2013
Basu, A., Thiyagarajan, D., Kar, C., Ramesh, A. and Das, G.	Synthesis, crystal structure and biomolecular interaction studies of pyridine-based thiosemicarbazone and its Ni (II) and Cu (II) complexes	RSC Advances	Vol. 3 Issue 33	14088-14098	7 September 2013



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Kar, C., Adhikari, M. D., Datta, B. K., Ramesh, A. and Das, G.	A CHEF-based biocompatible turn ON ratiometric sensor for sensitive and selective probing of Cu <sup>2+</sup>	Sensors and Actuators B	Vol. 188	1132-1140	November 2013
Adhikari, M. D., Mukherjee, S., Saikia, J., Das, G. and Ramesh, A.	Magnetic nanoparticles for selective capture and purification of an antimicrobial peptide secreted by food-grade lactic acid bacteria	Journal of Materials Chemistry B	Vol. 2 Issue 10	1432-1438	14 March 2014
Rekha Deka and Ranjan Tamuli	<i>Neurospora crassa</i> ncs-1, mid-1 and nca-2 double-mutant phenotypes suggest diverse interaction among three Ca <sup>2+</sup> -regulating gene products	Journal of Genetics	Vol. 92, No. 3	559-563	10 October 2013
Ravi Kumar and Ranjan Tamuli	Calcium/calmodulin-dependent kinases are involved in growth, thermotolerance, oxidative stress survival, and fertility in <i>Neurospora crassa</i>	Archives of Microbiology	Volume 196 Issue 4	295-305	26 February 2014
Prakash S and Dubey VK	Molecular Mechanisms of In vitro Betulin Induced Apoptosis of <i>Leishmaniadonovani</i>	American Journal of Tropical Medicine and Hygiene.	90	354-60	2014
Singh S, Singh AN, Verma A and Dubey VK	Biodegradable Polycaprolactone (PCL) Nanosphere Encapsulating Superoxide Dismutase and Catalase Enzymes.	Applied Biochemistry and Biotechnology	171(7)	1545-1558.	2013
Singh AN, Singh S and Dubey VK	Immobilization of Procerain B, a Cysteine Endopeptidase, on Amberlite MB-150 Beads.	PLoS ONE.	8(6)	e66000	2013
Sarkar N and Dubey VK	Exploring critical determinants of proteinamyloidogenesis: A review.	Journal of Peptide Science,	19	529-36	2013
Prakash S, Saha P, Saikia AK, Dubey VK	Molecular mechanism underlying antileishmanial effect of oxabicyclo[3.3.1]nonanones: Inhibition of key redox enzymes of the pathogen	European Journal of Pharmaceutics and Biopharmaceutics	85 (3)	569-577	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Hazra S, Ghosh S, Sarma MD, Das M, Sundar S, Dubey VK, Sundar S and Hazra B	Evaluation of a diospyrin derivative as antileishmanial agent and potential modulator of ornithine decarboxylase of <i>Leishmania donovani</i> .	Experimental Parasitology	135,	407-413.	2013
Das M, Prakash S, Sundar S and Dubey VK	Miltefosine-unresponsive <i>Leishmania donovani</i> has a greater ability than miltefosine-responsive <i>L. donovani</i> to resist reactive oxygen species	FEBS Journal	280 (19)	4807–4815.	2013
Chakraborty D, Saravanan P, Patra S and Dubey VK	Studies on ornithine decarboxylase of <i>Leishmania donovani</i> : Structure modeling and inhibitor docking.	Medicinal Chemistry Research,	22	466-478	2013
V. K. Ravi, T. Swain, N. Chandra and R. Swaminathan	On the characterization of intermediates in the isodesmic aggregation pathway of hen lysozyme at alkaline pH	PLoS ONE	9 (1)	e87256	28th Jan 2014
V. K. Ravi, M. Goel, H. C. Kotamarthi, S. R. K. Ainavarapu and R. Swaminathan	Preventing Disulfide Bond Formation Weakens Non-covalent Forces Among Lysozyme Aggregates	PLoS One	9 (2)	e87012	14th Feb 2014
Biman B. Mandal, Eun Seok Gil, Bruce Panilaitis and David L. Kaplan	Laminar silk scaffolds for aligned tissue fabrication	Macromolecular Bioscience	13	48-58	2013
Punetha A, Sivathanu R, Anand B	Active Site Plasticity Enables Metal Dependent Tuning of Cas5d Nuclease Activity in CRISPR-Cas Type I-C System	Nucleic Acids Research	42 (6)	3846-3856	2014
Kumar A, Das G, Bose B	Recombinant Receptor-binding Domain of Diphtheria Toxin Increases Potency of Curcumin by Enhancing Cellular Uptake	Molecular Pharmaceutics	11 (1)	208-17	January 6, 2014
Bose B	Systems biology: A biologist's viewpoint.	Progress in Biophysics and Molecular Biology	113 (3)	358-68	December, 2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Himangshu Sonowal, Atul Kumar, Pabitra Kumar Gogoi, Bithiah Grace Jaganathan*	Inhibition of Actin Polymerization Decreases Osteogenic Differentiation of Mesenchymal Stem Cells through p38 MAPK Pathway	J Biomed Science	20 (1)	71	Sep 26, 2013
Bithiah Grace Jaganathan*, Fernando Anjos-Afonso, Atul Kumar, Dominique Bonnet	Active RHOA favors retention of human hematopoietic stem/progenitor cells in the niche	J Biomed Science	20 (1)	66	Sep 11, 2013
Purabi Mazumdar, Swaroopa Rani Dasari, Venu Babu Borugadda, Garima Srivastava, Lingaraj Sahoo and Vaibhav V Goud	Biodiesel production from high free fatty acids content <i>Jatropha curcas</i> L. oil using dual step process	Biomass Conversion and Biorefinery	3 (4)	361-369	2013
Sudipta Sekhar Das Bhowmik, Tsering Stobdan and Lingaraj Sahoo	Germination and short-term storage of <i>Hippophae rhamnoides</i> L. seeds and its ex-situ reintroduction potential assessment under North East Indian conditions	Dendrobiology	70		2013
Lalremsiami Hrahsel, Adrija Basu, Lingaraj Sahoo and Robert Thangjam	In vitro propagation and assessment of the genetic fidelity of <i>Musa acuminata</i> (AAA) cv. Vaibalhla derived from immature male flowers	Applied Biochemistry and Biotechnology		1-10	2013
Gage MC, Yuldasheva NY, Viswambharan H, Sukumar P, Cubbon RM, Galloway S, Imrie H, Skromna A, Smith J, Jackson CL, Kearney MT, Wheatcroft SB.	Endothelium-specific insulin resistance leads to accelerated atherosclerosis in areas with disturbed flow patterns: a role for reactive oxygen species.	Atherosclerosis	230(1)	131-9	2013 Sep
Ganar K, Sinha S, Das M, Kumar S	Newcastle disease virus: Current status and our understanding	Virus Research	184C	71-81	2014, March

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Metri, R.; Jerath, G.; Kailas, G.; Gacche, N.; Pal, A.; Ramakrishnan, V.	Structure Based Barcoding of Proteins	Protein Science	23	117-120	2014
Jerath, G.; Ramakrishnan, V	Web-resources in Post Genomic Era	Health Sciences	1(3)	JS002A	2014
Anil Kumar Verma and Arun Goyal	In silico structural characterization and molecular docking studies of first glucuronoxylan-xylanohydrolase (Xyn30A) of family 30 glycosyl hydrolase (GH30) from <i>Clostridium thermocellum</i>	Molecular Biology	48(2)	278-286	2014
Rishikesh Shukla and Arun Goyal	Probiotic potential of <i>Pediococcus pentosaceus</i> CRAG3 a new isolate from fermented cucumber.	Probiotics and Antimicrobial Proteins	6	11-21	2014
Rishikesh Shukla, Iliia Iliiev and Arun Goyal	<i>Leuconostoc mesenteroides</i> NRRL B-1149 as probiotic and its dextran with anti-cancer properties.	Journal of Bioscience and Biotechnology	3	79-87	2014
Shraddha Shukla, Qiao Shi, Ndegwa H. Maina, Minna Juvonen, Maija Tenkanen and Arun Goyal	<i>Weissella confusa</i> Cab3 dextranase: Properties and in-vitro synthesis of dextran and glucooligosaccharides.	Carbohydrate Polymers	101	554-564	2014
Deeplina Das and Arun Goyal	Characterization and biocompatibility of Glucan: A safe food additive from probiotic <i>Lactobacillus plantarum</i> DM5	Journal of the Science of Food and Agriculture	94	683-690	2014
Anil Kumar Verma, Arun Goyal, Filipe Freire, Pedro Bule, Immacolata Venditto, et. al.	Over-expression, crystallization and preliminary X-ray crystallographic analysis of glucuronoxylan-xylanohydrolase (Xyn30A) from <i>Clostridium thermocellum</i> .	Acta Crystallographica F	F69	1440-1442	2013
Arabinda Ghosh, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and Arun Goyal	Thermostable recombinant endo-1,4- $\beta$ -mannanase from <i>Clostridium thermocellum</i> : Biochemical characterization and manno-oligosaccharides production	Journal of Agricultural and Food Chemistry	61	12333-12344	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Arabinda Ghosh, Ana Sofia Luís, Joana, L.A. Brás, Neeta Pathaw, Nikhil K. Chrun- goo, Carlos M.G.A. Fontes and Arun Goyal	Deciphering ligand specificity of a Clostridium thermocellum family 35 carbohydrate binding module (CtCBM35) for gluco- and galacto- substituted mannans and its calcium induced stability.	PloS One	8(12)	e80415	2013
Damini Kothari and Arun Goyal	Structural characterization of enzymatically synthesized dextran and oligosaccharides from Leuconostoc mesenteroides NRRL B-1426 dextransucrase	Biochemistry (Moscow)	78(10)	1164-1170	2013
Deeplina Das and Arun Goyal	Anti-listerial bactericidal activity of Lactobacillus plantarum DM5 isolated from fermented beverage Marcha	Probiotics and Antimicrobial Protiens	5	206-215	2013
Gregoria Mitropoulou, Viktor Nedovic, Arun Goyal and Kourkoutas Yiannis	Immobilization technologies in probiotic food production	Journal of Nutrition and Metabolism doi. org/10.1155 /2013/716861	2013	ID 716861 (15 pages)	2013
Rishikesh Shukla and Arun Goyal	Novel dextran from Pediococcus pentosaceus CRAG3 isolated from fermented cucumber with anticancer properties	International Journal of Biomacromolecules	62	352-357	2013
Saprativ P. Das, Deepmoni Deka, Arabinda Ghosh, Debasish Das, Mohammad Jawed and Arun Goyal	Scale up and efficient bio-ethanol production involving recombinant cellulase (GH5) from Clostridium thermocellum	Sustainable Chemical Processes Doi: 10.1186/ 2043-7129-1-19	1	1-19	2013
Saprativ P. Das, Rajeev Ravindran, Deepmoni Deka, Mohammad Jawed, Debasish Das and Arun Goyal	Bioethanol production from leafy biomass of mango (Mangifera indica) involving naturally isolated and recombinant enzymes	Preparative Biochemistry and Biotechnology	43	717-734	2013



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Shadab Ahmed, Ana Sofia Luís, Joana L.A. Brás, Arabinda Ghosh, Saurabh Gautam, Munishwar N. Gupta, Carlos M.G.A. Fontes and Arun Goyal	A novel arabinofuranosidase of family 43 glycoside hydrolase (Ct43Araf) from <i>Clostridium thermocellum</i> releasing both $\alpha$ -L arabinofuranose and arabinopyranose from xylan side chains	Plos One	8(9)	e73575	2013
Shadab Ahmed, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and Arun Goyal	The family 6 carbohydrate binding module (CtCBM6B) of <i>Clostridium thermocellum</i> alpha-L-arabinofuranosidase binds xylans and thermally stabilized by Ca <sup>2+</sup> ions	Biocatalysis and Biotransformation	31(4)	217-225	2013
Shadab Ahmed, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and Arun Goyal	Functional and structure characterization of family 6 carbohydrate binding module (CtCBM6A) of <i>Clostridium thermocellum</i> alpha-L-arabinofuranosidase	Biochemistry (Moscow)	78(11)	1272-1279	2013
Shuchi Singh, Vijayanand S. Moholkar and Arun Goyal	Optimization of carboxymethylcellulase production from <i>Bacillus amyloliquefaciens</i> SS35	3 Biotech DOI: 10.1007/s13205-013-0169-6			2013
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Swati Khanna, Amrita Ranjan, Arun Goyal, Vijayanand S. Moholkar	Medium optimization for mixed alcohols production by glycerol utilizing immobilized <i>Clostridium pasteurianum</i> MTCC 116	Chemical and Biochemical Engineering Quarterly	27 (3)	319-325	2013
Swati Khanna, Arun Goyal and V.S. Moholkar	Production of n-butanol from biodiesel derived crude glycerol using <i>Clostridium pasteurianum</i> immobilized on amberlite	Fuel	112	556-561	2013
Swati Khanna, Arun Goyal, Vijayanand S. Moholkar	Effect of fermentation parameters on bio-alcohols production from glycerol using 30 immobilized <i>Clostridium pasteurianum</i> : An optimization study	Preparative Biochemistry and Biotechnology	43(8)	828-847	2013

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Saravanan Parameswaran, Prakash Saundagar, Vikash Kumar Dubey and Sanjukta Patra	Discovery of novel inhibitors targeting LdLip3 Lipase to combat Leishmaniasis.	Journal of Molecular Graphics & Modelling	V-29, I-49	68-79	2014 January
Sonali Seth, Debamitra Chakravorty, Vikash K Dubey, Sanjukta Patra	Plant lipase research-challenges encountered.	Protein Expression and Purification.	95	13-21	2014
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Bora U, Sett A, Singh D	Nucleic Acid Based Biosensors for Clinical Applications	Biosensors Journal	1	104	2013
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Begum R, Sahoo A, Ghosh SS and Chattopadhyay A	Recovering Hidden Quanta of Cu <sup>2+</sup> -doped ZnS Quantum Dots in Reductive Environment	Nanoscale	6	953-961	2014
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Jaiswal A, Gautam PK, Ghosh SS and Chattopadhyay A	Carbon dots mediated room-temperature synthesis of gold nanoparticles in poly (ethylene glycol)	Journal of Nanoparticle Research	16 (1)	1-14	2014
Chockalingam S and Ghosh SS	Amelioration of cancer stem cells in Macrophage Colony Stimulating Factor-Expressing U87MG-human glioblastoma upon 5-fluorouracil therapy	PLOS One	PONE-D-13-38673R1 10.1371/ journal. pone.0083877		2013
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Muthusivaramapandian Muthuraj, Basavaraj Palabhanvi, Shamik Misra, Vikram Kumar, Kumaran Sivalingavas, Debasish Das	Flux balance analysis of <i>Chlorella</i> sp. FC2 IITG under photoautotrophic and heterotrophic growth conditions	Photosynthesis Research	118(1-2)	167-179	2013
Muthusivaramapandian Muthuraj, Vikram Kumar, Basavaraj Palabhanvi, Debasish Das	Evaluation of indigenous microalgal isolate <i>Chlorella</i> sp. FC2 IITG as a cell factory for biodiesel production and scale up in outdoor conditions.	Journal of Industrial Microbiology & Biotechnology	41	499-511	2013
Saprativ P Das, Arabinda Ghosh, Asutosh Gupta, Arun Goyal, Debasish Das	Lignocellulosic fermentation of wild grass employing recombinant hydrolytic enzymes and fermentative microbes with effective bioethanol recovery.	Biomed Res Int. Article	Volume 2013, Article ID 386063	14 pages	2013
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Gauri Deb, VS Thakur, Anil M Limaye, Sanjay Gupta	Epigenetic induction of tissue inhibitor of matrix metalloproteinase-3 by green tea polyphenols in breast cancer cells	Molecular Carcinogenesis	PubMed PMID: 24481780		2014
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Seema Patel and Arun Goyal	16S rRNA based identification and phylogenetic analysis of an exopolysaccharide producing <i>Pediococcus pentosaceus</i> isolated from sugarcane field soil of Orissa	Journal of Microbial World	14(2)	130-139	2013

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Rishikesh Shukla and Arun Goyal	Elucidation of structure and biocompatibility of levan from <i>Leuconostoc mesenteroides</i> NRRL B-1149	Current Trends in Biotechnology and Pharmacy	7	635-643	2013
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Arabinda Ghosh, Rishikesh Shukla and Arun Goyal (2013) Production of manno-oligosaccharides from copra meal by recombinant endo  $\beta$ -(1 $\rightarrow$ 4) mannanase: their potential role as prebiotics and antitumorigenic agent. 10th Convention of Biotech Research Society and International Conference on Advances in Biotechnology and Bioinformatics, Nov 25-27, 2013, D.Y. Patil Institute of Biotechnology and Bioinformatics, Pune, India.

Saprativ P. Das, Ashutosh Gupta, Debasish Das\* and Arun Goyal\*(2013) Bench scale bioethanol production from *Eichhornia crassipes* involving statistical optimization of fermentation process parameters by Taguchi orthogonal array design. 10th Convention of Biotech Research Society and International Conference on Advances in Biotechnology and Bioinformatics, Nov

25-27, 2013, D.Y. Patil Institute of Biotechnology and Bioinformatics, Pune, India.

T. Jagan Mohan Rao and Arun Goyal (2013) Analysis of prebiotic potential of dextran from *Weissella cibaria* JAG8. 10th Convention of Biotech Research Society and International Conference on Advances in Biotechnology and Bioinformatics, Nov 25-27, 2013, D.Y. Patil Institute of Biotechnology and Bioinformatics, Pune, India.

Ashutosh Gupta, Saprativ P. Das, Rajan Choudhary, Debasish Das and Arun Goyal (2013) Bioethanol production from *Populus nigra* involving recombinant acetylxyylan-esterase (Axe) from *Clostridium thermocellum*. 10th Convention of Biotech Research Society and International Conference on Advances in Biotechnology and Bioinformatics, Nov 25-27, 2013, D.Y. Patil Institute of Biotechnology and Bioinformatics, Pune, India.

Shadab Ahmed, Carlos M.G.A. Fontes and Arun Goyal (2013) Crystallization of  $\alpha$ -L-arabinofuranosidase a family 43 glycoside hydrolase (CtGH43) from *Clostridium thermocellum*. 42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery. Nov 21-23, 2013, Jawaharlal Nehru University, New Delhi, India.

Soumyadeep Chakraborty, Carlos M.G.A. Fontes and Arun Goyal (2013) Structural in-sight of thermostable endo pectate lyase (PL1B) from *Clostridium thermocellum*. 42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery. Nov 21-23, 2013, Jawaharlal Nehru University, New Delhi, India.

Anil Kumar Verma and Arun Goyal (2013) Structure characterization and molecular docking analysis of modeled family 6 carbohydrate binding module (CtCBM6) of *Clostridium thermocellum*. 42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery. Nov 21-23, 2013, Jawaharlal Nehru University, New Delhi, India.

Shuchi Singh, Vijayanand S. Moholkar and Arun Goyal (2013) Optimization of pretreatment strategies for enzymatic saccharification of *Parthenium hysterophorus* for bioethanol production. 54th Annual Conference of Association of Microbiologists of India and International Symposium on 'Frontier Discoveries and innovations in Microbiology. November 17-20, 2013, Maharshi Dayanand University, Rohtak, Haryana, India.

Ashutosh Gupta, Saprativ P. Das, Rajan Choudhary, Debasish Das and Arun Goyal (2013) Application of recombinant hydrolytic enzymes for bioethanol production from leafy biomass of bamboo (*Bambusa dendrocalamus*). 54th Annual Conference of Association of Microbiologists of India and International Symposium on 'Frontier Discoveries and Innovations in Microbiology. November 17-20, 2013, Maharshi Dayanand University, Rohtak, Haryana, India.

Saprativ P. Das, Arabinda Ghosh, Ashutosh Gupta, Debasish Das and Arun Goyal (2013) Approaches for identification of a combination of hydrolytic enzymes and fermentative microbes for bioethanol production from wild grass. Indraprastha International Conference on Biotechnology, Guru Gobind Singh Indraprastha University, 22 - 25 October, 2013 New Delhi, India.

Rajan Choudhary, Saprativ P. Das, Anil Kumar Verma, Debasish Das and Arun Goyal (2013) Efficient bioethanol production from lignocellulosic leafy biomass of poplar (*Populus nigra*). International Conference on Conserving Biodiversity for Sustainable Development, Aug 16-18, 2013, National Institute of Technology, Rourkela, Odisha, India.

Damini Kothari and Arun Goyal (2013) Screening of acceptors for oligosaccharide synthesis using *Leuconostoc mesenteroides* NRRLB-1426 glucansucrase. 5th Congress of European Microbiologists FEMS 2013, July 21-25 2013, Leipzig, Germany.

Qiao Shi, Shraddha Shukla, Ndegwa Maina, Minna Juvonen, Arun Goyal and Maija Tenkanen (2013) Characterization of dextran and glucooligosaccharides produced by *Weissella confusa* Cab3 dextranase. 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

Aruna Rani and Arun Goyal (2013) Molecular cloning, expression and biochemical characterization of family 8 polysaccharide lyase (PsPL8) enzyme from *Pedobacter saltans* (DSM 12145) 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

Soumyadeep Chakraborty and Arun Goyal (2013) Pectic substrate degrading family 1 Polysaccharide Lyase (CtPL1-CBM35) and its truncated derivative (CtPL1) from *Clostridium thermocellum*. 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

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of carbohydrate binding module family 6 (CtCBM6) from *Clostridium thermocellum*. 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

Shadab Ahmed, Saurabh Gautam, Munishwar N. Gupta, Carlos M.G.A. Fontes and Arun Goyal (2013) A novel  $\alpha$ -L-arabinofuranosidase of family 43 glycoside hydrolase (Ct43Araf) and associated carbohydrate binding modules from *Clostridium thermocellum*. 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

Arabinda Ghosh, Anil K. Verma, Neeta Pathaw, Nikhil K. Chrunghoo, Saurabh Gautam, Munishwar N. Gupta and Arun Goyal (2013) Conformational change upon ligand binding of a manno-configured substrate specific family 35 Carbohydrate Binding Module (CBM35) from *Clostridium thermocellum*. 10th Carbohydrate Bioengineering Meeting, April 21-24, 2013, Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

Amaresh Kumar Sahoo, Arun Chattopadhyay and Siddhartha Sankar Ghosh; Metal Nanoparticle Based Nanocomposites for Sensing and Therapeutic Applications, Oral Presentation, Young Scientists Colloquium-2013. Material Research Society of India (MRSI) - Kolkata chapter. August 28, 2013, Jadavpur University, Kolkata. India.

Rumi Khandelia, Amit Jaiswal, Siddhartha Sankar Ghosh and Arun Chattopadhyay; Metal Nanoparticle Based Nanocomposites for Sensing and Therapeutic Applications, Oral Presentation, Young Scientists Colloquium-2013. Material Research Society of India (MRSI) - Kolkata chapter. August 28, 2013, Jadavpur University, Kolkata. India. [Received MRSI Best Poster Award]

Upashi Goswami, Parnjoli Das, Siddhartha Sankar Ghosh and Arun Chattopadhyay; Antibacterial Fe-nanoparticles on Resin Beads and Sand for Surface water, 3rd International Conference on Advanced Nanomaterials and Nanotechnology, ICANN 2013, December 1-3, 2013, IIT Guwahati, India.

Devendra Kumar Maravi, Amaresh Kumar Sahoo, Upashi Goswami, Doolthi Shambu Prasad, Siddhartha Sankar Ghosh and Lingaraj Sahoo; Phytogenic 'green synthesis' of silver NPs with enhanced antibacterial activity, Poster presentation, International Conference on Harnessing natural Resources for Sustainable Development- Global Trend. January 29-31, 2014, Cotton College, Guwahati, India.

Rama Ghosh, Amaresh Kumar Sahoo, Siddhartha Sankar Ghosh, Arun Chattopadhyay and Anumita Paul; Metal Nanoclusters and their Biological Applications, Poster presentation, Internal Conference On Nanoscience and Technology (CONSAT 2014), March 3 – 5, 2014, INST, Chandigarh, India. [Received Nanoscale Best Poster Award and C.N. Rao Best Poster Award].

Radhika R. and Chaturvedi Rakhi\*. The Elevated production of spilanthol from in vitro cultures of *Spilanthes acmella* Murr. by optimization of media via response surface methodology. In: 2nd International Conference on Agricultural & Horticultural Sciences, February 2-5, 2014, 167th Omics Group Conferences, Hyderabad, Page No. 193, 2014.

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Bajpai R. and Chaturvedi Rakhi\*. Clonal propagation and rooting of haploid shoots obtained by in vitro anther cultures of Tea. In: Assian Congress on Biotechnology (ACB), Dec 15-19, 2013, Indian Institute of Technology, New Delhi, Page no: 182, 2013.

Mishra V. K. and Rakhi Chaturvedi\*. An Efficient Protocol for Androgenic Haploid Production in TV21 Cultivar of Tea (*Camellia assamica* ssp. *assamica* (Masters)). In: In Vitro Biology Meeting by Society For In Vitro Biology, at the Rhode Island Conference Center and The Omni Providence, Providence, Rhode Island, USA June 15-19, 2013.

Chaturvedi Rakhi\*, Hazarika R. R., Rajesh P.P. and Preshobha K.P. Establishment of haploid calli from unfertilized ovaries of Tea (*Camellia sinensis* (L.) O. Kuntze) as potential source of valued secondary metabolites. In: 8th IVCHB 2013 International Symposium on In Vitro Culture and Horticultural Breeding, June 2-7, 2013, Coimbra University, Portugal, Lisbon, Page No. 63, 2013.

Vignesh Natarajan, Srikanth Katla, Satish Cingadi, Senthilkumar Sivaprakasm (2013), Cassava Starch Waste - A Viable Raw Feed Stock for the production of Hyaluronic Acid by *Streptococcus thermophilus* NCIM2904, Asian Congress on Biotechnology, Dec 15 – 19, 2013.

Satish C, Srikanth K, Vignesh M, Vasanth K, Vignesh N, Sivaprakasm S, Fermentative production of optically pure D-lactic acid by *Lactobacillus* sp. employing cassava waste hydrolysate, International Conference

on Chemical and Bioprocess Engineering – India, Nov 16 -17, 2013.

Richa Arya, Rajesh Kumar and Nitin Chaudhary (2013) Antibacterial properties of a peptide from a bacterial shape protein. Indraprastha International Conference in Biotechnology (IICB)-2013, October 22-25, 2013, New Delhi, India.

Gauri Deb\*, VS Thakur, Anil M Limaye and Sanjay Gupta. Molecular insights into the epigenetic induction of tissue inhibitor of matrix metalloproteinase-3 (TIMP-3) by green tea polyphenols in breast cancer cells” presented in oral (award category) in the 33rd Annual Convention of the Indian Association for Cancer Research (IACR) on “Discovery, Innovation and Translation in Cancer Research” held in Kollam, Kerala, India from 12-15 Feb 2014.

Dixy Jaba Sheeba JM, Mohan C Manjegowda\*, Marine Hussain, Gauri Deb and Anil M Limaye. Estrogen regulation of ECM remodeling and associated genes. Presented in 33rd Annual Convention of Indian Association for Cancer Research on “Discovery, Innovation and Translation in Cancer Research”, held in Kollam, Kerala India from 12-15 Feb 2014.

Darilang Mawrie, Atul Kumar, Damaris Magdalene, Himanshu Vyas, Chinnapaka Somaiah, Bithiah Grace Jaganathan. Characterisation of stem cells isolated from extra ocular muscle tissue. Indian Society for Cell Biology The XXXVII All India Cell Biology Conference and Symposium on Cell Dynamics and Cell Fate at IISC, Bangalore. Dec 22-24 2013.

Chinnapaka Somaiah, Jina Bhattacharyya, Sewali Deka, Bithiah Grace Jaganathan. The effect of extra cellular matrix on in vitro behaviour of mesenchymal stem cells. 4th International Conference on Stem Cells and Cancer (ICSCC-2013): Proliferation, Differentiation and Apoptosis, Mumbai, India, Oct 19-22, 2013.

Himangshu Sonowal, Atul Kumar, Jina Bhattacharyya, Pabitra Kumar Gogoi, Bithiah Grace Jaganathan. CD90 expression in mesenchymal stem cells of the malignant niche. Gordon Research Conference (GRC) on Stem Cells and Cancer, Les Diablerets, Switzerland, April 21-26, 2013.

Punetha A and Anand B Activity switching an efficient way of resource utilization: The multifarious roles of Cas5 in CRISPR biology. 42nd National Seminar on Crystallography and International Workshop on Application of X-ray Diffraction for Drug Discovery, JNU

New Delhi, India. November 21-23, 2013.

### Book Chapters

Ghosh, K. Pakshirajan and P.K. Ghosh (2013) Bioremediation of perchlorate contaminated environment. In: Biological Remediation of Explosive Residues, Singh, S.N., (Ed), Springer, Germany, pp 163-178.

Deeplina Das and Arun Goyal (2013) “Chapter 15, Pharmaceutical Enzymes” in Biotransformation of waste biomass into high value biochemicals, Part IV Pharmaceutical and personal care products, pp 367-387, Eds S.K. Brar, G.S. Dhillon and Carlos R. Soccol (Springer, 2013).

Hrishikesh Upadhyaya, Lingaraj Sahoo and Sanjib Kumar Panda (2013) “Molecular Physiology of Osmotic Stress in Plants” in Molecular Stress Physiology of Plants, pp. 179-192. Gyana Ranjan Rout and Anath Bandhu Das (eds) Springer, USA, 2013.

Sagarika Mishra, Bedabrata Saha, Jayprakash Awasthi, Mohitosh Dey, Sanjib Kumar Panda and Lingaraj Sahoo (2014) “Crosstalk between salt, drought and cold stress in plants: towards genetic engineering for stress tolerance” in Climate Change and Abiotic Stress Tolerance. N. Tuteja and SS Gill (eds) Wiley-Blackwell, Germany, 2014 (In press)

Ratikanta Behura, Sanjeev Kumar, Bedabrata Saha, Manasa Kumar Panda, Mohitosh Dey, Sagarika Mishra, Shamsheer Alam, Debee Prasad Sahoo, Twinkle Sugla, Sanjib Kumar Panda and Lingaraj Sahoo (2014) “Cowpea (*Vigna unguiculata* L. Walp)” in Agrobacterium Protocols (Methods in Molecular Biology). K Wang (ed) Springer, USA, 2014 (In press)

Devendra Kumar Maravi, Shamsheer Alam, Purabi Mazumdar, Vaibhav V Goud and Lingaraj Sahoo (2014) “*Jatropha curcas* L.” in Agrobacterium Protocols (Methods in Molecular Biology). K Wang (ed) Springer, USA, 2014 (In press)

L Rangan\*, V Kesari, AM Ramesh A review of *P. pinnata*; the biodiesel plant biology, tissue culture and genetic enhancement. Biotechnological applications for environmental protection In: Abhilash P.C. Springer 1-13, 2014.

Advance Techniques in Enzyme research, by Debamitra Chakravorty and Sanjukta Patra\* in Advances in Enzyme Biotechnology (Springer) Ed. P. Shukla. 2013. Pages 89-109.



**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED**

<b>Name of Faculty</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>International/ National</b>
Kannan Pakshirajan	4th Biopesticides International Conference (BIOCICON 2013)	St. Xavier's College, Palayamkottai, Tamil Nadu, India	November 28-29, 2013	International
Kannan Pakshirajan	2nd International Conference on Intelligent Control, Modelling and Systems Engineering (ICMS 2014)	Boston Marriott Cambridge Hotel, Cambridge, Massachusetts, USA	January 29-31, 2014	International
L Rangan	National Seminar on Tree Biotechnology	IFGTB, Coimbatore	23-24 September	International
L Rangan	14 Indo US Workshop on Flow Cytometry	Chennai	28-30 October	National
L Rangan	5th Indian Youth Science Congress	Santiniketan	6-9 Dec	National
Ranjan Tamuli	Neurospora 2014	Asilomar, California	6-9 March 2014	International
Biman B. Mandal	Oral talk at TERMIS AP International conference	Shanghai-Wuzhen, China,	October 23-26, 2013	International
Biman B. Mandal	Oral talk at 2nd International conference on Medical materials, devices and regenerative medicine (MMDRM -2014)	Kathmandu, Nepal	January 11-13, 2014	International
Biplab Bose	XXXVII All India Cell Biology Conference	IISc Bangalore	22-24 December 2013	National
Bithiah Grace Jagannathan	Gordan Research Conference (GRC) on Stem Cells and Cancer	Les Diablerets, Switzerland	April 21-26, 2013	International
Piruthivi Sukumar	British Cardiovascular Society Meeting 2013	London, UK	3rd to 6th June 2013	International
Piruthivi Sukumar	2nd National Conference of the Forum for Research Ethics Committees of India	Coimbatore, India	8th and 9th Nov 2013	National
Piruthivi Sukumar	20th Indian Society of Chemists and Biologists International Conference	Delhi, India	29th Mar to 4th Apr 2014	International
Arun Goyal	10th Carbohydrate Bioengineering Meeting	Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic	April 21-24, 2013	International
Arun Goyal	42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery	Jawaharlal Nehru University, New Delhi, India	Nov 21-23, 2013	National

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
Arun Goyal	27th International Carbohydrate Symposium	Indian Institute of Science, Bangalore, India.	Jan 12-17, 2014	International
R. Swaminathan	Frontiers in Modern Biology	Department of Biochemistry, IISc Bangalore	15-16 June 2013	National
R. Swaminathan	National Fluorescence Workshop FCS 2013	Dept. of Physics, IISc and JNCASR Bangalore	24-28 Nov 2013	National
R. Swaminathan	58th Annual Meeting of Biophysical Society	San Francisco, California, USA	15-19 Feb 2014	International
Utpal Bora	5th International Conference on Translational Cancer Research	VigyanBhawan, New Delhi	6th to 9th February, 2014	International
Senthilkumar Sivaprakasam	Biocalorimetry: A Robust PAT Process Analyzer for Real-Time Monitoring and Control of Bioprocess Systems	Bioprocessing India 2013, IIT Delhi	Dec 5 – 7, 2013	National
Nitin Chaudhary	Indraprastha International Conference in Biotechnology (IICB)-2013	Guru Gobind Singh Indraprastha University, New Delhi, India	October 22-25, 2013	International

#### INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Pranab Goswami	Key note lecture on Frontier in Biosensor Research	JNTUA College of Engineering, Pulivendulla	Andhra Pradesh	14 March 2014.
L Rangan	Advancement in Potential Tree Legume- Pongamia pinnata	IFGTB,	Coimbatore, TN	23-24 Sep
L Rangan	Flow Cytometry and Plant DNA analysis	Ramchandra Medical University, Porur	Chennai, TN	28-20 Oct
L Rangan	Application and advances made in flow Cytometry in field of Plant Sciences	Viswa Bharti University	Santiniketan, WB	6-9 Dec
R. Swaminathan	Time-correlated single photon counting (TCSPC)	Dept. of Physics, Indian Institute of Science	Bangalore	25 Nov 2013
R. Swaminathan	The Dance of Proteins in their Disordered and Non-native states	Centre for Cellular and Molecular Biology	Hyderabad	8 July 2013
R. Swaminathan	Characterization of Intermediates in Hen Lysozyme aggregation at alkaline pH	Verkman Lab, University of California San Francisco	San Francisco, USA	14 Feb 2014
Biman B. Mandal	Silk Based Bioengineering of Tissues	Justus Liebig University	Gissen, Germany	March 11, 2014

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Biman B. Mandal	National School on Sustainable Polymers & First Symposium on Advances in Sustainable Polymers (ASP-14)	IIT Guwahati	Guwahati	January 06, 2014
Biman B. Mandal	Molecular Tools in Medical Biotechnology Investigation, QIP programme	IIT Guwahati	Guwahati	December 02, 2013
Biman B. Mandal	Silk Biomaterials: A Versatile Platform for Human Tissue Engineering	DUPONT Knowledge Centre	Hyderabad	September 20, 2013
Biplab Bose	Research Methodology & Basic Molecular Biology Techniques in Biomedical research	NIPER, Guwahati	Guwahati	14th June 2013
Biplab Bose	Design Principle in Molecular Network	Tripura University	Agartala	10th May 2013
Arun Goyal	Cloning, hyper-expression, crystallization and X-ray crystallographic structure analysis of glucuronoxylan-xylanohydrolase (Xyn30A) from Clostridium thermocellum.	Jawaharlal Nehru University, New Delhi, India.(42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery)	New Delhi	Nov 23, 2013
S. S. Ghosh	Nanocarrier Based Protein Therapeutics	First Symposium on Advances in Sustainable Polymers January 6-11th 2014 Organized by the Organized by the Centre for Excellence for Sustainable Polymers and Department of Chemical Engineering, IIT Guwahati	IIT Guwahati	10 January 2014
S. S. Ghosh	Understanding molecular events in cancer therapeutics	QIP short term course on "Molecular Tools in Medical Biotechnology Investigations" December 02 - 06, 2013 Organized by the Department of Biotechnology, IITG	IIT Guwahati	2nd December 2013
S. S. Ghosh	Nanotechnology for Cancer Therapy	ICANN 2013 [International Conference on Advanced Nanomaterials and Nanotechnology] December 01 - 03, 2013 Organized by the Centre for Nanotechnology, IITG	IIT Guwahati	3rd December 2013

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
S. S. Ghosh	Emergence of Nanobiotechnology	Frontiers in Nanotechnology Organized by the Department of Basic Science and Humanities, Royal School of Engineering and Technology	Guwahati	16th November 2013
Debashish Das	Production of Ultra Low Molecular Weight Hyaluronic Acid (HA) Using Streptococcus sp. W3	IIT Delhi	Delhi	Dec. 5-7, 2013
Ajaikumar B Kunnumakkara	Applications of Bioinformatics in Cancer Research	Present approaches and applications of bioinformatics tools and techniques in biological sciences, Dhing College, Nagon	Assam	June, 2013
Ajaikumar B Kunnumakkara	Methods in Cancer Drug Discovery	Internship Science Camp Under Inspire (DST), M.C.College, Barpeta	Assam	December 2013
Ajaikumar B Kunnumakkara	Alternate Methods for Accelerating Cancer Drug Discovery and Development	SBC(I), NE Chapter, NEIST, Jorhat	Assam	February 2014
Ajaikumar B Kunnumakkara	Natural Products, Promising Agents For Cancer Prevention and Treatment	National Seminar on Biodiversity Conservation-Trend and need, ST.Thomas' College, Thrissur and Kerala State Biodiversity Board	Kerala	March 2014
Ajaikumar B Kunnumakkara	Recent developments in cancer diagnosis and personalized cancer medicine	Mercy College, Palakkad	Kerala	March 2014

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Sagadevan Mundree	Deputy Director Centre for Tropical Crops and Biocommodities, Queensland University of Technology, Australia	Future Crops: Towards the development of enhanced stress tolerance & micronutrients biofortification	27th Sep 2013
Prof. Dulal Borthakur	Department of Molecular Biosciences & Bioengineering, University of Hawaii at Manoa, Honolulu, USA	Screening for Fusarium wilt resistance in Acacia koa	15th Nov 2013
Prof. Madan K. Bhattacharyya	Department of Agronomy, Iowa State University Ames, IA 50011, USA	Transgenic approaches in enhancing resistance of soybean against the fungal pathogen, Fusarium virguliforme that causes sudden death syndrome	17th Feb 2014
Prof. Hiroyuki Koyama	Laboratory of Plant Cell Technology, Faculty of Applied Biological Sciences, Gifu University, Gifu, 501-1193, Japan	STOP1 Regulating System-A Root Module for Adapting to Acid Soil Environment, and for Enhancing Plant Immunity	3rd March 2014

**SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED:**

Name of Sem./Wor./Con.	Funded By	Date	International/National	Convener/Co-ordinator/ Etc.	No. of Participants
QIP-Short term course on 'Biotechniques for Pollution Control and Resource Recovery'	AICTE	July 1-5, 2013	National	Dr. Kannan Pakshirajan	24
QIP short term course on "Molecular Tools in Medical Biotechnology Applications"	AICTE	2-6 Dec 2013.	National	Dr.V.Trivedi and Dr.S.Patra	18
20th Nodal Officers' Meeting of DBT's Electronic Library Consortium (DeLCON 2013)	DBT,GOI	November 28-29,2013	National	Dr. Utpal Bora, IIT Guwahati, Mr. D.D. Lal, NBRC, Manesar	35
India-UK Scientific Seminar 2014 'Prospects and Challenges in Algal Biotechnology'	DST and Royal Society	19-21st February, 2014	International	Debasish Das and Christopher Howe	20 (5 from UK and 15 from India)

**PATENTS:**

1. L Rangan, Ghosh S, Singh RK, Dubey VK, Indukuri K, Saikia AK, 'Antileishmanial labdane type diterpene compounds from the seeds of *Alpinia nigra* (Gaertn.) B.L. Burtt, an ethnomedically important plant from North East India'. TIFAC-DST T.1 (49) / TIFA /2013.
2. Prakash Saudagar, Vikash Kumar Dubey, Anil Kumar Saikia and Pipas Saha. Oxabicyclo derivatives as novel antileishmanial compound. ( 863/KOL/2013 )
3. Venkata Dasu, V.; Hegde, K. Enzymatic esterification process to synthesize terpenoid esters using cutinase. 2014
4. Venkata Dasu, V.; Hegde, K. Enzymatic esterification process to synthesize isopropyl esters using cutinase. 2014

**AWARDS AND HONOURS:**

1. Dr. Ranjan Tamuli, IUSSTF Research Fellow: Awarded Indo-US Research Fellowship 2013 by the Indo-US Science and Technology Forum (IUSSTF) for research at the University of California Riverside, USA.
2. Dr. Vikash Kumar Dubey: B.M. Birla Science Prize in Biology for Year 2012 Link:
3. Dr. Vikash Kumar Dubey: Extended Innovative Young Biotechnologist Award by DBT. Government of India (July 2013)

4. Dr. Vikash Kumar Dubey: Selected for Prof. Umakant Sinha Memorial Award of the Indian Science Congress Association (ISCA) for the year 2013-2014
5. Dr. Vikash Kumar Dubey: Elected as Fellow of National Academy of Biological Sciences (July, 2013).
6. Dr. Biman B. Mandal received, Gandhian Young Technological Innovation Award (GYTI) 2014 by National Innovation Foundation (NIF) and SRISTI for our work on "Injectable silk fibroin hydrogels for tissue engineering and drug delivery".
7. Dr. Biman B. Mandal received, NASI-Young Scientist Platinum Jubilee Award 2013 by The Indian Academy of Sciences India. Citation and cash award of 25k INR.
8. Dr. Biman B. Mandal received, DST-INSPIRE Faculty award 2013 by Department of Science and Technology, Govt. of India. Supported by a project worth 35 lakhs.
9. Dr. Biman B. Mandal received, Rapid Grants for Young Investigator (RGYI) award 2013, Department of Biotechnology. Supported by a project worth 37 lakhs.
10. Dr. Biman B. Mandal received, Department of Biotechnology (DBT) travel grant award 2013 for attending TERMIS International Conference in Shanghai, China.
11. Dr. Piruthivi Sukumar received, Runner Up in Young Research Workers Prize at British Cardiovascular Society Meeting 2013, London, UK.

12. Dr. Arun Goyal received, J.V. Bhat Award (2013) (Cash prize Rs. 3,000/-) from Association of Microbiologists of India for Best Paper published in Indian Journal of Microbiology (Springer) in 2012.

13. Dr. Arun Goyal: Selected for Associate Editor, Annals of Microbiology (Jan 2014).

14. Dr. Arun Goyal: Selected as member, Board of Governors, Biotech Research Society of India (BRSI), (May 2013-April 2015).

15. Dr. Arun Goyal: Selected as executive member, North East Unit of Association of Microbiologists of India (AMI).

16. Dr. Pranab Goswami: Felicitated as resource person and delivered key note lecture on Frontier in Biosensor Research in the National Workshop on BIOSENSORS & NANOBIO TECHNOLOGY, 14th – 15th March, 2014 held at JNTUA College of Engineering, Pulivendulla, Andhra Pradesh 516390.

### STUDENTS' ACHIEVEMENTS

1. Mr Aadi Moolam Ramesh, doctoral student under supervision of Prof. L Rangan received Young Scientist Award for the best paper titled "Characterization of a stearoyl-acyl carrier protein desaturase gene from potential biofuel plant, *P. pinnata*" in area of Biochemistry and Molecular Biology during National conference on Science Of Omics For Agricultural Productivity: Future Perspectives held at G.B. Pant University of Agriculture & Technology, Pantnagar from March 4-6, 2014.

2. Mr Supriyo Basak, doctoral student under supervision of Prof. L Rangan received Poster Award in the Session Molecular Biology and Genomics for the paper titled "Genetic diversity and nuclear DNA content in Turmeric of Northeast India" during National conference on "Perspectives & Trends in Plant Sciences and Biotechnology (PTPB-2014)" Punjab University, Chandigarh & Society for Plant Research, from Feb 21-23, 2014.

3. Ms. Mousumi Das, PhD student under Prof. V.K. Dubey received Best Oral Presentation Award during International Conference on Health, Environment and Industrial Biotechnology BioSangam -2013. Allahabad, November 21 - 23, 2013

4. Mr. Ritesh Kumar, PhD student under Prof. V.K. Dubey received best poster presentation award (third position) at International Conference on "Future Prospects of Advancements in Biological Sciences, Health Issues & Environmental Protection; on 07 - 08 Feb, 2014 at Indira Gandhi Pratishthan, Lucknow.

5. Mr. Surojeet Das, MTech student (2nd year) under Dr B. B Mandal got selected for Gandhian Young Technological Innovation Award (GYTI) 2014 by National Innovation Foundation (NIF) and SRISTI for MTech work on "Injectable silk fibroin hydrogels for tissue engineering and drug delivery".

6. Chinnapaka Somaiah, PhD student under Dr. Bithiah Grace Jaganathan was awarded travel grant for his poster presentation at 4th International Conference on Stem Cells and Cancer (ICSCC-2013): Proliferation, Differentiation and Apoptosis, Mumbai, India, Oct 19-22, 2013.

7. Shraddha Shukla, a PhD student under Prof Arun Goyal successfully completed joint international collaborative research project with University of Helsinki, Finland under Center for International Mobility (CIMO) fellowship for doctoral programme during June 2013 to December 2013.

8. Damini Kothari, a PhD student under Prof Arun Goyal received DBT travel grant for attending 5th Congress of European Microbiologists, July 21-25, 2013, Leipzig, Germany to present a poster entitled "Enzymatic synthesis of glucan and oligosaccharides by glucansucrase from *Leuconostoc mesenteroides* NRRL B-1426.

9. Mr. Saurav Prasad, M.Tech Student under Dr. Senthikumar received best project award as well best oral presentation award for his post graduate project thesis entitled "D-Lactic acid production from whey permeate using *Lactobacillus* sp." at National level Young Researcher's Conference (YRC) 2013, ICT Mumbai.

### SPECIAL MENTION

1. Prof. L Rangan DAAD- IIT Faculty Exchange Fellowship, KIT Germany, June-July 2013

2. Prof. L Rangan EC Cytometry Society of India 2013

3. S Ghosh : Completed his PhD in the year 2014. (Supervisor Prof. L. Rangan)

4. Prof. Arun Goyal was Visiting Professor (Mar 2013 - Nov 2013), Department of Animal Production, Faculty of Veterinary Medicine (FMV), Technical University of Lisbon, (UTL), Lisbon, Portugal.

5. Shraddha Shukla: Completed her PhD in Dec 2013. (Supervisor Prof. Arun Goyal)

6. Jagan Mohan Rao T. : Completed his PhD in Dec 2013. (Supervisor Prof. Arun Goyal)

7. Prof Arun Goyal evaluated 4 PhD thesis.



## FACULTY MEMBERS

Sl. No.	Name	PhD	Designation	Areas of Interest
1.	B. Anand	IIT Kanpur	Assistant Professor	Structural Biology, Bioinformatics & Computational Biology, RNA Biology, Molecular Evolution
2.	U. Bora	Institute of Genomics and Integrative Biology, Delhi	Associate Professor	Biomaterials, Nanotechnology, Drug Delivery and Tissue Engineering
3.	B. Bose	AIIMS, New Delhi	Associate Professor	Cell Signaling, Computational Biology, Recombinant Proteins
4.	R. Chaturvedi	University of Delhi, Delhi	Professor	Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterization of Plant Secondary Metabolites
5.	N. Chaudhary	Centre for Cellular and Molecular Biology, Hyderabad	Assistant Professor	Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions, Curvature inducing proteins
6.	D. Das	IIT Bombay	Associate Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel
7.	V. V. Dasu	IIT Madras	Professor	Bioprocess Development (upstream to downstream), Metabolic Engineering, Bioenergy
8.	V. K. Dubey	Benaras Hindu University, Varanasi	Professor	Protein Biochemistry; Parasite Biochemistry
9.	S. S. Ghosh	Indian Institute of Chemical Biology, Kolkata	Professor	Gene Therapy, Expression Cloning (Mammalian Systems), Nanobiotechnology
10.	P. Goswami	NEIST, CSIR, Jorhat	Professor	Biocatalysis, Biosensor, Enzymatic Biofuel cell, and Biotransformation
11.	A. Goyal	IIT Kanpur	Professor	Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes and other industrial microbial enzymes
12.	B. G. Jaganathan	Frankfurt University, Germany	Assistant Professor	Stem Cells, Cancer and cell therapy
13.	S. P. Kanaujia	Indian Institute of Science Bangalore	Assistant Professor	Structural and Computational Biology

Sl. No.	Name	PhD	Designation	Areas of Interest
14.	M. Kumar	University of Maryland, College Park, USA	Assistant Professor	Molecular interaction of host-pathogen-vector of infectious diseases, Vector borne diseases of Zoonotic importance.
15.	S. Kumar	University of Maryland	Assistant Professor	Identification of molecular determinants of avian paramyxovirus virulence, Reverse genetics study of avian paramyxoviruses: Newcastle disease virus as a model, Vaccine development against avian paramyxoviruses using reverse genetics system, Viral vector study- Avian paramyxoviruses and adenoviruses.
16.	A. B. Kunnumakkara	University of Calicut	Assistant Professor	Role of inflammatory pathways in cancer development, Identification of novel biomarkers for cancer diagnosis and prognosis, Cancer drug discovery, Development of transgenic and gene knockout mouse models for biomedical research
17.	A. M. Limaye	IISc Bangalore	Assistant Professor	Molecular endocrinology, Cancer biology, Gene expression and regulation in Eukaryotic and Prokaryotic systems
18.	S. K. Maiti (Joined on 18 March 2014)	IIT Bombay	Assistant Professor	Biochemical Engg, Biofuel, Bioprocess modeling
19.	B. B. Mandal	IIT Kharagpur	Assistant Professor	Cell based tissue engineering, Biomaterials, Stem cells, Drug delivery systems
20.	K. Pakshirajan	IIT Madras	Associate Professor	(a) Environmental Biotechnology: biological removal of organic and inorganic pollutants from water and wastewaters (b) Biotechnological Products and Process Engineering: production, characterization and properties, process design, kinetics and optimization (c) Biohydrometallurgy and (d) Biofuels
21.	L. Pandey (Joined on 19 March 2014)	IIT Delhi	Assistant Professor	Surface and interfacial science, Protein's adsorption and aggregation, Environmental Biotechnology
22.	S. Patra	Central Food Technological Research Institute, Mysore	Associate Professor	Enzymes - applications in pharma and food industry
23.	V. Ramakrishnan	IIT Bombay	Assistant Professor	Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bionanotechnology

Sl. No.	Name	PhD	Designation	Areas of Interest
24.	A. Ramesh	Central Food Technological Research Institute, Mysore	Associate Professor	Nanobiotechnology, Biological Activity of Synthetic Amphiphiles and Metal Complex, Probiotics and Antimicrobial Peptides
25.	L. Rangan	M.S. Swaminathan Research Foundation, Chennai, International Rice Research Institute, Philippines	Professor	Molecular systematics, Biofuel, IPR
26.	L. Sahoo	Maharshi Dayanand University, Rohtak	Professor	Genetic engineering and functional genomics of plants
27.	G. K. Saini	Andhra University, Visakhapatnam	Associate Professor	Fungal Biotechnology, Biological Control, DNA fingerprinting and Transformation studies, Studies on extracellular enzymes and toxic metabolite production, Development of a potent biopesticide
28.	S. Sivaprakasam	Central Leather Research Institute, Chennai	Assistant Professor	Bioprocess Analytical Technology (BioPAT), Biocalorimetry, Bioprocess Monitoring and Control Environmental Bioprocess Systems
29.	P. Sukumar	University of Leeds, UK	Assistant Professor	Smooth muscle and endothelial cell function, Cardiovascular diseases, Diabetes, Obesity
30.	R. Swaminathan	Tata Institute of Fundamental Research, Mumbai	Professor	Protein Structure, Function and Dynamics; Fluorescence Spectroscopy
31.	R. Tamuli	Centre for Cellular and Molecular Biology, Hyderabad	Associate Professor	Calcium signaling, DNA repair
32.	V. Trivedi	Jawaharlal Nehru University, New Delhi	Associate Professor	Intracellular Signaling in Plasmodium falciparum.

# DEPARTMENT OF CHEMICAL ENGINEERING

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
2002

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech)** in  
o Chemical Engineering

**Master of Technology (MTech)** in  
o Petroleum Science and Technology (PST)  
o Material Science and Technology (MST)

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 67
- MTech: 43
- PhD: 35

**FACULTY STRENGTH:**

- Professor: 5
- Associate Professor: 9
- Assistant Professor: 16

**NUMBER OF NEW FACULTY JOINED DURING 1 APRIL 2013 – 31 MARCH 2014:**

- Assistant Professor: 2

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

**UG Labs: 7 Nos.**

**o Fluid Mechanics Lab:** Flow through Fluidized Bed, Centrifugal Pump Test Rig, Flow through Helical Coil, Nozzle Meter Test Rig, Packed Bed, Pitot Tube, Rotameter Test Rig, Drag Co-efficient Apparatus, Reynolds's Apparatus, Notch Tank Apparatus, Impact of Jet on Vane Apparatus, Reciprocating Pump Test Rig, Bernoulli Apparatus, Flow Meter Demonstration Rig, Energy Losses In Pipes, Energy Losses In Bends.

**o Mechanical Operation Lab:** Ball mill, Froth floatation cell, Hammer mill, Jaw crusher, Roll crusher, Plate and frame filtration, Rotary drum Vacuum filter, Vibrating screen, Sieve shaker, Cyclone separator, Cyclone Scrubber, Elutriator, Sedimentation, Leaf Filter.

**o Heat Transfer Lab:** Extended Surface heat exchanger, Tubular heat exchanger, Jacketed vessel heat exchanger, Plate heat exchanger, Shell and tube heat exchanger, Emissivity measurement apparatus, Composite wall, Conductivity of metal rod, Calandria evaporator, Vertical & horizontal condenser, Unsteady state heat transfer, Heat transfer in forced convection, Multi effect evaporator.

**o Chemical Reaction Engineering:** Packed bed reactor, Trickle bed reactor, RTD studies in CSTR, RTD studies in plug flow reactor, Cascade CSTR, Isothermal batch reactor, Combined flow reactor, RTD of packed bed reactor, Spinning basket reactor, Bubble cap Distillation.

**o Mass Transfer Lab:** Double glass wall distillation apparatus, Bubble cap distillation set up, Packed bed distillation set up, Mass transfer with and without chemical reaction, Liquid - liquid extraction in packed bed, Solid - liquid extraction in packed bed, Absorption in packed bed, Vapour in air diffusion, Rotary drier, Forced Draft tray drier, Water cooling tower. Batch crystallization.

**o Process control Lab:** Two Tank Non-Interacting System, Two Tank Interacting System, Control Valve Characteristics, Temperature Control Trainer, Pressure Control Trainer, Flow Control Trainer, Level Control Trainer, Cascade Control Trainer, First-Order and Second-Order System, Multi Process Trainer, Multi Variable Control Trainer, PLC Trainer.

**o Thermodynamics Lab:** Vapour - liquid equilibrium apparatus, Liquid - liquid equilibria, Equilibrium Flash Distillation Apparatus, Separating & Throttling Calorimeter.

**PG Labs: 1 No.**

**o Petroleum Lab:** Acidity and Alkalimetry, Aniline point, Burning test lamp, Cloud & Pour Point, Flash & Fire Point, Melting point apparatus, Red wood Viscometer, Reid vapour pressure, Smoke point, U -Tube Viscometer, ASTM Distillation, Kinematic Viscometer bath, Drop point grease apparatus, Burning quality of kerosene, Contamination detector, Tar viscometer, Softening point apparatus, Carbon residue apparatus, Bomb calorimeter, Vapour – Liquid Equilibrium, Steam Distillation, Digital Penetrometer.

**Other Labs: 1 No.**

**o Analytical Lab:** Atomic absorption spectrophotometer, Autotitrator, BET surface area analyzer, Buchi rheometer, Chemisorb surface area analyzer, Differential scanning calorimeter, Digital polarimeter, Ellipsometer, Fourier Transform Infrared spectrophotometer, Gas chromatography with TCD, FID, ECD detector, Gas chromatography with TCD, FID, PFD detector, Gas chromatography mass spectroscopy, High performance liquid chromatography, Interfacial rheometer, Karl Fisher titrator, Laser particle size analyser, Microscope, Millipore water purification, Refractometer, Rheometer, Spinning drop tensiometer, Tensiometer, Thermogravimetric analyzer, Total organic content analyzer, UV-Visible spectrophotometer, X Ray diffraction, Zeta potential.

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:****Fluids**

- o Design and development of micro-pumps and actuators
- o Surfactant Enhanced oil recovery
- o Experimental and computational fluid dynamics
- o Experimental and computational multiphase flows
- o Field driven fluid flows
- o Mechanics, patterns, and stability of fluids
- o Micro- and nano-fluidic devices
- o Minerals processing
- o Multi scale bubble dynamics and applications
- o Rheology of complex fluids
- o Transport through meso-porous materials

**Reaction Engineering**

- o Catalysis electrolysis and Heterogeneous reactions
- o Electrochemical corrosion
- o Electroless plating
- o Hydrocarbon processing
- o Interfacial reactions
- o Kinetic analysis
- o Micro- and nano-fluidic reactors
- o Non-equilibrium reactive systems
- o Pyrolysis of waste plastics

- o Separations with chemical reaction
- o Sono-process engineering

**Chemical Engineering Science**

- o Biological physics
- o Chemical mechanical polishing (CMP)
- o Colloids and interfacial science
- o Dewetting and phase separation
- o Phase equilibria and thermodynamics
- o Phase equilibria of ionic liquids
- o Phase transition in polymers (nucleation, crystallization, collapse transition)
- o Structure property relations
- o Super-hydrophobic and self cleaning surfaces

**Environmental Pollution Control**

- o Air pollution
- o Biological wastewater treatment (biosorption, bioaccumulation, biodegradation, bioreduction, biotransformation)
- o Electro remediation of water/wastewater
- o Membrane bioreactors
- o Physiochemical water/ wastewater treatment techniques
- o Screening of novel microbial strains for treatment of organic/inorganic wastewater
- o Sonolysis and Sono-hybrid Advanced Oxidation techniques
- o Treatment of industrial effluent
- o Pollution trading

**Process Systems Engineering**

- o AI based Optimization Techniques
- o Computational transport processes
- o Deterministic, evolutionary and global optimization
- o Material processing
- o MEMS & NEMS
- o Molecular simulation
- o Optimization and control
- o Planning and scheduling
- o Process control
- o Process design & techno-economics
- o Process intensifications
- o Process modeling
- o Randomized algorithms
- o Self-assembly and self-organization
- o Soft lithography
- o Statistical mechanics and thermodynamics

**Materials Engineering**

- o Bio-lubricant
- o Complex organic solids
- o Functional multiscale structures & composites
- o Graphene synthesis and application

- o Ionic liquids
- o Liquid crystalline materials
- o Low cost ceramic membranes
- o Micro- and nano-sensors
- o Non-Newtonian Fluids
- o Palladium membranes
- o Reactive systems and gels
- o Responsive materials for environmental, biological and chemical separation
- o Self-healing surfaces
- o C-C Composites and C-Polymer Composites

### Polymer Science and Engineering

- o Polymers Synthesis and Characterization
- o Polymer Reaction Engineering
- o Polymer Processing
- o Polymer Rheology
- o Polymer Solutions and Thermodynamics
- o Polymer Simulation and Computing
- o Polymer based Nano and biocomposites
- o Polymer Degradation
- o Polymer and Nano-material Migration Studies
- o Polymer Recycling and Reuses
- o Biodegradable Polymers
- o Polymer based Technology Development, licensing, Training and Entrepreneurship

### Energy Engineering

- o Artificial photosynthesis
- o Biofuels: biodiesel, bioethanol, biobutanol, bio hydrogen and Bio oil
- o Biomass gasification and pyrolysis

- o Carbon dioxide capture and conversion to Fuel
- o Clean coal technology
- o Combustion and gasification reaction kinetics
- o Fischer-Tropsch Synthesis
- o Fuel cells
- o Hydrogen production and storage
- o Utilisation of lignocellulosic biomass for fuel/chemicals
- o Solar cells
- o Nuclear reactor
- o Membrane reformer for hydrogen production

### Separation and Mixing Processes

- o Adsorption
- o Bio-separation
- o Membrane Separation Processes
- o Micro-mixers & separators
- o Post CMP cleaning
- o Separation using Supercritical Fluids
- o Surfactant mediated separation processes

### MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

- o Development of Multimodal Functional microbots published in the Royal Society Journal Nanoscale and highlighted by Labcritics in the following link: <http://www.labcritics.com/2014/01/14/researchers-develop-chemo-magnetic-controlled-self-propelled-microbots/>
- o A research Grant of Rs. 51.75 Crore from DeitY for establishing a 'Centre for Excellence in Research and Development of Nanoelectronic Theranostic Devices.'

## RESEARCH PROJECTS

### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Ashok Kumar Dasmahapatra	Studies on Confinement-Induced Polymer Crystallization by Molecular Simulation	CSIR	12.0	-	2014 - 2017
Tamal Banerjee	Quantum Chemical Understanding of Solvent Extraction Mechanism of Metal Ions in Novel Ionic Liquid Medium	BRNS	20.0	Pallab Ghosh	Three years
Tamal Banerjee	Ionic Liquid assisted Thermal Dehydrogenation of Ammonia Borane	SERB	38.0	G. Pugazenthi	Three years
Dipankar Bandyopadhyay	Centre for Excellence in Research and Development of Nanoelectronic Theranostic Devices	DeitY	5175	-	5 years



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dipankar Bandyopadhyay	Design and Development of Intelligent Catalytic Nanobots	DST Nano Mission	43	-	3 years
Anugrah Singh	Application of radioactive technique in design of CFB for higher production of propylene	BRNS	17.92	Rajesh K Upadhyay	2013-2016
Anugrah Singh	Experimental and numerical Investigation of suspension flow in microfluidic bifurcation channels	SERB	39.68	Rajesh K Upadhyay	2013-2016
Pankaj Tiwari (Co-PI)	Identification of Competent Alkali-Surfactant-Polymer Formulations for Enhanced Oil Recovery of Assam Crude Oil (Joint Project between IITG & Dibrugarh University)	DST	6.48	Ramagopal Uppaluri	2014 - 2017
Pankaj Tiwari	Study of Interaction between Pneumatic Spray Nozzle and Bubbling Gas Fluidized Bed Using Radioactive Particle Tracking (RPT) and $\gamma$ -ray Densitometry	BRNS	24.369	Rajesh Kumar Upadhyay	2013-2016
Bishnupada Mandal	Natural Gas Purification by CO <sub>2</sub> -Selective Silica Membrane	CSIR	23	-	2013-2016
Pallab ghosh	Quantum chemical understanding of solvent extraction mechanism of metal ions in novel ionic liquid medium	BRNS	21	-	2013-2016
Anil Verma	Development of solar powered microbial fuel cell (photo MFC) for integration with photo fermentative biohydrogen production for bioelectricity generation (Multi Institutional Project)	DBT	27.65	Lepakshi Barbora	2014-2015
M. De	Development of supported noble metal catalysts using surfactant assisted electroless plating process for the dehydrogenation of light alkanes	DST	39.34	R. Uppaluri	2014-2017
Vimal Katiyar	Centre of Excellence for Sustainable Polymers	Ministry of Chemicals and Fertilizers, GOI	1474	Aloke Ghoshal	

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dipankar Bandyopadhyay	External Field Driven Flow Induced micro/nano scale Patterning, Mixing, Heat and Mass transfer in micro/nano Fluidic Devices	DST	45	-	3 Years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dipankar Bandyopadhyay	A combined experimental and theoretical study on the instability and patterning of thin liquid crystal films	DST	10	-	3 Years
Dipankar Bandyopadhyay	A computational study on the phase separation induced pattern formation employing ultrathin films	CSIR	16.5	-	3 Years
Ashok Kumar Dasmahapatra	Investigation of Diblock Copolymer Crystallization by Molecular Simulation	DST	30	-	3 Years
M. K. Purkait	Treatment of contaminated drinking water using electrocoagulation technique	DRL, Tezpur	9.6	Chandan Das	2010-2012
M. K. Purkait	Poly-N-vinylamides Derivatized Fouling-Resistant Membranes for Industrial Application	CSIR	24.5	-	3 Years
M. K. Purkait	Modification of polymeric membrane by blending polymeric nanoparticle	INSA	15	-	3 Years
R. Uppaluri	Fabrication of low cost dense Palladium composite membranes for hydrogen energy applications	DST	19.42	Anil Verma	2011-2014
R. Uppaluri	Preparation and Characterization of low cost silver-ceramic composite membranes for bacteriostatic and drinking water treatment applications	CSIR	12.96	-	2011-2014
R. Uppaluri	Development of Low cost ceramic membranes for juice clarification	DBT	18.87	-	2011-2014
R. Uppaluri	Virtual Mass Transfer Lab	MHRD	15	A. Verma	2008-2013
Anil Verma	Development of polymer electrolyte membrane fuel cell using indigenously prepared low cost composite bipolar plate	CSIR		P. Mahanta and P. Goswami	3.5 Years
Anil Verma	Development of electrochemical reactor and solid electrolyte for efficient conversion of CO <sub>2</sub> into value added products	DST	44.30	R. Uppaluri	3 Years
Tapas K. Mandal	Flow behavior of heavy oil-water in pipe network and in an inclined pipeline.	CSIR	15	S. K. Majumdar	3 Years
Tapas K. Mandal	Dynamic behavior and mixing characteristics of two immiscible liquids in a horizontal micro device.	DST	17	-	3 Years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Pallab Ghosh	Development of plant prototype for removal of ammonia, arsenic and odorous compounds from water/wastewater by ozone microbubbles	DST	17.0	Subrata Kumar Majumder	1.5 Years
Pallab Ghosh	Stabilization of soft colloidal dispersions by mixed-surfactants: experimental and theoretical studies	CSIR	11	-	2012-2015
Pallab Ghosh	Process intensification of flotation by ionic microbubbles	CSIR	11	Subrata Kumar Majumder	2012-2015
Subrata Kumar Majumder	Process intensifications in drag reduction through pipelines	CSIR	10.42	T. K. Mandal	3 Years
Subrata Kumar Majumder	Process intensifications of flotation by ionic microbubble	CSIR	10.86	Pallab Ghosh	3 Years
Tamal Banerjee	Dispersion and Dissolution of Coal in Ionic Liquids: Theoretical Predictions and Experimental Validation	CSIR	20.0	Kaustubha Mohanty	3 Years
Anugrah Singh	Application of radioactive technique in design of CFB for higher production of propylene	BRNS	17.92	Rajesh K Upadhyay	2013-2016
Anugrah Singh	Experimental and numerical Investigation of suspension flow in microfluidic bifurcation channels	SERB	39.68	Rajesh K Upadhyay	2013-2016
A. K. Golder	Concurrent electrochemical generation of hydroxyl radicals or its precursor H <sub>2</sub> O <sub>2</sub> both at anode and cathode surfaces and its utilization in pharmaceutical wastewater treatment	DST	26.2	-	3 Years
Tamal Banerjee	Dispersion and Dissolution of Coal in Ionic Liquids: Theoretical Predictions and Experimental Validation	CSIR	20	K. Mohanty	2012-2015
Vimal Katiyar	Development of Degradable Polymer Based Food Packaging 'Green-PACK'	SERB	29.97	Amit Kumar	2012-2014
Vimal Katiyar	New Generation Degradable Thermoset Resins and Structural Composites "Bio-Thermoset"	SERB	22.2	-	2012-2015
Vimal Katiyar	Development of Bioplastic based Sustainable Nanobiocomposite Food Packaging 'Sustain-NanoPACK'	DBT	97.43	Debasis Das	

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Bishnupada Mandal	CO <sub>2</sub> -Capture by CO <sub>2</sub> -Selective Thin-film Composite Polymeric Membrane Containing Amine Carrier	DST	74	-	2013-2016
Rajesh Kumar Upadhyay	Visualization of Pebbles Movement in Innovative High Temperature Nuclear Reactor (IHTR) Using Radioisotope Techniques	BRNS	23.985	-	2011-2014
Rajesh Kumar Upadhyay	Design and Fabrication of Membrane based Hydrogen Separation System	DRDO	48	Amit Kumar	2012-2014
Pankaj Tiwari	Development of a Mathematical Model for Solid Material Conversion to Useful Chemicals through Chemical and Physical Processes	IIT Guwahati	5		2013-2015
Senthilmurugan S	Physical techniques for enhancing life of Reverse Osmosis membrane elements	Hindustan Unilever Research Centre, Bangalore	10.1		2013-2016
Senthilmurugan S	Scheduling of MF/UF membrane maintenance	IIT Guwahati	5		2013-2016
M. De	Design and application of carbon based heteroatom modified nanoporous materials for hydrogen storage	MNRE	33.65	Dr. A. K. Dasma hapatra	2013-2016
N. Kishore	Drag and Mass Transfer Phenomena of Contaminated Bubbles/Droplets in Non-Newtonian Liquids	SERB	20.04		2013
N. Kishore (Co-PI)	Development of a General Purpose CFD Solver over a Hybrid Unstructured Grid	BRNS	300	A. Dalal (PI), G. Natarajan (Co PI), ME	2013
N. Kishore	Effects of Surfactants on Drag and Mass Transfer Phenomena of Bubbles Rising in Power-law Fluids	IIT Guwahati	5		2011
R. Prasanna Venkatesh	Electrochemical investigation of carbon steel corrosion in oil and gas industries	IIT Guwahati	5.00	-	2 years

**c) Completed Sponsored Projects:**

<b>Principal Investigator</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Amount Sanctioned (Rs. in Lakh)</b>	<b>Co-Investigator</b>	<b>Duration</b>
A. K. Golder	Toxic metal hazard from sludge generated during reduction of Cr(VI) from waste water by zero-valent iron (Fe <sup>0</sup> )	IIT Guwahati	4.6	-	2 Years
Ashok Kumar Dasmahapatra	Understanding the crystallization of diblock copolymer by molecular simulation	IIT Guwahati	5	-	2 Years
Chandan Das	Mass Transfer Operations I (Web course) under PIC of NPTEL Phase II	MHRD	7.0	S. K. Majumder	2010-2012
K. Mohanty	Concentration of biogas slurry to preserve microorganisms in the inoculum by novel separation techniques	DRDO	6.84	Chandan Das	2010-2012
Rajesh Kumar Upadhyay	Development of Gamma-ray Densitometry (Single/ Dual Source) for Studying Multiphase Reactors	IIT Guwahati	5	-	2010-2013
Dipankar Bandyopadhyay	A combined experimental and theoretical study on the instability and patterning of thin liquid crystal films	DST	9.6	-	2010-2013
G. Pugazhenthii	Development and characterization of low cost ceramic composite membranes for separation of dyes from aqueous solution	DST	19.60	NIL	2010-2013

**Consultancy:**

<b>Principal Investigator</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Amount Sanctioned (Rs. in Lakh)</b>	<b>Co-Investigator</b>	<b>Duration</b>
Pallab Ghosh	Development of the Course Colloid and Interface Science	National Mission Project on Pedagogic Development	5	Dipankar Bandyopadhyay	Ongoing
Pallab Ghosh	Foam control	Hindustan-Unilever Pvt. Ltd.	18	-	2 years
Pallab Ghosh	Stabilization of foams	Unilever R&D Center, Bangalore	19	-	Ongoing
Pallab Ghosh	Developing suitable pedagogical methods for various classes, intellectual calibers and e-learning: Course name: Colloid and Interface Science	MHRD	8	-	Ongoing

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Pallab Ghosh	Developing suitable pedagogical methods for various classes, intellectual calibers and e-learning: Course name: Numerical Methods for Chemical Engineers	MHRD	8	-	Ongoing
Anil Verma	Development of solid electrolyte for carbon dioxide electro-reduction	Centre of Research Excellence in Renewable Energy, Saudi Arabia	10	-	2 Years
S. Gumma	Setting up a pilot plant for removal of C5+ hydrocarbons and water vapour from natural gas by adsorption process	Oil India Limited	65.5	A K Ghoshal, P Saha, B. P. Mandal	75 weeks
A. K. Ghoshal	Modeling and Simulation of Membrane Contactor for CO2 Absorption in Amine	Bharat Heavy Electricals Limited (BHEL), Bangalore	15.4	B. Mandal, S. Gumma, P. Saha	March 2013 to February 2014
A.K. Golder	NPTEL web-based course: Chemical Equipment Design-II	MHRD	7.00	V.V. Goud	June 2010 - April 2013
Tamal Banerjee	Investigation of Kerosene samples for its thermodynamic properties	Jyothy Laboratories Pvt. Ltd., Mumbai	2.5	G. Pugazenthi	Two months
R. Uppaluri	Petroleum Refining and Petrochemical Technology	MHRD Pedagogy Project	7	G. Pugazenthi, T. K. Mandal	2014-2016
R. Uppaluri	Video Course on Computer Aided Process Equipment Design and Synthesis	Rajiv Gandhi University for Knowledge Technologies	3	V. S. Moholkar	2013 - 2014

## RESEARCH PUBLICATIONS

### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
L.M. Aeshala, R.G. Uppaluri, A. Verma	Effect of cationic and anionic solid polymer electrolyte on direct electrochemical reduction of gaseous CO2 to fuel	Journal of CO2 Utilization	3 (4)	49-55	2013
A. Agarwal, R. G. Uppaluri, A. Verma	LabVIEW based e-learning portal for virtual mass transfer operations laboratory	CSI Transactions on ICT	1	75-90	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
A. Agarwal, M. Pujari, R. G. Uppaluri and A. Verma	Optimal Electroless plating rate enhancement techniques for the fabrication of low cost dense nickel/ceramic composite membranes	Ceramics International	40 (1), Part A	691-697	2014
A. Agarwal, M. Pujari, R. G. Uppaluri, and A. Verma	Efficacy of reducing agent and surfactant contacting pattern on the performance characteristics of nickel electroless plating baths	Ultrasonics Sonochemistry	21(4)	1382-1391	2014
A. Agrawal, M. Pujari, R.G. Uppaluri, A. Verma	Efficacy of novel electroless plating process for dense Pd/Cr <sub>2</sub> O <sub>3</sub> /PSS membrane fabrication	Materials and Manufacturing Processes	DOI: 10.1080/ 10426914. 2014. 880469		2014
A. Agrawal, M. Pujari, R.G. Uppaluri, A. Verma	Preparation, optimization and characterization of low cost ceramics for the fabrication of dense nickel composite membrane	Ceramics International	39	7709-7716	2013
Ananth Praveen Kumar A., R. Usha, T. Banerjee, D. Bandopadhyay	Instabilities of a Free Bilayer Flowing on an Inclined Porous Medium	Physical Review E	88 (6)	063012	2013
A. Ananth, P. Kumar, H. Goyal, T. Banerjee, D. Bandyopadhyay	Instability modes of a two-layer Newtonian plane Couette flow past a porous medium	Physical Review	87		2013
R. Anantharaj, T. Banerjee	Liquid-liquid equilibrium studies on the removal of thiophene and pyridine from pentane using imidazolium-based ionic liquids	Journal of Chemical and Engineering Data	58 (4)	829-837	2013
R. Anantharaj, T. Banerjee	Thermodynamic properties of 1-ETHYL-3-methylimidazolium methanesulphonate with aromatic sulphur, nitrogen compounds at T=298.15-323.15K and P=1bar	The Canadian Journal of Chemical Engineering	91(2)	245-256	2013
Anjali Dasari, Anand B Desamala, Ujjal K. Ghosh, Ashok K. Dasmahapatra and Tapas K. Mandal	Correlations for prediction of pressure gradient of liquid-liquid flow through a circular horizontal pipe	ASME Journal of Fluids Engineering	DOI: 10.1115 / 1.4026 582		2014
Ashok Kumar Dasmahapatra and Venkata Mahanth Sanka	Conformational Transition of H-shaped Branched Polymers	Journal of Chemical Physics	140 (9)	094904	2014
Ashok Kumar Dasmahapatra and G. Diwakar Reddy	Conformational Transition of Telechelic Star Polymers	Polymer	54 (9)	2392	2013



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
M. Banik, P. Ghosh	Effects of Salts Containing Mono-, Di- and Trivalent Ions on Electrical and Rheological Properties of Oil-Water Interface in Presence of Cationic Surfactant: Importance in the Stability of Oil-In-Water Emulsions	Journal of Dispersion Science and Technology	35	471-481	2014
S. Basu, A.S. Roy, K. Mohanty, A.K. Ghoshal	Enhanced CO <sub>2</sub> sequestration by a novel microalga: <i>Scenedesmus obliquus</i> SA1 isolated from biodiversity hotspot region of Assam, India	Bioresource Technology	143	369-377	2013
J.B. Bhasarkar, S. Chakma, V.S. Moholkar	Mechanistic features of oxidative desulfurization using sono-fenton-peracetic acid (ultrasound/Fe <sup>2+</sup> +CH <sub>3</sub> COOH-H <sub>2</sub> O <sub>2</sub> ) system	Industrial and Engineering Chemistry Research	52 (26)	9038-9047	2013
S. Bose, C. Das	Preparation and characterization of low cost tubular ceramic support membranes using sawdust as a pore-former	Materials Letters	110	152-155	2013
V.K. Bulasara, R. Uppaluri, M.K. Purkait	Surface engineering characteristics of ultrasound assisted hypophosphite electroless plating baths	Surface Engineering	29 (7)	489-494	2013
S. Chakma, V. S. Moholkar	Physical mechanism of sono-Fenton process	AIChE Journal	59 (11)	4303-4313	2013
Chitrita Kundu and Ashok Kumar Dasmahapatra	Crystallization of Double Crystalline Symmetric Diblock Copolymers	Polymer	55 (3)	958	2014
G.S. Cheripally, A. Mannava, G. Kumar, R. Gupta, P. Saha, B. Mandal, R. Uppaluri, S. Gumma, A.K. Ghoshal	Measurement and modeling of adsorption of lower hydrocarbons on activated carbon	Journal of Chemical and Engineering Data	58 (6)	1606-1612	2013
R.P. Chopade, V. Mohan, R. Mayank, R.V.S. Uppaluri, S.C. Mishra	Simultaneous retrieval of parameters in a transient conduction-radiation problem using a differential evolution algorithm	Numerical Heat Transfer; Part A: Applications	63 (5)	373-395	2013
H.A. Choudhury, A. Choudhary, M. Sivakumar, V.S. Moholkar	Mechanistic investigation of the sonochemical synthesis of zinc ferrite	Ultrasonics Sonochemistry	20 (1)	294-302	2013
H.A. Choudhury, R.S. Malani, V.S. Moholkar	Acid catalyzed biodiesel synthesis from <i>Jatropha</i> oil: Mechanistic aspects of ultrasonic intensification	Chemical Engineering Journal	231	262-272	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
H.A. Choudhury, S. Chakma, V.S. Moholkar	Mechanistic insight into sono-chemical biodiesel synthesis using heterogeneous base catalyst	Ultrasonics Sonochemistry	21 (1)	169–181	2014
H.A. Choudhury, P. Srivastava, V.S. Moholkar	Single step ultrasonic synthesis of biodiesel from crude jatropha curcas oil	AIChE Journal	DOI: 10.1002/aic.14371		2014
H.A. Choudhury, P.P. Goswami, R.S. Malani, V.S. Moholkar	Ultrasonic biodiesel synthesis from crude Jatropha curcas oil with heterogeneous base catalyst: Mechanistic insight and statistical optimization	Ultrasonics Sonochemistry	21 (3)	1050–1064	2014
M. Dash, V. V. Dasu, K. Mohanty	Non-isothermal kinetic study of three lignocellulosic biomass using model-free methods	Journal of Renewable and Sustainable Energy	5	0631–01-9	2013
A. Dasari, A.B. Desamala, A.K. Dasmahapatra, T.K. Mandal	Experimental studies and probabilistic neural network prediction on flow pattern of viscous oil-water flow through a circular horizontal pipe	Industrial and Engineering Chemistry Research	52 (23)	7975-7985	2013
A. K. Dasmahapatra, G. D. Reddy	Confirmational transition of telechelic star polymers	Polymers	54 (9)	2392-2400	2013
M. De, R. Azargohar, A. K. Dalai, S. R. Shewchuk	Mercury removal by bio-char based modified activated carbons	Fuel	103	570-578	2013
M.K. Gagrai, C. Das, A.K. Golder	Reduction of Cr(VI) into Cr(III) by Spirulina dead biomass in aqueous solution: Kinetic Studies	Chemosphere	93 (7)	1366-1371	2013
M. Ghaedi, E. Nazari, R. Sahraie, M.K. Purkait	Kinetic and isotherm study of Bromothymol Blue and Methylene blue removal using Au-NP loaded on activated carbon	Desalination and Water Treatment	DOI: 10.1080/19443994.2013.822156		2013
A. Ghosh, A. Verma	Carbon-polymer composite bipolar plate for HT-PEMFC	Fuel Cells	DOI: 10.1002/fuce.201300186		2013
D. Ghosh, M.K. Sinha, M.K. Purkait	A comparative analysis of low-cost ceramic membrane preparation for effective fluoride removal using hybrid technique	Desalination	327	2-13	2013
A.K. Giri, S.K. Majumder	Pressure drop and its reduction of gas-non-Newtonian liquid flow in downflow trickle bed reactor (DTBR)	Chemical Engineering Research and Design	92 (1)	34-42	2013
A. Goswami, M.K. Purkait	Defluoridation of Water by Schwertmannite	World Academy of Science, Engineering and Technology	73	1156-1161	2013

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P. P. Goswami, H. A. Choudhury, S. Chakma, V. S. Moholkar	Sonochemical Synthesis and Characterization of Manganese Ferrite Nanoparticles	Industrial and Engineering Chemistry Research	52 (50)	17848-17855	2013
H. Goyal, A. Ananth Praveen Kumar, D. Bandyopadhyay, R. Usha, T. Banerjee	Instabilities of a confined two-layer flow on a porous medium: An Orr-Sommerfeld analysis	Chemical Engineering Science	97	109-125	2013
A. Hens, K. Mondal, D. Bandyopadhyay	Self-organized pathways to nanopatterns exploiting the instabilities of ultrathin confined bilayers	Physical Review E - Statistical, Nonlinear, and Soft Matter Physics	87 (2)		2013
U. Hujuri, A.K. Ghoshal, S. Gumma	Temperature-dependent pyrolytic product evolution profile for polyethylene terephthalate	Journal of Applied Polymer Science	130 (6)	3993-4000	2013
B.K. Kakati, A. Ghosh, A. Verma	Efficient composite bipolar plate reinforced with carbon fiber and graphene for proton exchange membrane fuel cell	International Journal of Hydrogen Energy	38 (22)	9362-9369	2013
S. Khanna, S. Chakma, V.S. Moholkar	Phase diagrams for dual frequency sonic processors using organic liquid medium	Chemical Engineering Science	100	137-144	2013
S. Khanna, A. Goyal, V.S. Moholkar	Effect of fermentation parameters on bio-alcohols production from glycerol using immobilized clostridium pasteurianum: An optimization study	Preparative Biochemistry and Biotechnology	43 (8)	828-848	2013
S. Khanna, A. Goyal, V.S. Moholkar	Mechanistic investigation of ultrasonic enhancement of glycerol bioconversion by immobilized Clostridium pasteurianum on silica support	Biotechnology and Bioengineering,	110 (6)	1637-1645	2013
S. Khanna, A. Ranjan, A. Goyal, S. V. Moholkar	Medium optimization for mixed alcohols production by glycerol utilizing immobilized Clostridium pasteurianum MTCC 116	Chemical and Biochemical Engineering Quarterly	27 (3)	319-325	2013
S. Khuntia, S. K. Majumdar, P. Ghosh	Oxidation of As(III) to As(V) using Ozone Microbubbles	Chemosphere	97	120-124	2014
N. Kishore, V.S. Nalajala, R.P. Chhabra	Effects of contamination and shear-thinning fluid viscosity on drag behavior of spherical bubbles	Industrial and Engineering Chemistry Research	52 (17)	6049-6056	2013
R.J. Konwar, M. De	Effects of synthesis parameters on zeolite templated carbon for hydrogen storage application	Microporous and Mesoporous Materials	175	16-240	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Manish Kumar Sinha and G. Pugazhenth	Influence of Organomodified Ni-Al Layered Double Hydroxide (LDH) Content on the Thermal Properties and Degradation Kinetics of Polystyrene (PS)/Ni-Al LDH Nanocomposites Prepared via Solvent Blending Method	Advanced Materials Research	747	23-26	2013
C.V. Manohar, T. Banerjee, K. Mohanty	Co-solvent effects for aromatic extraction with ionic liquids	Journal of Molecular Liquids	180	9145-153	2013
R.S. Malani, S. Khanna, V.S. Moholkar	Sonoenzymatic decolourization of an azo dye employing immobilized horse radish peroxidase (HRP): a mechanistic study	Journal of Hazardous Materials	256-257	90-97	2013
R.S. Malani, S. Khanna, S. Chakma, V.S. Moholkar	Mechanistic insight into sonoenzymatic degradation of organic pollutants with kinetic and thermodynamic analysis	Ultrasonics Sonochemistry	21	1400-1406	2014
C.V. Manohar, D. Rabari, A. A. P. Kumar, T. Banerjee, K. Mohanty	Liquid-liquid equilibria studies on ammonium and phosphonium based ionic liquid-aromatic-aliphatic component at T=298.15 K and p=1 bar: Correlations and a-priori predictions	Fluid Phase Equilibria	360	392-400	2013
P. Mazumdar, V.B. Borugadda, V.V. Goud, L. Sahoo	Effect of storage parameters on stability of Jatropha-derived biodiesel	International Journal of Energy and Environmental Engineering	4 (1)	1-9	2013
P. Mishra, S. Edubilli, H. P. Uppara, B. Mandal, S. Gumma	Effect of Adsorbent History on Adsorption Characteristics of MIL-53(Al) Metal Organic Framework	Langmuir	29	12162-12167	2013
P. Mishra, S. Edubilli, B. Mandal and S. Gumma	Adsorption of CO <sub>2</sub> , CO, CH <sub>4</sub> and N <sub>2</sub> on DABCO based Metal Organic Frameworks	Mesoporous and Microporous Materials	169	75-80	2013
P. Mishra, S. Edubilli, B. Mandal, S. Gumma	Adsorption Characteristics of Metal Organic Frameworks Containing Coordinatively Unsaturated Metal Sites: Effect of Metal Cations and Adsorbate Properties	Journal of Physical Chemistry C	118 (13)	6847-6855	2014
P. Monash, G. Pugazhenth, P. Saravanan	A Review on Various Fabrication Methods of Porous Ceramic Supports for Membrane Applications	Reviews in Chemical Engineering	29	357-383	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
A. Mondal, B. Mandal	Synthesis and characterization of crosslinked poly(vinyl alcohol)/ poly(allylamine)/2-amino-2-hydroxymethyl-1,3-propanediol/ polysulfone composite membrane for CO <sub>2</sub> /N <sub>2</sub> separation	Journal of Membrane Science	446	383-394	2013
D. K. Mondal, B. K. Nandi, M.K. Purkait	Removal of mercury (II) from aqueous solution using bamboo leaf powder: Equilibrium, thermodynamic and kinetic studies	Journal of Environmental Chemical Engineering	1 (4)	891-898	2013
A. Mondal, B. Mandal	CO <sub>2</sub> separation using thermally stable crosslinked poly(vinyl alcohol) membrane blended with polyvinylpyrrolidone / polyethyleneimine / tetraethylenepentamine	Journal of Membrane Science	460	126-138	2014
S. Murugavelh, K. Mohanty	Bioreduction of Cr(VI) using live and immobilized Phanerochaete chrysosporium	Desalination and Water Treatment	51 (16-18)	3482-3488	2013
S. Murugavelh, K. Mohanty	Isolation, identification and characterization of Cr(VI) reducing Bacillus cereus from chromium contaminated soil	Chemical Engineering Journal	230	1-9	2013
S. Murugavelh, K. Mohanty	Mechanism of Cr(VI) bioaccumulation by Phanerochaete Chrysosporium	Environmental Engineering and Management Journal	13	281-287	2014
V. S. Nalajala and N. Kishore	Drag of contaminated bubbles in power-law fluids	Colloids and Surfaces A: Physicochemical and Engineering Aspects	443	240-248	2013
Nalajala V. S., Kishore N. and Chhabra R. P.	Effect of contamination of Rise velocity of bubble swarms at moderate Reynolds Numbers	Chemical Engineering Research and Design	DOI: 10.1016/j.cherd. 2013.10.006		2013
P. Monash and G. Pugazhenth	Utilization of Calcined Ni-Al Layered Double Hydroxide (LDH) as an Adsorbent for Removal of Methyl Orange Dye from Aqueous Solution	Environmental Progress and Sustainable Energy	33	154-159	2014
P. Monash, G. Pugazhenth and P. Saravanan	A Review on Various Fabrication Methods of Porous Ceramic Supports for Membrane Applications	Reviews in Chemical Engineering	29	357-383	2013

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S. Pandian, S. Gokhale, A.K. Ghoshal	Corrigendum to 'Evaluating effects of traffic and vehicle characteristics on vehicular emissions near traffic intersections' [Transportation Research Part D 14 (2009) 180-196]	Transportation Research Part D: Transport and Environment	23	114	2013
A. Panigrahi, S.R. Pilli, K. Mohanty	Selective separation of Bisphenol A from aqueous solution using supported ionic liquid membrane	Separation and Purification Technology	107	70-78	2013
S.R. Pilli, T. Banerjee, K. Mohanty	Ionic Liquids as Green Solvents for The Extraction of Endosulfan from Aqueous Solution: a Quantum Chemical Approach	Chemical Product and Process Modeling	8	1-14	2013
S.R. Pilli, T. Banerjee, K. Mohanty	Extraction of Phthalic Acid from aqueous Solution by using Ionic Liquids: A Quantum Chemical Approach	International Journal of Thermodynamics	171	42-51	2013
S. R. Pilli, K. Mohanty, T. Banerjee	Performance of different ionic liquids to remove phenol from aqueous solutions using supported liquid membrane	Desalination and Water Treatment	DOI:10.1080/19443994.2014.907750		2014
S. R. Pilli, K. Mohanty, T. Banerjee	Extraction of phthalic acid from aqueous solution by using ionic liquids: A quantum chemical approach	International Journal of Thermodynamics	17	42-51	2014
V. Prabu, S. Jayanti	Heat-affected zone analysis of high ash coals during ex situ experimental simulation of underground coal gasification	Fuel	123	167-174	2014
K. Prasad Shadangi, K. Mohanty	Characterization of nonconventional oil containing seeds towards the production of bio-fuel	Journal of Renewable and Sustainable Energy	5	3	2013
A.A. Praveen Kumar, H. Goyal, T. Banerjee, D. Bandyopadhyay	Instability modes of a two-layer Newtonian plane Couette flow past a porous medium	Physical Review E - Statistical, Nonlinear, and Soft Matter Physics	87	6	2013
M. Pujari, A. Agarwal, R. Uppaluri and A. Verma	Effect of surfactant concentration and loading ratio on the electroless plating characteristics of dense Pd composite membranes	Industrial and Engineering Chemistry Research	53	3105-3115	2014
M. Pujari, A. Agarwal, R. Uppaluri and A. Verma	Role of electroless Nickel diffusion barrier on the combinatorial plating characteristics of dense Pd/Ni/PSS composite membranes	Applied Surface Science	DOI: 10.1016/j.apsusc.2014.03.156		2014

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D. Rabari, T. Banerjee	Biobutanol and n-propanol recovery using a low density phosphonium based ionic liquid at T=298.15K and p=1atm	Fluid Phase Equilibria	355	26-33	2013
C. R. Reddy, N. Kishore	Effects of Wall Confinement and Power-Law Fluid Viscosity on Nusselt Number of Confined Spheres	Chemical Engineering and Technology	36 (9)	1568-1576	2013
Y. Rajesh, M. Pujari, R. Uppaluri	Equilibrium and kinetic studies of Ni(II) adsorption using Pineapple and Bamboo stem based adsorbents	Separation Science and Technology	DOI:10.1080/01496395.2013.845426		2013
Y. Rajesh, M. Pujari, R. Uppaluri	Equilibrium and Kinetic studies of Ni (II) adsorption using Pineapple and Bamboo Stem based adsorbents	Separation Science and Technology	49	533-544	2014
A.S. Rathore, P. Chaitanya, N. Kishore	Drag of tandem spheroids in power-law fluids at moderate reynolds numbers	Industrial and Engineering Chemistry Research	52 (33)	11773-11778	2013
N. Ratkovich, S.K. Majumder, T.R. Bentzen	Empirical correlations and CFD simulations of vertical two-phase gas-liquid (Newtonian and non-Newtonian) slug flow compared against experimental data of void fraction	Chemical Engineering Research and Design	91 (6)	988-998	2013
T. S. K. Raunija, V. Manwatkar, S.C. Sharma, A. Verma	Morphological Optimization of Process Parameters of Randomly Oriented Carbon/Carbon Composite	Carbon Letters	15	25-31	2014
D. Sahu, P. Mishra, S. Edubilli, A. Verma, S. Gumma	Hydrogen Adsorption on Zn-BDC, Cr-BDC, Ni-DABCO, and Mg - DOB-DC Metal–Organic Frameworks	Journal of Chemical and Engineering Data	58 (11)	3096-3101	2013
D. Sahu, P. Mishra, N. Das, A. Verma, S. Gumma	The Net Adsorption of Hydrogen on Palladium Nanoparticles	Surface Review Letters	DOI: 10.1142/S0218625X1450022X		2014
Samarshi Chakraborty, Manish Kumar, Kelothu Suresh and G. Pugazhenth	Influence of Organically Modified Ni-Al Layered Double Hydroxide (LDH) Loading on the Rheological Properties of poly (methyl methacrylate) (PMMA)/LDH Blend Solution	Powder Technology	256	196-203	2014
K. Sainath, P. Ghosh	Stabilization of Silicone Oil-in-Water Emulsions by Ionic Surfactant and Electrolytes: The Role of Adsorption and Electric Charge at the Interface	Industrial and Engineering Chemistry Research	52	15808-15816	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S. Sasmal, V.V. Goud, K. Mohanty	Determination of salutary parameters to facilitate bio-energy production from three uncommon biomasses using thermogravimetric analysis	Journal of Thermal Analysis and Calorimetry	111 (3)	1649-1655	2013
S. Sasmal, V.V. Goud, K. Mohanty	Dilute sulfuric acid pretreatment of Bon bogori ( <i>Ziziphus rugosus</i> ): proselyte to amorphous biomass for biofuel production	Journal of Bioprocess Engineering and Biorefinery	2	225-229	2013
S. Sasmal, V.V. Goud, K. Mohanty	Delignification Kinetics of lime pretreatment – An ineluctable tread for augmenting enzymatic hydrolysis	Journal of Biobased Materials and Bioenergy	7	660-664	2013
S. Sen, V.V. Dasu, B. Mandal, R. Kumar	Enzymatic removal of burnt-on protein residues from solid surface: A potential food equipment cleanser	Food Control	40	314-319	2014
K.P. Shadangi, K. Mohanty	Kinetic Study and Thermal Analysis of the Pyrolysis of Non-edible Oilseed Powders by Thermogravimetric and Differential Scanning Calorimetric Analysis	Renewable Energy	63	337-344	2013
K. P. Shadangi, K. Mohanty	Production and characterization of pyrolytic oil by catalytic pyrolysis of Niger seed	Fuel	126	109-115	2014
K. P. Shadangi, K. Mohanty	Comparison of yield and fuel properties of thermal and catalytic Mahua seed pyrolytic oil	Fuel	117	372-380	2014
K. P. Shadangi, K. Mohanty	Thermal and catalytic pyrolysis of Karanja seed to produce liquid fuel	Fuel	115	434-442	2014
M.R. Shah, R. Anantharaj, T. Banerjee, G.D. Yadav	Quaternary (liquid + liquid) equilibria for systems of imidazolium based ionic liquid + thiophene + pyridine + cyclohexane at 298.15 K: Experiments and quantum chemical predictions	Journal of Chemical Thermodynamics	62	142-150	2013
E. Sriharsha, R. Uppaluri and M. K. Purkait	Crossflow microfiltration of oil-water emulsions using kaolin based low cost ceramic membranes	Desalination	341	61-71	2014
E. Sriharsha, R. Uppaluri and M. K. Purkait	Microfiltration of oil-water emulsions using low cost ceramic membranes prepared with uniaxial dry compaction method	Ceramics International	40 (1), Part A	1155 – 1164	2014



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A. K. Singh, K. K. Dey, A. Chattopadhyay, T. K. Mandal, D. Bandyopadhyay	Multimodal chemo-magnetic control of self-propelling microbots	Nanoscale	3	1398-1405	2013
A. Singh	Dynamics of suspensions of spherical doublets in simple shear and pressure driven flow	Chemical Engineering Science	104	17-24	2013
S. Singh, A. N. Singh, A. Verma, V.K. Dubey	A novel superoxide dismutase from <i>Cicerarietinum</i> L seedling: Purification and characterization	Protein and Peptide Letters	20	741-748	2013
S. Singh, A. N. Singh, A. Verma, V.K. Dubey	Biodegradable polycaprolactone (PCL) nanosphere encapsulating superoxide dismutase and catalyze enzymes	Applied Biochemistry and Biotechnology	171 (7)	1545-1558	2013
V. Singh, P.K. Jain, C. Das	Performance of spiral wound ultrafiltration membrane module for with and without permeate recycle: Experimental and theoretical consideration	Desalination	332	94-103	2013
M. K. Sinha, G. Pugazhenthii	Influence of Organomodified Ni-Al Layered Double Hydroxide (LDH) Content on the Thermal Properties and Degradation Kinetics of Polystyrene (PS)/Ni-Al LDH Nanocomposites Prepared via Solvent Blending Method	Advanced Materials Research	747	23-26	2013
M. Sivaiah, S.K. Majumder	Hydrodynamics and mixing characteristics in an ejector-induced downflow slurry bubble column (EIDSBC)	Chemical Engineering Journal	225	720-733	2013
M. Sivaiah, S.K. Majumder	Mass Transfer and Mixing in an Ejector-Induced Downflow Slurry Bubble Column	Industrial and Engineering Chemistry Research	52 (35)	12661-12671	2013
K. Suresh, A. Ranjan, S. Singh, V.S. Moholkar	Mechanistic investigations in sono-hybrid techniques for rice straw pretreatment	Ultrasonics Sonochemistry	21 (1)	200-207	2014
F. Taghizadeh, M. Ghaedi, K. Kamali, E. Sharifpour, R. Sahraie, M. K. Purkait	Comparison of nickel and/or zinc selenide nanoparticle loaded on activated carbon as efficient adsorbents for kinetic and equilibrium study of removal of Arsenazo (III) dye	Power Technology	245	217-226	2013
A. K. Thokchom, A. Gupta, P.J. Jaijus and A. Singh	Analysis of fluid flow and particle transport in evaporating droplets exposed to infrared heating	International Journal of heat and Mass Transfer	68	67-77	2014

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D. Vasanth, G. Pugazhenth, R. Uppaluri	Cross-flow microfiltration of oil-in-water emulsions using low cost ceramic membranes	Desalination	320	86-95	2013
D. Vasanth, G. Pugazhenth, R. Uppaluri	Performance of Low Cost Ceramic Microfiltration Membranes for the Treatment of Oil-in-water Emulsions	Separation Science and Technology (Philadelphia)	48 (6)	849-858	2013
J.K. Verma, A. Verma, A.K. Ghoshal	Performance analysis of solid oxide fuel cell using reformed fuel	International Journal of Hydrogen Energy	38	9511-9518	2013
Ruhit J. Konwar, Mahuya De	Synthesis of high surface area silica gel templated carbon for hydrogen storage application	Journal of Analytical and Applied Pyrolysis	DOI 10.1 016 / j.jaap. 2014. 03. 005		2014
N. Vinothkumar, Mahuya De	Enhanced photocatalytic hydrogen production from water-methanol mixture using cerium, and nonmetals (B/C/N/S) co-doped titanium dioxide	Materials for Renewable and Sustainable Energy	3 (25)		2014
A. Dasari, A. B. Desamala, U. K. Ghosha, A. K. Dasmahapatra, and T. K. Mandal	Correlations for Prediction of Pressure Gradient of Liquid-Liquid Flow through a Circular Horizontal Pipe	Journal of Fluids Engineering	DOI: 10.1 115/ 1.4 026 582		2014
A. K. Singh, K. K. Dey, A. Chattopadhyay, T. K. Mandal and D. Bandyopadhyaya	Multimodal chemo-magnetic control of self-propelling microbots	Nanoscale	6	1398-1405	2014
A. Dasari, B. K. Goshika, R. T. Pilla and T. K. Mandal	CFD Simulation and Validation of Interfacial Morphology of Viscous Oil-Water Flow through Upward Inclined Pipe	International Journal of Current Engineering and Technology	Special Issue-2	453-460	2014
P. Deka, K. R. Naidu, T. K. Mandal and S. K. Majumder	Flow pattern shifting and drag reduction in oil-water flow in pipe	International Journal of Research in Engineering & Technology	2 (2)	245-252	2014
A. Dasari, A. B. Desamala, A. K. Dasmahapatra and T. K. Mandal	Experimental studies and PNN prediction on flow pattern of viscous oil-water flow through circular horizontal pipe	Industrial & Engineering Chemistry Research	52	7975-7985	2013
A. B. Desamala, A. Dasari, V. Vijayan, B. K. Goshika, A. K. Dasmahapatra and T. K. Mandal	CFD simulation and validation of flow pattern transition boundaries during moderately viscous oil-water two-phase flow through horizontal pipeline	International Journal of Chemical, Materials Science and Engineering	7	1159-1164	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
C. R. Reddy and N. Kishore	Momentum and heat transfer phenomena of confined spheroid particles in power-law liquids	Industrial & Engineering Chemistry Research	53	989-998	2014
V. S. Nalajala and N. Kishore	Drag of contaminated bubbles in power-law fluids	Colloid Surf. A: Physicochemical Engineering Aspects	443	240-248	2014
V.S. Nalajala, N. Kishore and R.P. Chhabra	Effect of Contamination on Rise Velocity of Bubble Swarms at Moderate Reynolds Numbers	Chem. Eng. Res. Des.	doi: 10.1016/j.cherd.2013.10.006		2013
A.S. Rathore, P. Chaitanya and N. Kishore	Drag of tandem spheroids in power-law fluids at moderate Reynolds numbers	Ind. Eng. Chem. Res.	52	11773-11778	2013
N. Kishore, V.S. Nalajala and R.P. Chhabra	Effects of contamination and shear-thinning fluid viscosity on drag behavior of spherical bubbles	Ind. Eng. Chem. Res.	52	6049-6056	2013
C.R. Reddy and N. Kishore	Effects of wall confinement and power-law fluid viscosity on Nusselt number of confined sphere	Chem. Eng. Technol.	36	1568-1576	2013
Rabibabu Valapa, Gopal Pugazhenth, Vimal Katiyar	Thermal degradation kinetics of sucrose palmitate reinforced poly(lactic acid) biocomposite,	International Journal of Biological Macromolecules	65	275-283	2014
Umesh Bhardwaj and Vimal Katiyar	Evaluation of Discrete Kinetics during pyrolysis of lignocellulosic biomass and its extracted pulp	American Chemical Society, Div. Energy Fuels Preprints	58(1)	60	2013

#### National Magazine

Name of Author	Name of Paper	Name of Journal	Volume and Issue No.	Page No.	Year of Publication
A. Amritra, R. Upaluri and A. Verma	Enhance practical knowledge through virtual mass transfer laboratory	Chemical Industry Digest	February	73-76	2014

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
A. K. Golder	International Conference on Emerging Challenges and Issues in Environmental Protection	Raipur Institute of Technology	23-24 Jan 2014	International
A.K. Golder	CHEMCON-2013	Institute of Chemical Technology, Matunga, Mumbai	27-30 Dec 2013	International

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
C. Das	CHEMCON-2013	Institute of Chemical Technology, Matunga, Mumbai	27-30 Dec 2013	International
A. K. Golder	International Conference on Chemical and Bioprocess Engineering (ICBPE-2013)	NIT Warangal, Andhra Pradesh	16-17 Nov 2013	International
C. Das	International Conference on Chemical and Bioprocess Engineering (ICBPE-2013)	NIT Warangal, Andhra Pradesh	16-17 Nov 2013	International
A. K. Golder	International Conference on Frontiers in Chemical Engineering (ICFCE-2013)	NIT Rourkela, Odisha	9-11 Dec 2013	International
C. Das	International Conference on Frontiers in Chemical Engineering (ICFCE-2013)	NIT Rourkela, Odisha	9-11 Dec 2013	International
A. K. Golder	International Conference on Advances in Chemical Engineering (ICACE 2013)	NIT Raipur	5-6 Apr 2013	International
V. V. Goud	International Conference on Advances in Chemical Engineering (ICACE 2013)	NIT Raipur	5-6 Apr 2013	International
C. Das	International Conference on Advances in Chemical Engineering (ICACE 2013)	NIT Raipur	5-6 Apr 2013	International
A. K. Dasmahapatra	Soft Matter – Young Investigators' Meet (SM-YIM) – 2014	Pondicherry	5-7 Jan 2014	National
A. K. Dasmahapatra	FAPS-MACRO-2013	Bangaluru	15-18 May 2013	International
T. Banerjee	Indraprastha International Conference on Biotechnology (IICB-2013), 2013	New Delhi	21-25 Oct 2013	International
T. Banerjee	Symposium on Emerging Trends in Science and Technology (SESTEC-2014)	BARC, Mumbai	23-28 Feb 2013	International
A. Singh	International Conference on Multiphase Flow	Jeju, South Korea	26-20 May 2013	International
A. Singh	National symposium on Rheology of Complex Fluids	IIT Delhi	19-20 Dec 2013	National
A. Singh	International conference on recent advances in mathematical sciences and applications	Visakhapattanam	19-22 Dec 2013	International
A. Singh	International conference on advances in mechanical sciences	Hyderabad	9-11 Jan 2014	International
D. Bandyopadhyay	SelectBio2014	IICT Hyderabad	2014	International
D. Bandyopadhyay	ICANN 2013	IIT Guwahati	2013	International

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
D. Bandyopadhyay	6th BANGALORE INDIA NANO	BANGALORE	2013	International
D. Bandyopadhyay	ISHMT-ASME	IIT Kharagpur	2013	International
D. Bandyopadhyay	International Conference on Powder, Granule and Bulk Solids: Innovations and Applications	Thapar University	2013	International
D. Bandyopadhyay	COMSOL Conference	Bangalore	2013	International
R. Uppaluri	International Conference on Chemical and Bioprocess Engineering (ICCBPE)	NIT Warangal	16-17 Nov 2013	International
R. Uppaluri	International Conference on Membrane Application (ICMA)	Central Glass and Ceramic Research Institute, Kolkata	22-23 Nov 2013	International
K. Mohanty	Recent Advances in Bio-Energy Research	Kapurthala	22-24 Nov 2013	National
K. Mohanty	Mineral Processing Technology 2013	Bhubaneswar	10-12 Dec 2013	International
K. Mohanty	CHEMCON-2013	Mumbai	27-30 Dec 2013	National
K. Mohanty	Indian Water Congress	Vallabh Vidyanagar	7-8 Feb 2014	National
B. Mandal	The Energy System Modeling and Optimization Conference (ESMOC 2013)	Durgapur	9-11 Dec 2013	National
B. Mandal	CHEMCON 2013	Mumbai	27-30 Dec 2013	National
B. Mandal	ASP-14	Guwahati	9-11 Jan 2014	National
R. G. Uppaluri	Next Generation Clean Fuels, Grow Diesel	New Delhi	17-18 Sep 2013	National
A. Verma	Next Generation Clean Fuels, Grow Diesel	New Delhi	17-18 Sep 2013	National
A. Verma	A Technical Annual Meeting, Reflux 2013	IIT Guwahati	3-4 Apr 2013	National
A. Verma	Renewables in Science and Engineering (RISE-2014)	NIT Silchar	10-14 Jan 2014	National
A. Verma	NANOSMAT 2013	Granada, Spain	22-25 Sep 2013	International
A. Verma	International Conference on Environment Technology and Sustainable Developments: Challenges & Remedies (ET&SD 2014)	Babasaheb Bhimrao Ambedkar University, Lucknow	21-23 Feb 2014	International
A. Verma	International Conference on Harnessing Natural Resources for Sustainable Development	Cotton College, Guwahati	29-31 Jan 2014	International

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
A. Verma	ICAER-2013, International Conference on Advances in Energy Research	IIT Bombay, Mumbai	10-12 Dec 2013	International
G. Pugazhenth	4th International Conference on Multi-Functional Materials and Structures (MFMS 2013)	Bangkok, Thailand	14-17 Jul 2013	International
Prakash Kotecha	International Conference on System Modeling and Optimization	Barcelona, Spain	20-21 Feb 2014	International
Prakash Kotecha	International Conference on Operations Research for Data Analytics & Decision Analysis (ICORDADA 2013)	Srinagar, India	21-23 Oct 2013	International
Prakash Kotecha	International Conference on Advanced Engineering Optimization Through Intelligent Techniques	Surat, India	1-3 July 2013	International
Prakash Kotecha	Evolutionary Techniques for the Optimization of Chemical Engineering Systems (Workshop)	Dehradun, India	24-29 Mar 2014	National
Mahuya De	AIChE, 13th Annual Meeting	San Francisco, USA	3-8 Nov 2013	International
Mahuya De	International Conference on Advances in Chemical Engineering (ICACE 2013),	NIT Raipur	Apr 2013	International
N. Kishore	Hydrocarbon Industry Growth: Prospects & Challenges in North East	Oil India Limited and Petrotech, Guwahati	17-18 Feb 2014	National
V. Katiyar	AIChE Annual Meeting	San Francisco, California, USA	3-8 Nov 2013	
V. Katiyar	PPS-2013	Mumbai	4-7 Dec 2013	International
V. Katiyar	ASP-14	Guwahati	10-11 Jan 2014	National

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
T. Banerjee	Theoretical Prediction of Distribution Coefficients of Sr <sup>2+</sup> in Nuclear waste and Ionic liquid Phases using COSMO-RS Model	BARC, Mumbai	Mumbai	27 Feb 2014
T. Banerjee	Reactive Force Field Calculations presented in the School on "Advanced Sustainable polymers"	IIT Guwahati	Guwahati	9 Jan 2014
D. Bandyopadhyay	Self-propelling Microbots Decorated with Catalytic and Magnetic Nanoparticles	CSIR-Indian Institute of Chemical Technology	Hyderabad	2014
D. Bandyopadhyay	Self-organized Healing of Thin Liquid Crystal Films	IIT Guwahati	Guwahati	2014

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
K. Mohanty	Lignocellulosic Bioethanol: Recent Advances and Future Prospects	National Institute of Renewable Energy	Kapurthala	22 Nov 2013
K. Mohanty	Applications of Liquid Membrane Technology in Wastewater Treatment	G.H. Patel College of Engineering	Vallabh Vidyanagar	7 Feb 2014
B. Mandal	CO <sub>2</sub> -selective dense polymeric membranes for post-combustion CO <sub>2</sub> -capture: Challenges and Prospects	IIT Guwahati	Guwahati	10 Jan 2014
B. Mandal	CO <sub>2</sub> Emission Reduction Technologies: Challenges and Prospects	NIT Durgapur	Durgapur	11 Dec 2013
A. Verma	Graphene: A potential Candidate for Polymer Electrolyte Membrane Fuel Cell (at RISE-2014)	NIT Silchar	Silchar	10-14 Jan 2014
V. Katiyar	Sustainable Polymers	IIT Guwahati	Guwahati	6-11 Jan 2014
V. Katiyar	Poly lactic acid based Technologies	IIT Guwahati	Guwahati	6-11 Jan 2014

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./ Univ./Org.	Purpose/ Name of Lecture	Date
<b>Invited Lectures delivered during the National School on Sustainable Polymers (NSSP)</b>			
Dr. Bhaskar B. Idage	NCL Pune	Biodegradable Polymers from Renewable Resource Materials	6 Jan 2014
Prof. Anil Kumar	IIT Bombay	Printable Organic Electronic Materials Based on Polythiophenes	6 Jan 2014
		Magic and Science: The Art of "ACTIVE" Learning and Research	
Dr. Sanjay Kamble	NCL Pune	Process Intensification for Downstream Processing of Lactic Acid	7 Jan 2014
Dr. Gaurav Manik	IIT Roorkee	Mesoscale Simulations of Sustainable Polymers	8 Jan 2014
Dr. Nishant Sinha	Accelrys India	Property Predictions for Polymers Using Molecular Modelling	8 Jan 2014
Dr. Gaurav Manik	IIT Roorkee	Intellectual Property: Generation, Protection and Growing Importance to Industry and Academics for Producing Sustainable Products	8 Jan 2014
Dr. G. Sivalingam	Reliance Industries, Mumbai	Structure Property Models for Polypropylene Nanocomposites	9 Jan 2014
Dr. Pralay Maiti	IIT (BHU), Varanasi	Processing of Biodegradable Polymers and its Composites	9 Jan 2014
Mr. Manoj Bansal	Thermo Scientific	Relevant Process Parameters for Twin Screw Compounding	9 Jan 2014
Dr. Milind Mhalgi	Tata ACS Ltd., Pune	Structure Development During Extrusion of Polymer Films	9 Jan 2014
Prof. P. M. Pandey	IIT Delhi	Three Dimensional Printing of Polymer Products	9 Jan 2014

Name	Name of Inst./ Univ./Org.	Purpose/ Name of Lecture	Date
Dr. Ashish Lele	NCL Pune	From Macromolecular Structure to Polymer Processing: Bridging Length and Time Scales	9 Jan 2014
<b>Invited Talk during First Symposium on Advances in Sustainable Polymers (ASP-14)</b>			
Dr. Ashish Lele	NCL Pune	Silk – A Versatile Biomaterial	10 Jan 2014
Dr. Pralay Maiti	IIT (BHU), Varanasi	Nanoparticle and Process Induced Hybrid Materials: The Effect of Stretching and Self-assembly	10 Jan 2014
Prof. Sabu Thomas	M.G. University, Kottayam	Bio-Inspired Micro and Nanocomposites for The Future	10 Jan 2014
Prof. Arun Nandi	IACS Kolkata	Graphene – Conducting Polymer Hybrids Towards Photovoltaic Applications	10 Jan 2014
Dr. Rangam Rajkhowa	Deakin University, Australia	Fibrous Biopolymer Research at Australian Future Fibres Research and Innovation Centre	10 Jan 2014
Prof. Asgar Ali	University of Nottingham, Malaysia Campus	Advances in Polymer Based Edible Coatings for The Preservation of Fruits and Vegetables	10 Jan 2014
Dr. G. Sivalingam	RIL, Mumbai	Polymer Degradation Mechanisms in Solution	10 Jan 2014
Prof. Niranjan Karak	Tezpur University	Green and Sustainable Hyperbranched Polymers and their Nanocomposites for Multifaceted Advanced Applications	10 Jan 2014
Dr. Bhaskar Idage	NCL Pune	Improvement in The Heat Resistance of Poly (Lactic Acid)	10 Jan 2014
Dr. Gaurav Manik	IIT Roorkee	Sustainable Polymers: Growing Importance in PSAs and Coatings Industry	10 Jan 2014
Dr. Milind Mhalgi	Tata ACS Ltd., Pune	Recent Developments in Automotive Plastics Materials and Component Design	10 Jan 2014
Prof. Pulak Mohan Pandey	IIT Delhi	Improving Accuracy through Shrinkage Modelling by using Taguchi Method in Selective Laser Sintering	10 Jan 2014
Mr. Cliffer Roy	Datacolor, Mumbai	Basic Color Theory	10 Jan 2014
Dr. J. Bindu	CIFT Kottayam	Trends in Polymer Packaging of Fishery Products	10 Jan 2014
Dr. Susheela Idage	NCL Pune	Novel Synthesis of Poly (Lactic Acid) Stereocomplex Nanoparticles With Different Morphology by Self Assembly	10 Jan 2014

**SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED:**

Name of Sem./Wor./ Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of Participants
Advanced Chemical Process Design	QIP	8-12 Jul 2013	National	Joint Co-ordinator	20
Technical Writing Workshop	Reflux 2.0, IIT Guwahati	9 Mar 2014	National	Prof. R. Uppaluri	45
MATLAB Workshop	Reflux 2.0, IIT Guwahati	30 Mar 2014	National	Prof. R. Uppaluri	118
REFLUX 2.0	NHPC	29-30 Mar 2014	National	K. Mohanty (Coordinator), T. Banerjee (Co-Coordinator), Ankur Jain (Convener)	300



National School on Sustainable Polymers	DST & others	6-9 Jan 2014	National	Vimal Katiyar	50
First Symposium on Advances in Sustainable Polymers	DST & others	10-11 Jan 2014	National	Vimal Katiyar	100

**PATENTS:**

M. Pujari, A. Agarwal, R. Uppaluri and A. Verma 'Composition and Method for Dense Palladium Composite Membrane Fabrication', Indian Patent filed (07-10-2013), Application No. 1150/KOL/2013.

**AWARDS AND HONOURS:**

1. IICHe Student Awards: (1) Ambuja Cement Young Researcher Award: Mr. D. Kundu, Mr. K. Suresh; (2) Chemical Weekly Prize: Mr. Rahul Mayank.

2. Dr. D. Bandyopadhyay, Visiting Faculty, Yeungnam University South Korea, June 2013.

3. Dr. D. Bandyopadhyay, Nominated Member, American Chemical Society, March 2014.

4. Dr. R.G.Uppaluri, Member, Board of Studies, Petroleum Engineering, JNTU Kakinada, 2013 – 2014.

5. Best Poster Award of the Conference to Dr. Anil Verma (authors L.M. Aeshala, A. Verma) for the paper "Effect of Solid Electrolyte on Electrochemical Reduction of CO<sub>2</sub> to Generate Fuel", in: International Conference on Environment Technology and Sustainable Developments: Challenges & Remedies (ET&SD 2014), Babasaheb Bhimrao Ambedkar University, Lucknow, India, 21-23 February 2014.

6. Third Best Poster Award (along with cash prize) to group (L.M. Aeshala, R. Rapally, A. Verma) for the paper "Electrochemical Reduction of Atmospheric CO<sub>2</sub> to Generate Fuel and Simultaneous Storage of Solar Energy", in: A Technical Annual Meeting, Reflux 2014, IIT Guwahati, India, 29-30 March 2014.

7. Best Oral Presentation Award (along with cash prize) to V.S.M. Yadav (authors: V.S.M. Yadav, L.M. Aeshala, S. Singh, A. Verma) in a session for the paper "Electrochemical Reduction of Carbon Dioxide into Fuel", in: A Technical Annual Meeting, Reflux 2014, IIT Guwahati, India, 29-30 March 2014.

8. Second Best Exhibition Award (along with cash prize) to Sustainable Environenergy Electrochemical Research Group (SEERG) (Members involved: L.M. Aeshala, S. Surya, S.M.E. Hussain, V.S.M. Yadav, R. Rapally, A. Verma), in: A Technical Annual Meeting, Reflux 2014, IIT Guwahati, India, 29-30 March 2014.

9. Second Best Paper Award (along with cash prize) of Green-Tech Competition to L.M. Aeshala and V.S.M. Yadav (authors: V.S.M. Yadav, L.M. Aeshala, A. Verma) for the paper "Solar Energy Driven Electrochemical Reduction of CO<sub>2</sub> for Generation of Renewable Fuel", in: A Technical Annual Meeting, Reflux 2014, IIT Guwahati, India, 29-30 March 2014.

10. 2nd Runner-up (Ms. S. Singh, PhD student) for the BEST PAPER AWARD for presenting the paper entitled "Development of Catalytic Activity Protocol for Electrochemical Reduction of Carbon Dioxide" at the International Conference on Advances in Energy Research held during December 10-12, 2013 at IIT Bombay, Mumbai, India". Received certificate, trophy, and book voucher worth USD 200 by Springer.

**STUDENTS' ACHIEVEMENTS**

- Mr. Ramalingam Anantharaj, "Thermax Asset Award for Best PhD Thesis, 2013" in the field of Separation Science given by BARC, Mumbai on 28 February 2014.

- Mr. Ramalingam Anantharaj, "ProSPER.Net-Scopus Young Scientist Award 2013" for Sustainable Development in Transport Category and given by Elsevier and United Nation university-Institute of advanced studies at Nanyang Technological University - Nanyang Environment and Water Research Institute (NTU-NEWRI) in Singapore.

- BEST POSTER award to Mr. Saptak Rarotra, Dr. Tapas Kumar Mandal, and Dr. Dipankar Bandyopadhyay in SelectBio2014, IICT Hyderabad for "Electrolytic production of Hydrogen energy by water - splitting in Polymer based Micro reactors".

- Abhijna Das, Bolleddu Ravi, Amit Kumar Singh, Dr. Dipankar Bandyopadhyay - BEST POSTER award for "Effect of gold nanoparticles on the self-organization of ultra-thin polymer films", ICANN 2013, IIT Guwahati.

- Best paper award for Mr. Chinna Kaniganti in International Conference on Chemical and Bioprocess Engineering (ICCBPE), NIT Warangal, 16-17 November 2013.

- Richa Sharma has received best paper award in CHEMCON 2013.

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1.	D. Bandyopadhyay	IIT Kanpur	Assistant Professor	Colloid and Interfacial Phenomena, Computational Fluid Dynamics, Micro and Nano Fluidics, Complex Flow and Fluids, Clean Energy – Fuel and Solar cells
2.	T. Banerjee	IIT Kanpur	Associate Professor	Phase equilibria of ionic liquids, Molecular simulations, Global optimisation, Statistical thermodynamics
3.	C. Das	IIT Kharagpur	Assistant Professor	Wastewater Treatment, Bioremediation, Membrane based Separation Process
4.	A. K. Dasmahapatra	IIT Bombay	Assistant Professor	Complex fluids, Phase transition in polymers (Nucleation, crystallization, collapse transition, etc.), Structure-property relations, Molecular simulations, Biological physics
5.	M. De	IIT Kanpur	Assistant Professor	Catalysis and reaction engineering, adsorption, hydrocarbon processing
6.	P. Ghosh	IIT Bombay	Professor	Interfacial phenomena, Interfacial reactions, Membrane separation, Randomised algorithms
7.	A. K. Ghoshal	IIT Kharagpur	Professor	Advanced Separation Technology, Modeling & Simulation, Environmental Pollution Control, Pyrolysis of waste plastics
8.	A. K. Golder	IIT Kharagpur	Assistant Professor	Electroremediation of water/wastewater, Physiochemical water/wastewater treatment techniques, Bioremediation, Electrochemical corrosion
9.	V. V. Goud	IIT Kharagpur	Assistant Professor	Heterogeneous Reactions, Bio-energy and Green Engineering, Biolubricant, Utilisation of Lignocellulosic Biomass for Fuel/Chemicals, Supercritical Fluids
10.	S. Gumma	Cleveland State University, USA	Associate Professor	Phase Equilibria and Thermodynamics, Adsorption, Molecular simulation, Gas storage
11.	V. Katiyar	IIT Bombay	Assistant Professor	Synthetic and Natural Polymers, Polymer Processing, Biothermoset, Nanobiocomposite, Organic Solar Cells
12.	N. Kishore	IIT Kanpur	Assistant Professor	CFD, Bubbles, Drops and Particles Dynamics, Non-Newtonian Fluids
13.	P. Kotecha	IIT Bombay	Assistant Professor	Optimization, Process Control, Artificial Intelligence, Planning and Scheduling
14.	A. Kumar	University of Delaware, USA	Assistant Professor	Gas Transport in Nanoporous Materials, Molecular Simulation, Statistical Mechanics
15.	B. Mandal	IIT Kharagpur	Associate Professor	Separations with chemical reaction, Molecular based membrane separation, Modeling and simulation of separation processes, Environmental pollution control
16.	T. K. Mandal	IIT Kharagpur	Assistant Professor	Multiphase flow & Measurement in multiphase flow, Biodiesel
17.	S. K. Mazumdar	IIT Kharagpur	Associate Professor	Multiphase flow and reactor development, Computational fluid dynamics in multiphase flow, Mineral processing, Process intensifications and Micro-nanobubble science and technology

Sl. No.	Name	PhD	Designation	Areas of Interest
18.	K. Mohanty	IIT Kharagpur	Associate Professor	Bioseparation, Biofuels, Biological wastewater treatment, Membrane technology, Ionic liquids
19.	V. S. Moholkar	University of Twente, Netherlands	Professor & HoD	Bubble dynamics, CFD, Sono-process engineering, Bio-mass gasification
20.	V. Prabu	IIT Madras	Assistant Professor	Clean Coal Technology, Combustion and Gasification, Reaction kinetics
21.	G. Pugazhenth	IIT Kanpur	Associate Professor	Membrane Separation, Polymer Nanocomposites, Nanomaterials, Catalysis & Refinery Processes
22.	M. K. Purkait	IIT Kharagpur	Associate Professor	Advance Separation Processes, Membrane technology. Preparation/fabrication of ceramic/polymeric membranes and their application in RO, NF, UF and MF. Treatment of Industrial Effluent, Surfactant mediated separation processes, Responsive materials for environmental, biological and chemical separation
23.	P. Saha	IIT Madras	Professor	Process Modeling, Optimisation and control, Membrane Based separation Process
24.	S. Senthilmurugan (Joined IIT Guwahati on 29 October 2013)	IIT Delhi	Assistant Professor	Modeling and Optimization of Novel Processes, Process Design and Operation of Membrane Separation Processes, Waste and waste water treatment (WWWT) for Process Industries, Novel Desalination Technologies, Smart Water Grid, Waste to Energy
25.	A. Singh	IISc Bangalore	Associate Professor	Computational and Experimental Fluid Dynamics, Microfluidics/Nanofluidics, Material Processing, Flow through Porous Media
26.	P. Tiwari	University of Utah, Salt Lake City, UT, USA	Assistant Professor	Conventional and unconventional energies, Reservoir Engineering, Complex organic solids, Biomass conversion, Pyrolysis process, Kinetic analysis
27.	R. K. Upadhyay	IIT Delhi	Assistant Professor	Multiphase Flow Reactor, Multiphase Flow Measurements, Computational Fluid Dynamics, Residence Time Distribution, Novel Reactors
28.	R. V. S. Uppaluri	UMIST, Manchester, UK	Professor	Major: Electroless Plating, Evolutionary Engineering Optimization, Low Cost Ceramic Membranes, Microfiltration; Minor: Bio-systems Engineering, Polymer-natural fiber composites, Process Design & Techno-economics, Refinery Engineering, Reservoir Engineering; Extracurricular: Synthesis of Science and Spirituality
29.	R. P. Venkatesh (Joined IIT Guwahati on 25 April 2013)	IIT Madras	Assistant Professor	Electrochemistry, Chemical Mechanical Polishing (CMP), Post CMP cleaning, Refinery Processes
30.	A. Verma	IIT Delhi	Associate Professor	Fuel Cell, Hydrogen Production and Storage, Graphene, Carbon Dioxide Capture and Conversion to Fuel

# DEPARTMENT OF CHEMISTRY

## YEAR OF ESTABLISHMENT OF THE DEPARTMENT:

1995

## ACADEMIC PROGRAMMES OFFERED:

**Bachelor of Technology (BTech)** in  
o Chemical Science and Technology

**Master of Science (MSc)** in  
o Chemistry

**Doctor of Philosophy (PhD)**

## STUDENTS ADMITTED IN THE YEAR 2013-2014:

- BTech: 45
- MSc: 42
- PhD: 42

## FACULTY STRENGTH:

- Professor: 10
- Associate Professor: 8
- Assistant Professor: 15

## NUMBER OF NEW FACULTY JOINED DURING 1 APRIL 2013 – 31 MARCH 2014:

- Assistant Professor: 2

## NO. OF LABORATORIES WITH BRIEF INTRODUCTION:

### Laboratories for BTech and MSc programme:

Chemistry Laboratory (B. Tech, 1st sem) / Chemical Technology Lab – I, B. Tech (CST) (Number: 1) (Area: 200 m<sup>2</sup>)

Chemical Technology Lab – II, B. Tech (CST) (Number: 1) (Area: 140 m<sup>2</sup>) Chemical Technology Lab – III, B. Tech (CST) / Physical Chemistry Lab (M. Sc) (Number: 2) (Area: 300 m<sup>2</sup>) Inorganic Chemistry Lab (M. Sc) / Organic Chemistry Lab (M. Sc) (Number: 1) (Area: 180 m<sup>2</sup>)

## Research Laboratories:

CHL – 101, CHL – 102, CHL – 103, CHL – 104, CHL – 105, CHL – 106, CHL – 201, CHL-202, CHL-203, CHL-204, CHL – 205, CHL – 206, CHL-3201, CHL-3202, CHL-3203, CHL-3204, CHL-3207, CHL-3209, CHEL-006, CHEL-003, CHEL-004, CHEL – 101, CHEL – 102, CHEL – 103, CHEL – 104, CHEL – 105, CHEL – 106, CHEL – 107, CHEL – 108, CHEL – 109 (Number: 30) (Floor space: 80 m<sup>2</sup> average)

Analytical equipment Lab I – IV (Number: 04) (Floor space: 300 m<sup>2</sup> average)

Computer Lab I and II (Number: 02) (Floor space: 80 m<sup>2</sup> average)

Ultrapure (Millipore) water Lab (Number: 01) (Floor space: 50 m<sup>2</sup> average)

## MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:

### Major equipments acquired:

(i) FTIR Spectrophotometer (Make: PerkinElmer, Model: Spectrum Two)

(ii) Microwave Reactor (Make: CEM Corporation, Model: Discover Labmate)

(iii) High Speed temperature controlled centrifuge (Make: Sigma, Model: 3-30K)

(iv) Steady State Fluorescence Spectrophotometer (Make: Horiba Instruments, Make: Fluoromax –4C) (yet to be installed)

(v) Nano particle Size, Zeta Potential, Molecular weight and the measurement facility of zeta-potential of solid surface (Make: Malvern Instruments, Model: Zetasizer Nano ZS90) (order placed)

### Software facility:

Gaussian Site License on Linux Platform

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The Department is engaged in various research and Development activities such as:

Catalysis, Supramolecular Chemistry, Nanoscale Science and Technology, Synthesis, structure and reactivity of Inorganics, Newer reagents, Protocols and Newer methodologies, Synthesis of natural products and Carbohydrate Chemistry, Bio-organic Chemistry, Bio-inorganic Chemistry and Co-ordination Chemistry & Organometallics, Chiral recognition using metal complex based host, Metal removal from wastewater using polymer based chelators, Polymer synthesis, Organic Photochemistry, Molecular dynamics, Quantum Molecular dynamics, Physical Chemistry – Spectroscopic and Theoretical investigations on Novel Materials, peptide chemistry, Development of new theoretical approaches to: Laser Assisted Control of Chemical Reactions, and, Resonances in Electron – Molecule Scattering, Biomimetic Chemistry and Chemical Biology, Computational Biophysics and Chemistry, Oxidation Catalysis, Molecular Magnetism, Synthesis of Single-Molecule Magnets (SMMs), MRI Contrast agents, Water Oxidation Chemistry, Experimental & Theoretical Physical Chemistry, Self-organization and Nonlinear dynamics, Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Supramolecular dynamic aggregates, peptides, lipids, Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS, Synthetic organic chemistry, Natural product synthesis with the emphasis of new synthetic methodology; development of new reactions, asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study, solar fuel from water, Gas/Vapor/Liquid Adsorption and Catalytic Applications of Metal-Organic Frameworks (MOFs), Peptidomimetics: Synthesis, Conformation and Biological activity etc.

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:**

The faculty members of the department are implementing a large number of research and development sponsored projects. They primarily focus on advance in basic chemistry as well as broad

areas of applied chemistry in the fields of industry, energy, environment, nanotechnology, food safety and pharmaceuticals etc.

Recently, the project entitled “Concept of  $\beta$ -Breaker Dipeptides (BBDP) and its Application in Alzheimer’s Amyloid Disruption” submitted by Dr. N. K. Chaitanya on behalf of their team (the other team member is Mr. Ashim Paul) got selected for Gandhian Young Technological Innovation Awards /Appreciations, 2014. SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions, <http://www.techpedia.in/award>) has established the national award for innovative student projects in engineering, pharmacy, science and other applied technologies. The awards were given away by Dr. R. A. Mashelkar, Chairperson, NIF at IIM-Ahmedabad on 29th March, 2014.

Diseases, such as, Alzheimer’s, Parkinson’s and Diabetes type II have no cure yet. Peptide based drug design approaches against such diseases were suffering from a bottleneck till date. The structural modifications to improve the activity of the molecules hinder binding affinity of the molecules to the targets. To solve the problem, we have designed some smart peptides, which are able to first get into the target easily due to structural homogeneity, then undergo a cascade of chemical modifications generating the activity element in situ, similar to a pro-drug (ACS Chemical neuroscience, DOI: 10.1021/cn500064z).

The work of Atul K. Dwivedi and Parameswar K. Iyer involving “Therapeutic strategies against Alzheimer’s Disease” which appeared in *Macromolecular Bioscience* (VIP manuscript) in June 2013 was highlighted in *Materials Views* for this important breakthrough contribution.

The work of B. Muthuraj, Sameer Hussain and Parameswar K. Iyer on “A rapid and sensitive detection of ferritin in nanomolar level and disruption of amyloid  $\beta$  fibrils using fluorescent conjugated polymer that appeared in *Polymer Chemistry* (2013), 4, 5096-5107, was chosen as best manuscript and Prof. Parameswar K. Iyer as author of the week by Royal Society of Chemistry (RSC) *Polymer Chemistry* <http://blogs.rsc.org/py/2013/11/04/author-of-the-week-professor-parameswar-k-iyer/>.

**RESEARCH PROJECTS****a) New Sponsored Projects**

<b>Principal Investigator</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Amount Sanctioned (Rs. in Lakh)</b>	<b>Co-Investigator</b>	<b>Duration (years)</b>
A. Chattopadhyay	Interacting Molecules and Nanoscale Materials	CSIR	16.00	-	3 years
A. K. Saikia	New approaches towards the synthesis of nitrogen and oxygen heterocycles and their applications in natural product synthesis	CSIR	18.00	-	3 Years
Sandip Paul	Effect of osmolytes urea and trimethylamine-N-oxide on hydrophobicity and protein folding/unfolding under confinement	DST	20.70	-	3 Years
S. S. Bag	Genotyping Single Nucleoside Polymorphisms (SNPs) with Fluorescently Modified Nucleoside / Oligonucleotide Probes	DBT	82.12	-	3 years
B. Mandal	Arresting pre fibrillar aggregates of Alzheimer's amyloid by synthetic antibodies	DBT	56.00	Dr. A. C. Mondal, R. P. M. College, Uttarpara, Hooghly (W.B.)	3 years
M. Sarma	Effect of Electron Donating and Electron Withdrawing Substituents on Single Strand Breaks in Selected DNA Fragment Induced by Low Energy Electron	DST	29.46	-	3 Years
D. Das	Understanding the Interaction between Cucurbituril and Amphiphilic Molecules in Aqueous Medium to Prepare Novel Self-assembled Systems	BRNS	21.26	-	3 Years
D. Das	Peptide Based Soft-Nano composites: Design, Synthesis and Potential Applications	CSIR	20.00	-	3 Years
K. Mahata	Oxygen-Evolving Catalysts for Artificial Photosynthesis	IIT Guwahati	5.00	-	2 years

**b) Ongoing Sponsored Projects**

<b>Principal Investigator</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Amount Sanctioned (Rs. in Lakh)</b>	<b>Co-Investigator</b>	<b>Duration (years)</b>
Dept. of Chemistry	DST-FIST Project under level-II category	DST	215.00	-	5 years
B.K. Patel	Development of Antimalarial and Anti-Tuberculosis Drugs,	CSIR	8.00	-	3 Years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
B.K. Patel	Newer Approaches to Heterocycles: Mechanistic Investigations and Applications,	CSIR	15.00	-	3 Years
B.K. Patel	Beyond Traditional coupling leading to the synthesis of novel heterocyclic scaffolds.	DST	48.00	-	3 Years
T. Punniyamurthy	Study of C-H Activation for the Synthesis of Benzofused Azoles	DST	48.00	-	3 Years
	Chiral Macromolecules for Chiral Recognition and Asymmetric Catalysis	CSIR	21.00	-	3 Years
M. Ray	Chiral recognition and separation of amines and amino alcohols inside Ni(II) based metallocavity	DST	50.00	-	3 Years
V. Manivannan	Synthesis, Characterization of New Nitrogenous Ligands and Their Transition Metal Complexes	DST	35.90	-	3 Years
G. Das	Supramolecular self-assembly and anion coordination chemistry of multidentate ligand.	CSIR	9.15	-	3 Years
S. Paul	The mechanism of bioprotective effect of trehalose through hydrophobic and hydrogen bonding interactions on peptide and polypeptide: A molecular dynamics simulation study	BRNS	24.245	D. Manna Dept. of Chemistry, IITG	3 Years
S. Paul	Counteraction of Osmolyte Trimethyl amine-N-Oxide on Pressure Induced and Urea Induced Denaturation of Proteins BPTI and RNase A: Molecular Dynamics Simulation Study	CSIR	10.62	-	3 Years
S. S. Bag	Detection of Explosives and DNA of Biological Threats Using Fluorescent Chiral Polymer	DRDO	9.98	-	3 Years
M. Qureshi	Synthesis and Characterization of Efficient Molecular Materials for Organic Light Emitting Diodes	CSIR	13.00	-	3 Years
D. Manna	Design, Synthesis and Biological Activities of Protein Kinase C Activators.	CSIR	22.42	-	3 Years
L. M. Kundu	-Synthesis of Modified Nucleobases and Modified Nucleic Acids for Biomolecular Applications	DST	22.80	-	3 Years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
L. M. Kundu	Synthesis of Nucleobases with Modified Base-Pairing Properties and Synthesis of Non-Natural Oligonucleotides to Develop FRET Based Probes for the Detection of Single Nucleotide Polymorphisms and DNA Lesions	CSIR	12.5	-	3 Years
C. K Jana	Total Synthetic Studies on Potential Anticancer Natural Products Isolated From <i>Azadirachta indica</i> (Neem)	BRNS	14.15	-	3 Years
C. K Jana	Total Syntheses of Three Potential Anticancer Natural Products and Their Unnatural Derivatives	SERB	24.20	-	3 Years
C. Mukherjee	Development of Water Oxidation Catalysts, Single-Molecule Magnets (SMMs), and Magnetic Resonance Imaging (MRI) Contrast Agents, Employing a Common Backbone	DST	24.20	-	3 Years
C. Mukherjee	Synthesis of Sensitizers for Dye Sensitized Solar Cell	BRNS	23.51	-	3 Years
S. C. Pan	N-Vinyl and N-Alkynyl Pyridinium and - Ammonium Tetrafluoroborate Salts: New Electrophilic Reagents in Asymmetric Organocatalysis	DST-SERB	26.95	-	3 Years
S. C. Pan	Asymmetric Organocatalytic Tandem Cyclization and Cycloaddition Reactions with 1-Acetylcyclohexene	DAE-BNRS	-	-	3 Years
S. C. Pan	New Aminocatalytic Asymmetric Transformations	DST-MPI	40.50 + 60,000 Euros	Prof. Benjamin List, Max-Planck Institute, Germany	3 Years
D. P. Das	Self-assembled Stimuli Responsive Peptide Based Polymeric Soft-materials using Cucurbituril	DST	26.00	-	3 Years
A. S. Achalkumar	Luminescent DLCs for the application in OLEDs	BRNS-DAE	25.00	-	3 Years
	Design and synthesis of PDLCs for the Application in Organic Electronics	DST-SERB	50.00	-	3 Years
D. Manna	Design, Synthesis and Biological Activities of Protein Kinase C Activators.	CSIR	22.42	-	3 Years



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
D. Das	Equipment subsidy grant	Alexander von Humboldt Foundation, Germany	Euro 18,300	-	One time subsidy
Sumana Dutta	Self-organization and Filament Dynamics in Reaction-diffusion Systems	DST-SERB	33.10	-	3 Years

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
T. Punniyamurthy	Synthesis of Aryl Substituted 1,2,3-and 1,2,4-Triazoles	CDRI	6.00	-	1 year
A. K. Saikia	Stereoselective Synthesis of Substituted Tetrahydropyrans and their Nitrogen and Sulfur Analogues	CSIR	15.00	-	3 Year

**RESEARCH PUBLICATIONS**

**Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
Baruah, J.B., Gogoi, K., Nath, B., Goswami, A.	Decyl and nonanyl bis-phenols as prospective surfactant	Journal of Scientific and Industrial Research	73	231-234	2014, March
Nath, B., Baruah, J.B.	Structural Variations in Coordination Polymers of Sodium and Cesium Dicarboxylates	Journal of Inorganic and Organometallic Polymers and Materials	24, 2	381-387	2014, March
Jali, B. R., Kuang, Y., Neamati, N., Baruah, J.B.	Selective binding of naphthoquinone derivatives to serum albumin proteins and their effects on cytotoxicity.	Chemico-Biological Interactions	214c	10-17	2014
Das B., Ghosh K., Baruah J.B.	Tris-dipicolinate cerium complexes bearing dications of arginine, histidine, and ornithine	Synthesis and Reactivity in Inorganic, Metal-Organic and Nano-Metal Chemistry	44, 2	251-257	2014
Singh, A.K., Dey, K.K., Chattopadhyay, A., Mandal, T.K., Bandyopadhyay, D.	Multimodal chemo-magnetic control of self-propelling microbots	Nanoscale	6,3	1398-1405	2014, 7 February

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Sailapu S. K., Chattopadhyay A.	Induction of Electromotive Force by an Autonomously Moving Magnetic Bot.	Angewandte Chemie International Edition	53,6	1521-1524	2014, 3 February
Sahoo A.K., Banerjee S., Ghosh S.S., Chattopadhyay A.	Simultaneous RGB Emitting Au Nanoclusters in Chitosan Nanoparticles for Anticancer Gene Theranostics.	ACS Applied Materials and Interfaces	6,1	712-724	2014, 8 January
Begum R., Chattopadhyay A	Redox-Tuned Three-Color Emission in Double (Mn and Cu) Doped Zinc Sulfide Quantum Dots.	The Journal of Physical Chemistry Letters	5,1	126-130	2014, 2 January
Begum R., Sahoo A.K., Ghosh S.S., Chattopadhyay A.	Recovering hidden quanta of Cu <sup>2+</sup> -doped ZnS quantum dots in reductive environment	Nanoscale	6,2	953-961	2014, 21 January
Jaiswal A., Gautam P.K., Ghosh S.S., Chattopadhyay A.	Carbon dots mediated room-temperature synthesis of gold nanoparticles in poly (ethylene glycol).	Journal of Nanoparticle Research	16,1	1-14	2014
Bagdi, P.R., Basha, R.S., Baruah, P.K., Khan, A.T.	Copper oxide nanoparticle mediated 'click chemistry' for the synthesis of mono-, bis- and tris-triazole derivatives from 10,10-dipropargyl-9-anthrone as a key building block	RSC Advances	4,21	10652-10659	2014
Dar A.A., Ali S., Ghosh A., Khan A.T., Dwivedi A.K., Iyer P.K.	Synthesis of unsymmetrical sulfides catalyzed by n-tetra-butyl-ammonium tribromide: A selective fluorescence probe for mercury ion	Sensors and Actuators, B: Chemical	193	509-514	2014, 31 March
Bhattacharjee S., Das D.K., Khan A.T.	Ammonium chloride-catalyzed three-component reaction for the synthesis of fused 4H-chromene derivatives in aqueous medium	Synthesis (Germany)	46,1	73-80	2014, 2 January
Dar A.A., Ali S., Khan A.T.	Hydrated ferric sulfate catalyzed synthesis of 3-[(alkyl/arylthio)(aryl) methyl]-1H-indole derivatives through one-pot reaction	Tetrahedron Letters	55,2	486-489	2014, 8 January
Das D.K., Sarkar S., Khan A.T., Saravanan P., Patra S.	Synthesis of fused tetrahydropyrido [2,3-c] coumarin derivatives as potential inhibitors for dopamine d3 receptors, catalyzed by hydrated ferric sulfate	RSC Advances	4,7	3581-3590	2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Rout, S. K.; Guin, S.; Gogoi, A.; Majji, G.; Patel, B. K.	Terminal aryl alkenes and alkynes as arylcarboxy surrogates towards o-benzoylation of 2-phenylpyridine catalyzed by copper	Organic Letters	16, 6	1614-1617	2014, March
Santra, S. K.; Banerjee, A.; Patel, B. K.	2,3-Diarylquinoxaline directed mono ortho-arylation via cross dehydrogenative coupling using aromatic aldehydes or alkylbenzenes as aryl surrogate.	Tetrahedron	70, 14	2422-2430	2014
Khatun N., Gogoi A., Basu P., Das P., Patel B.K.	CuO nanoparticle catalysed synthesis of 2H-indazoles under ligand free conditions	RSC Advances	4, 8	4080-4084	2014
Khatun, N., Guin, S., Rout, S.K., Patel, B.K.	Divergent reactivities of o-haloanilides with CuO nanoparticles in water: A green synthesis of benzoxazoles and o-hydroxyanilides	RSC Advances	4, 21	10770-10778	2014
Banerjee, A., Bera, A., Santra, S.K., Guin, S., Patel, B.K.	Palladium-catalysed regioselective arylation and acetylation of 3,5-diarylisoxazole via ortho C-H functionalis	RSC Advances	4, 17	8558-8566	2014
Majji, G., Rout, S.K., Guin, S., Gogoi, A., Patel, B.K.	Iodine-catalysed oxidative cyclisation of acylhydrazones to 2,5-substituted 1,3,4-oxadiazoles	RSC Advances	4, 11	5357-5362	2014
Samanta, S., Goswami, S., Ramesh, A., Das, G.	A new fluorogenic probe for solution and intra-cellular sensing of trivalent cations in model human cells	Sensors and Actuators, B: Chemical	194	120-126	2014, April
Adhikari, M.D., Mukherjee, S., Saikia, J., Das, G., Ramesh, A.	Magnetic nanoparticles for selective capture and purification of an antimicrobial peptide secreted by food-grade lactic acid bacteria	Journal of Materials Chemistry B	2, 10	1432-1438	2014, 14 March
Kumar, A., Das, G., Bose, B.	Recombinant receptor-binding domain of diphtheria toxin increases the potency of curcumin by enhancing cellular uptake	Molecular Pharmaceutics	11, 1	208-217	2014, 6 January
Hoque M.N., Basu A., Das G.	Pyridine-urea-based anion receptor: Formation of cyclic sulfate-water hexamer and dihydrogen phosphate-water trimer in hydrophobic environment	Crystal Growth and Design	14, 1	6-10	2014, 2 January

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Saikia J., Saha B., Das G.	Interpreting the adsorption of serum albumin and lactoglobulin onto ZnS nanoparticles: Effect of conformational rigidity of the proteins	Journal of Colloid and Interface Science	416	235-242	2014, 15 February
Dar A.A., Ali S., Ghosh A., Khan A.T., Dwivedi A.K., Iyer P.K.	Synthesis of unsymmetrical sulfides catalyzed by n-tetrabutyl-ammonium tribromide: A selective fluorescence probe for mercury ion	Sensors and Actuators, B: Chemical	193	509-514	2014, 31 March
Gedda, M.; Subbarao, N. V. V.; Vasimalla, S.; Dey, A.; Iyer, P. K.; Goswami, D. K.	Growth and characterization of N, N'-dioctadecyl-1, 7-dibromo-3, 4, 9, 10-perylene-tetracarboxylic-diimide micron/nano wires for organic field effect transistors	AIP Conference Proceedings	1576	42-45	2014
Chipem F.A.S., Behera S.K., Krishnamoorthy G.	Ratiometric fluorescence sensing ability of 2-(2'-hydroxyphenyl) benzimidazole and its nitrogen substituted analogues toward metal ions	Sensors and Actuators, B: Chemical	191	727-733	2014
Paul S., Paul S.	Trehalose Induced Modifications in the Solvation Pattern of N-methylacetamide	Journal of Physical Chemistry B	118,4	1052-1063	2014, 30 January
Palakurthy N.B., Dev D., Paikaray S., Chaudhury S., Mandal B.	Synthesis of O-Benzyl hydroxamates Employing the Sulfonate Esters of N-Hydroxybenzotriazole	RSC Advances	4,16	7952-7958	2014
Saha S., Nadimpally K. C., Paul A, Kalita S., Mandal B	Phenolic ester mediated oligopeptide synthesis promoted by HOBt	Protein and Peptide Letters	21,2	188-193	2014, February
Bag S. S., Talukdar S., Kundu, R, Saito I., Jana S.	Dual Door Entry to Exciplex Emission in A Chimeric DNA Duplex Containing Non-nucleoside-Nucleoside Pair	Chemical Communications	50	829-832	2014, 25 January
Bag S. S., Jana S., Yashmeen, A., Senthilkumar K., Bag R.	Triazolyl-Donor/Acceptor Chromophore Decorated Unnatural Amino Acids and Peptides: FRET Event in $\beta$ -Turn Conformation	Chemical Communications	50	433-435	2014, 14 January
Ghorai S., Mukherjee C.	Effect of ligand substituent on the reactivity of Ni(ii) complexes towards oxygen	Dalton Transactions	43,2	394-397	2014, 14 January
Mahato S., Haldar S., Jana C.K.	Diastereoselective $\alpha$ -C-H functionalization of aliphatic N-heterocycles: An efficient route to ring fused oxazines	Chemical Communications	50,3	332-334	2014, 11 January

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Haldar S., Mahato S., Jana C.K.	Metal and Oxidant Free Direct sp <sup>3</sup> C-H Arylation of Pyrrolidine	Asian Journal of Organic Chemistry	3	44 - 47	2014
Singha D., Barman N., Sahu K.	A facile synthesis of high optical quality silver nanoparticles by ascorbic acid reduction in reverse micelles at room temperature	Journal of Colloid and Interface Science	413	37-42	2014, 1 January
Barman, N., Singha, D., Sahu, K.	Faster photoinduced electron transfer in a diluted mixture than in a neat donor solvent: Effect of excited-state H-bonding	Physical Chemistry Chemical Physics	6,13	6159-6166	2014, 7 April
S. C. Pan, A.V. Tymtunik and M. van Gemmeren, et al.	The Catalytic Asymmetric $\alpha$ -Benzylation of Aldehydes	Angewandte Chemie International Edition	53,1	282-285	2014, January
Shankar K., Das B., Baruah J.B.	Organic cations controlling the nuclearity of copper(II) 2,5-pyridinedicarboxylates	RSC Advances	3, 48	26220-26229	2013, 28 December
Shankar K., Das B., Baruah J.B.	Cation exchange in layered copper(II) coordination polymers	European Journal of Inorganic Chemistry	36	6147-6155	2013, December
Nath B., Baruah J.B.	Polymorphs, solvates, polymorphs of solvate and Cs <sup>+</sup> - $\pi$ interactions of fluorine-substituted bis-phenols	Crystal Growth and Design	13, 11	5146-5155	2013, 6 November
Phukan N., Baruah J.B.	Detection of Al <sup>3+</sup> and Zn <sup>2+</sup> ions by 2-(5-methylthiazol-2-yliminomethyl) phenol	Inorganic Chemistry Communications	37	89-92	2013
Jali B.R., Baruah J.B.	Cocrystals of 2,4-diamino-6-phenyl-1,3,5-triazine with dicarboxylic acids	Journal of Chemical Crystallography	43, 10	531- 537	2013, October
Nath J. K., Lan Y., Powell A. K., Baruah J. B.	Effect of ancillary ligands in hydrolysis of 1,8-naphthalic anhydride for synthesis of metallacycles of Co <sup>2+</sup> , Ni <sup>2+</sup> and Zn <sup>2+</sup>	Zeitschrift für Anorganische und Allgemeine Chemie	639	2250-2257	2013
Nath B., Baruah J.B.	Polymorphism and porosity in 4-[(4-hydroxy-3,5-dimethylphenyl)(5-methyl-1H-imidazol-4-yl)methyl]2,6-dimethylphenol.	CrystEngComm	15	6249-6258	2013, May
Singh D., Baruah J.B.	Guest inclusion in cyclic imides containing flexible tethers	Journal of Inclusion Phenomena and Macrocyclic Chemistry	76	269-281	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Das B., Crans D.C., Baruah J.B.	Cation exchange, solvent free synthesis and packing patterns of quinolinium nickel(II) dipicolinates	Inorganica Chimica Acta	408	204-208	2013,
Jali B.R., Baruah J.B.	Recognition of a bromide ion by the protonated form of 2-(1H-imidazol-2-ylthio)-3-methylnaphthalene-1,4-dione	ChemPlusChem	78, 6	589-597	2013, June
Nath J.K., Baruah J.B.	Water assisted anion chains and anion dependent fluorescence emission in salts of N,N'-bis(3-imidazol-1-ylpropyl)naphthalenediimide	New Journal of Chemistry	37, 5	1509-1519	2013, May
Karmakar T., Kuang Y., Neamati N., Baruah J.B.	Cadmium complexes and co-crystals of indium complexes of benzothiazole derivatives and anticancer activities of the cadmium complexes	Polyhedron	54	285-293	2013, April
Nath J.K., Baruah J.B.	Copper(II) and cadmium(II) complexes with an imide tethered imidazole and a copper(II) coordination polymer through ring opening reaction	Inorganic Chemistry Communications	30	128-132	2013
Nath, J. K., Lan, Y., Powell, A. K., Baruah, J. B.	Effect of ancillary ligands in hydrolysis of 1,8-naphthalic anhydride for synthesis of metallacycles of Co <sup>2+</sup> , Ni <sup>2+</sup> and Zn <sup>2+</sup>	Zeitschrift für Anorganische und Allgemeine Chemie	639	2250-2257	2013, July
Ghosh R., Deka J., Chattopadhyay A., Paul A.	Conformation aspect in the α-amylase induced agglomeration of citrate-stabilized gold nanoparticles	RSC Advances	3,45	23015-23027	2013, 7 December
Khandelia R., Jaiswal A., Ghosh S.S., Chattopadhyay A.	Gold nanoparticle-protein agglomerates as versatile nanocarriers for drug delivery	Small	9,20	3494-3505	2013, 25 October
Das S., Paul A., Chattopadhyay A.	Nanocrystalline p-hydroxy-acetanilide (paracetamol) and gold core-shell structure as a model drug deliverable organic-inorganic hybrid nanostructure	Nanoscale	5,19	9247-9254	2013, 7 October
Md Palashuddin Sk., Jana C.K., Chattopadhyay A.	A gold-carbon nanoparticle composite as an efficient catalyst for homocoupling reaction	Chemical Communications	49,74	8235-8237	2013, 25 September

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Banerjee S., Sahoo A.K., Ghosh S.S., Chattopadhyay A.	Hydrogel nanocarrier encapsulated recombinant I $\kappa$ B $\alpha$ as a novel anticancer protein therapeutics.	RSC Advances	3,33	14123-14131	2013, 7 September
Dey K.K., Bhandari S., Bandyopadhyay D., Basu S., Chattopadhyay A.	The pH taxis of an intelligent catalytic microbot	Small	9,11	1916-1920	2013, 10 June
Adhikari M.D., Goswami S., Panda B.R., Chattopadhyay A., Ramesh A.	Membrane-directed high bactericidal activity of (gold nanoparticle)-polythiophene composite for niche applications against pathogenic bacteria	Advanced Healthcare Materials	2,4	599-606	2013, April
Bagdi P.R., Basha R.S., Lal M., Khan A.T.	Bromodimethylsulfonium bromide (BDMS)-catalyzed synthesis of substituted pyrroles through a one-pot four-component reaction	Chemistry Letters	42,8	939-941	2013
Laskar R. A., Begum N. A., Mir M. H., Rohman Md. R. Khan A. T.	Nickel(II) chloride hexahydrate catalyzed reaction of aromatic aldehydes with 2-mercaptoethanol: formation of supramolecular helical assemblage of the product	Tetrahedron Letters	54	5839-5844	2013, 30 October
Lal M., Basha R.S., Sarkar S., Khan A.T.	2,6-Pyridinedicarboxylic acid as organocatalyst for the synthesis of 1,5-benzodiazepines through one-pot reaction	Tetrahedron Letters	54,32	4264-4272	2013, 7 August
Khan A. T., Ghosh A., Basha R.S., Mir M. H.	Synthesis of trisubstituted 1H-pyrazole-4-carbodithioate in a one-pot three-component condensation reaction catalyzed by ferric sulfate.	Asian Journal of Organic Chemistry	2	126-129	2013
Sarkar S., Deka J.K.R., Hazra J.P., Khan A.T.	Bromodimethylsulfonium bromide (BDMS)-catalyzed synthesis of 1,5-benzodiazepines using a multi-component reaction strategy	Synlett	24,19	2601-2605	2013
Sarkar S., Das D.K., Khan A.T.	Sodium-hydroxide-mediated synthesis of highly substituted [1,6]-naphthyridines in a one-pot pseudo five-component reaction	European Journal of Organic Chemistry		6823-6830	2013, October

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Bagdi P.R., Basha R.S., Lal M., Misra R., Khan A.T.	Cobalt triflate nalyser one-pot synthesis of fluorophore 1,4-dihydropyridine derivatives via Hantzsch reaction	Journal of the Indian Chemical Society	90,10	1589-1598	2013, October
Khan A.T., Basha R.S., Lal M.	Bromodimethylsulfonium bromide (BDMS) nalyser synthesis of 2,3-unsaturated-O-glycosides via Ferrier rearrangement	Arkivoc	2	201-212	2013
Banerjee A., Santra S.K., Rout S.K., Patel B.K.	A ligand free copper(II) catalyst is as effective as a ligand assisted Pd(II) catalyst towards intramolecular C-S bond formation via C-H functionalization	Tetrahedron	69,43	9096-9104	2013, 28 October
Rout S.K., Guin S., Banerjee A., Khatun N., Gogoi A., Patel B.K.	Directing group assisted copper-catalyzed chemoselective O-arylation of phenols and enols using alkylbenzenes	Organic Letters	15,16	4106-4109	2013, 16 August
Majji G., Guin S., Gogoi A., Rout S.K., Patel B.K.	Easy access to benzylic esters directly from alkyl benzenes under metal-free conditions	Chemical Communications	49,29	3031-3033	2013, 14 April
Gogoi A., Guin S., Rout S.K., Patel B.K.	A copper-catalyzed synthesis of 3-aryloindoles via a sp <sup>3</sup> C-H bond activation followed by C-C and C-O bond formation	Organic Letters	15,8	1802-1805	2013, 19 April
Kumar R.K., Manna S., Mahesh D., Sar D., Punniyamurthy T.	Oxidative Aromatic C-H Functionalization Promoted by Phenylodine(III) Diacetate to form C-N, C-S, and C-Se Bonds	Asian J. Org. Chem.	2	843-847	2013
Bharathiraja G., Sakthivel S., Sengoden M., Punniyamurthy T.	A novel tandem sequence to pyrrole syntheses by 5-endo-dig cyclization of 1,3-enynes with amines	Organic Letters	15,19	4996-4999	2013, 4 October
Murugavel G., Punniyamurthy T.	Novel copper-catalyzed multicomponent cascade synthesis of iminocoumarin aryl methyl ethers	Organic Letters	15,15	3828-3831	2013, 2 August
Sadhu P., Alla S.K., Punniyamurthy T.	Pd(II)-catalyzed aminotetrazole-directed ortho-selective halogenation of arenes	Journal of Organic Chemistry	78,12	6104-6111	2013, 21 June
Alla S.K., Kumar R.K., Sadhu P., Punniyamurthy T.	Iodobenzene nalyser C-H amination of N-substituted amidines using m-chloroperbenzoic acid	Organic Letters	15,6	1334-1337	2013, April



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Ali Md.A., Suri M., Punniyamurthy T.	Copper-catalyzed synthesis of 2-arylbenzoxazoles in tetrabutylammonium bromide	Synthesis (Germany)	45,4	501-506	2013
Dubey M., Ray M.	Retention of Cs-Cl bond induces coordination polymer formation over trinuclear chiral assembly of copper(II) complexes of L-leucine derived ligand.	CrystEngComm,	15	9648-	2013, 7 December
Saudagar, P., Saha, P., Saikia, A.K., Dubey, V.K.	Molecular mechanism underlying antileishmanial effect of oxabicyclo[3.3.1]nonanones: Inhibition of key redox enzymes of the pathogen	European Journal of Pharmaceutics and Biopharmaceutics	853, Part A	569-577	2013, November
Ghosh, S., Indukuri, K., Bondalapati, S., Saikia, A.K., Rangan, L.	Unveiling the mode of action of antibacterial labdane diterpenes from <i>Alpinia nigra</i> (Gaertn.) B. L. Burtt seeds	European Journal of Medicinal Chemistry	66	101-105	2013
Sultana S., Indukuri K., Deka M.J., Saikia A.K.	Diastereoselective synthesis of dihydropyrans via prins cyclization of enol ethers: Total asymmetric synthesis of (+)-civet cat compound	Journal of Organic Chemistry	78,23	12182-12188	2013, 6 December
Indukuri K., Unnava R., Deka M.J., Saikia A.K.	Stereoselective synthesis of amido and phenyl azabicyclic derivatives via a tandem aza prins-ritter/friedel-crafts type reaction of endocyclic N-acyliminium ions	Journal of Organic Chemistry	78,21	10629-10641	2013, November
Jena H. S., Manivannan V.	Molecular structures of dinuclear zinc(II) complexes of chiral tridentate imine and amine ligands: Effect of ligand geometry on diastereoselectivity	Inorganica Chimica Acta	394	210-219	2013
Saha B., Saikia J., Das G.	Tuning the selective interaction of lysozyme and serum albumin on a carboxylate modified surface	RSC Advances	3,21	7867-7879	2013, 7 June
Ojha B., Kar C., Das G.	Role of N-methyl-8-(alkoxy) quinolinium iodide in suppression of protein-protein interactions	Journal of Chemical Sciences	125,2	229-236	2013
Saikia J., Sikdar Y., Saha B., Das G.	Malachite nanoparticle: A potent surface for the adsorption of xanthene dyes	Journal of Environmental Chemical Engineering	1,4	1166-1173	2013, December

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Hoque M.N., Basu A., Das G.	Structural insight into the anion-water cluster: Stabilised by alcohol and carboxylic acid containing tripodal ligand	Supramolecular Chemistry			2013
Basu A., Das G.	Encapsulation of a discrete cyclic halide water tetramer $[X_2(H_2O)_2]_2^-$ , X = Cl <sup>-</sup> /Br <sup>-</sup> within a dimeric capsular assembly of a tripodal amide receptor	Chemical Communications	49,38	3997-3999	2013, 11 May
Kar C., Adhikari M.D., Datta B.K., Ramesh A., Das G.	A CHEF-based biocompatible turn on ratiometric sensor for sensitive and selective probing of Cu <sup>2+</sup>	Sensors and Actuators, B: Chemical	188	1132-1140	2013
Chutia R., Dey S.K., Das G.	A supramolecular dual-host based ion-pair induced formation of 1D coordination polymer	CrystEngComm	15,45	9641-9647	2013, 7 December
Gogoi A., Das G.	Electronic substitution effects on anion coordination of a tripodal thiourea receptor: Evidences of deprotonation of oxy-anions in solid and solution	Supramolecular Chemistry	25,12	819-830	2013, 1 December
Kar C., Ojha B., Das G.	A novel amphiphilic thiosemicarbazone derivative for binding and selective sensing of human serum albumin	Luminescence	28,3	339-344	2013
Datta B.K., Mukherjee S., Kar C., Ramesh A., Das G.	Zn <sup>2+</sup> and pyrophosphate sensing: Selective detection in physiological conditions and application in DNA-based estimation of bacterial cell numbers	Analytical Chemistry	85,17	8369-8375	2013, May
Basu A., Dey S.K., Das G.	Amidothiourea based colorimetric receptors for basic anions: Evidence of anion induced deprotonation of amide -NH proton and hydroxide induced anion-pi interaction with the deprotonated receptors	RSC Advances	3, 18	6596-6605	2013, 14 May

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Basu A., Thiagarajan D., Kar C., Ramesh A., Das G.	Synthesis, crystal structure and bio-macromolecular interaction studies of pyridine-based thiosemicarbazone and its Ni(ii) and Cu(ii) complexes	RSC Advances	3, 33	14088-14098	2013, 7 September
Goswami S., Adhikari M. D., Thiagarajan D., Kar C., Das G., Ramesh A.	Synthetic amphiphiles as therapeutic antibacterials: Lessons on bactericidal efficacy and cytotoxicity and potential application as an adjuvant in antimicrobial chemotherapy	Journal of Material Chemistry B	1	2612-2623	2013, 28 May
Hussain S., De S., Iyer P.K.	Thiazole-containing conjugated polymer as a visual and fluorometric sensor for iodide and mercury	ACS Applied Materials and Interfaces	5,6	2234-2240	2013
Chetia B., Goutam P.J., Chipem F.A.S., Iyer P.K.	Thiourea recognition by 2,6-bis(2-benzimidazolyl) pyridine using spectroscopic techniques and DFT	Journal of Molecular Structure	1042	32-36	2013, 24 June
Muthuraj B., Hussain S., Iyer P.K.	A rapid and sensitive detection of ferritin at a nanomolar level and disruption of amyloid I <sup>2</sup> fibrils using fluorescent conjugated polymer	Polymer Chemistry	4, 19	5096-5107	2013, 7 October
Dwivedi A.K., Iyer P.K.	A fluorescence turn on trypsin assay based on aqueous polyfluorene	Journal of Materials Chemistry B	1, 32	4005-4010	2013, 28 August
Dwivedi A.K., Iyer P.K.	Sensitive detection of acid phosphatase enzyme and screening of inhibitors using an anionic polyfluorene derivative	Analytical Methods	5,9	2374-2378	2013, 7 May
Sahu S., Mishra A., Krishnamoorthy G.	Specific site binding of metal ions on the intramolecular charge transfer fluorophore in micelle.	Analyst	138	5942-5948	2013, 21 October
Chipem F.A.S., Behera S.K., Krishnamoorthy G.	Enhancing Excited State Intramolecular Proton Transfer in 2-(2'-Hydroxyphenyl) benzimidazole and its Nitrogen Substituted Analogues by $\beta$ -Cyclodextrin: the Effect of Nitrogen Substitution.	Journal of Physical Chemistry A	117, 20	4084-4095	2013, 23 May

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Chipem F.A.S., Krishnamoorthy G.	Temperature effect on dual fluorescence of 2-(2'-Hydroxyphenyl) benzimidazole and its nitrogen substituted analogues	Journal of Physical Chemistry B	117, 45	14079-14088	2013, 14 November
Mishra A., Sahu S., Dash N., Behera S.K., Krishnamoorthy G.	Double proton transfer induced twisted intramolecular charge transfer emission in 2-(4'-N,N-dimethylaminophenyl) imidazo[4,5-b]pyridine.	Journal of Physical Chemistry B	117, 32	9469-9477	2013, 15 August
Mishra A., Chatterjee S., Krishnamoorthy G.	Intramolecular charge transfer emission of trans-2-[4'-dimethylamino)styryl] benzimidazole: Effect of solvent and pH.	Journal of Photochemistry and Photobiology A: Chemistry	260	50-58	2013
Kumar, V.; Kalita, A.; Mondal, B	Phenol ring nitration induced by unprecedented reduction of copper(II) centre by nitrogen dioxide	Dalton Transactions	42	16264-16267	2013, 14 December
Kalita, A.; Deka, R. C.; Mondal, B.	Reaction of a copper (II)-nitrosyl complex with hydrogen peroxide: Phenol ring nitration through a putative peroxyxynitrite intermediate	Inorganic Chemistry	52,19	10897-10903	2013, 7 October
Kumar P., Kalita A., Mondal B.	Nitric oxide sensors based on copper(II) complexes of N-donor ligands	Inorganica Chimica Acta	404	88-96	2013
Koner D., Panda A.N.	Quantum dynamical study of the He + NeH <sup>+</sup> reaction on a new analytical potential energy surface	Journal of Physical Chemistry A	117,49	13070-13078	2013
Sharma B., Paul S.	Effects of Dilute Aqueous NaCl Solution on Caffeine Aggregation	Journal of Chemical Physics	139	2E+05	2013, 21 November
Paul S., Paul S.	The influence of trehalose on hydrophobic interactions of small nonpolar solute: A molecular dynamics simulation study	Journal of Chemical Physics	139	44508-	2013, 28 July
Sarma R, Paul S.	Trimethylamine-N-oxide's Effect on Polypeptide Solvation at High Pressure: A Molecular Dynamics Simulation Study	Journal of Physical Chemistry B	117	9056-	2013, 1 August

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Sarma R, Paul S.	Interactions of a S-peptide Analogue in Aqueous Urea and Trimethylamine-N-oxide Solutions: A Molecular Dynamics Simulation Study	Journal of Chemical Physics	139	34504-	2013
Sarma R, Paul S.	Exploring the Molecular Mechanism of Trimethylamine-N-oxide's Ability to Counteract the Protein Denaturing Effects of Urea	Journal of Physical Chemistry B	117	5691-	2013, 9 May 2013
Barpuzary D., Qureshi M.	Enhanced photovoltaic performance of semiconductor nanolayered ZnO – CdS coupled with graphene oxide as a novel photoactive material	ACS Applied Materials and Interfaces	5	11673-	2013, 27 November
Bag S. S., Kundu R., Talukdar S.	Unnatural triazolyl nucleoside stabilizes an abasic site containing DNA duplex equally as the stabilization of a natural A-T pair	RSC Advances	3	21352-	2013
Bag S. S., Kundu R.	Sensing of micellar microenvironment with dual fluorescent probe, triazolylpyrene (TNDMBPy)	Journal of Fluorescence	23	939-	2013, September
Bag S. S., Kundu R., Jana S.	Triazolyl-Donor/Acceptor Sensing of biomolecules and label free discrimination of DNA containing a triple T-C/T-G mismatch pair with a fluorescence light-up probe, triazolylpyrene (TNDMBPy)	Tetrahedron Lett.	54	2627-2632	2013, 22 May
Bag S.S., Ghorai, S., Jana, S., Mukherjee C.	Solvatochromic fluorescent cyanophenoxazine: Design, synthesis, photophysical properties and fluorescence light-up sensing of ct-DNA	RSC Advances	3,16	5374-5377	2013, 28 April
Chaitanya N. K., Paul A., Saha A., Mandal B.,	Modulation of Aggregation Propensity of A $\beta$ 38 by Site Specific Multiple Proline Substitution	International Journal of Peptide Research and Therapeutics	19,19	365-371	2013, December
Dev D., Palakurthy N.B., Kumar N., Mandal B.	An unexpected involvement of ethyl-2-cyano-2-(hydroxyimino) acetate cleaved product in the promotion of the synthesis of nitriles from aldoximes: A mechanistic perception	Tetrahedron Letters	54	4397-4400	2013, 14 August

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Palakurthy N.B., Dev D., Rana S., Nadimpally K.C., Mandal B.	Sulfonamide synthesis via oxyma-O-sulfonates – Compatibility to acid sensitive groups and solid-phase peptide synthesis	European Journal of Organic Chemistry	13	2627-2633	2013, May
Vardhaman A.K., Barman P., Kumar S., Sastri C.V., Kumar D., De Visser S.P.	Mechanistic insight into halide oxidation by non-heme iron complexes. Haloperoxidase versus halogenase activity	Chemical Communications	49,93	10926-10928	2013, 4 December
Vardhaman A.K., Barman P., Kumar S., Sastri C.V., Kumar D., De Visser S.P.	Comparison of the reactivity of nonheme iron(IV)-oxo versus iron(IV)-imido complexes: Which is the better oxidant?	Angewandte Chemie – International Edition	52,47	12288-12292	2013, 18 November
Bhaskaran, R., Sarma, M	Effect of quantum tunneling on single strand breaks in a modeled gas phase cytidine nucleotide induced by low energy electron: A theoretical approach	Journal of Chemical Physics	139,4	045103 (1-9)	2013, July
Radhakrishnan K., Burgula L.N., Kundu L.M.	Watson-Crick and Hoogsteen tri-base pairing: A co-crystal structure of a 2: Mplex of 6-isopropyluracil and adenine nucleobases	RSC Advances	3,20	7282-7284	2013, 28 May
Liffert R., Hoecker J., Jana C. K., Woods T. M., Burch P., Jessen H. J., Neuburger M., Gademann K.	Withanolide A: synthesis and structural requirements for neurite outgrowth	Chemical Science	4	2851-2857	2013, July
Haldar S., Mahato S., Jana C. K.	Metal- and Oxidant-Free Direct sp <sup>3</sup> C–H Arylation of Pyrrolidine	Asian Journal of Chemistry	1	44-47	2013
Ahmed S., Mondal J.H., Behera N., Das D.	Self-assembly Of peptide-amphiphile forming helical nanofibers and in situ template synthesis of uniform mesoporous single wall silica nanotubes	Langmuir	29,46	14274-14283	2013, 19 November
Dasgupta A., Mondal J.H., Das D.	Peptide hydrogels	RSC Advances	3,24	9117-9149	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Sahu K., Wu H., Berg M.A.	Multiple population-period transient spectroscopy (MUP-PETS) of CdSe/ZnS nanoparticles. I. Exciton and biexciton dynamics	Journal of Physical Chemistry B	117,49	15257-15271	2013, 12 December
Wu, H.; Sahu, K.; Berg, M. A.,	Multiple Population-Period Transient Spectroscopy (Mup-pets) of Cdse/Zns Nanoparticles. II. Effects of High Fluence and Solvent Heating	Journal of Physical Chemistry B	117	15272-15284	2013, 12 December
Barman, N.; Singha, D.; Sahu, K.,	Fluorescence Quenching of Hydrogen-Bonded Coumarin 102-Phenol Complex: Effect of Excited-State Hydrogen Bonding Strength	Journal of Physical Chemistry A	117	3945-3935	2013, 16 May 2013
<b>National</b>					
Sandip Paul	Visiting Pressure and Osmolyte's Effect on Protein Solvation	Indian Society for Radiation and Photochemical Sciences (ISRAPS)	25	92	2013

### Proceedings of Conference/Workshop/Seminar/Symposia

#### Oral Presentation

"On Water": Efficient Iron-Catalyzed Cycloaddition of Aziridines with Heterocumulenes, M. Sengoden and T. Punniyamurthy, International Symposium on Nature Inspired Initiatives in Chemical Trends, IICT Hyderabad, March 02-05, 2014

Iodobenzene Catalyzed C-H Amination of N-Substituted Amidines Using m-Chloroperbenzoic Acid, S. K. Alla, R. K. Kumar, P. Sadhu and T. Punniyamurthy, 9th J-NOST Conference, IISER Bhopal, December 04-06, 2013.

#### Poster Presentation

Pd(II)-Catalyzed Aminotetrazole Directed Chemo- and Regioselective ortho-Halogenation of Arenes, P. Sadhu, S. K. Alla and T. Punniyamurthy, International Symposium on Nature Inspired Initiatives in Chemical Trends, IICT Hyderabad, March 02-05, 2014.

Multicomponent Cascade Synthesis of Iminocoumarin Aryl Methyl Ethers using Copper-Catalyst, G. Murugavel and T. Punniyamurthy, International Symposium on Nature Inspired Initiatives in Chemical Trends, IICT Hyderabad, March 02-05, 2014.

Metal-free C-H Oxidative Synthesis of Substituted

Pyrazoles Using TEMPO/NBS, D. Sar, R. Paul, M. Sengoden and T. Punniyamurthy, International Symposium on Nature Inspired Initiatives in Chemical Trends, IICT Hyderabad, March 02-05, 2014.

Iodobenzene Catalyzed C-H Functionalization of N-Substituted Amidines Using m-Chloroperbenzoic Acid, S.K. Alla, R.K. Kumar, P. Sadhu and T. Punniyamurthy, 16th CRSI National Symposium in Chemistry, IIT Bombay, February 07-09, 2014.

A Novel Tandem Sequence to Pyrrole Syntheses by 5-endo-dig Cyclization of 1, 3-Enynes with Amines, G. Bharathiraja, S. Sakthivel, M. Sengoden and T. Punniyamurthy, 16th CRSI National Symposium in Chemistry, IIT Bombay, February 07-09, 2014.

Novel Copper-Catalyzed Multicomponent Cascade Synthesis of Iminocoumarin Aryl Methyl Ethers, G. Murugavel and T. Punniyamurthy, 9th J-NOST Conference, IISER Bhopal, December 04-06, 2013.

Pd(II)-Catalyzed Aminotetrazole-Directed Ortho-Selective Halogenation of Arenes, P. Sadhu, S. K. Alla and T. Punniyamurthy, 9th J-NOST Conference, IISER Bhopal, December 04-06, 2013.

Proton Transfer Induced Twisted Intramolecular Charge Transfer in 2-(4'-N,N-dimethylaminophenyl)imidazo[4,5-c]pyridine, Santosh Kumar Behera and

G.Krishnamoorthy, 3rd National Symposium on Functional Applications of Colorants (NSFAC 2013), Organized by Department of Dyestuff Technology, Institute of Chemical Technology, Mumbai, 29-30 October, 2013.

Effects of Ortho Substituent Groups of Protocatechualdehyde Derivatives on Binding to the C1 Domain of Novel Protein Kinase C, Narsimha Mamidi and D. Manna, 20th ISCB International Conference (ISCB-2014) at Department of Chemistry, University of Delhi, Delhi, India, 1st - 4th March, 2014.

Self-assembly of a Peptide-Amphiphile Forming Helical Nano-fibres and in-situ Template Synthesis of Uniform Mesoporous Single Wall Silica Nano-tubes, Sahnawaz

Ahmed, D. Das, Asian Conference on Colloid and Interface Science, Department of Chemistry, University of North Bengal, Darjeeling 734 013, West Bengal, India, 20th –23rd Nov' 2014

**Book, Chapter, etc.**

B. R. Jali, J. B. Baruah, Quinone tethered silylethers: protein binding and film forming abilities, Progress in Silicones and Silicone-Modified Materials Chapter 12, pp 177–183, ACS Symposium Series, Vol. 1154, Publication Date (Web): December 10, 2013

J. Nath, B. J. Sarmah, B. K. Patel, Bromination of organic substrates with special reference to green chemistry, Advances in Chemical Research, 4-13, 2014

**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED**

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
B. K. Patel	20th ISCB International Conference on Chemistry and Medicinal Plants in Translational Medicine for Healthcare	University of Delhi	1-4th March, 2014	International
B. K. Patel	16th CRSI National Symposium in Chemistry (NSC-16)	IIT Bombay	February 7-9, 2014	National
B. K. Patel	NATIONAL Seminar on recent Trends in Chemical Sciences (RETICS-2014),	Sambalpur University	28 February, 2014	National
S. Paul	Current Trends in Theoretical Chemistry (CTTC)	BARC, Mumbai	26 – 28 September, 2013	National (Session Chair)
S. Paul	Dynamics of Complex Chemical and Biological Systems (DCCBS14)	IIT Kanpur	13-15 February, 2014	National (Session Chair)
M. Sarma	Current Trends in Theoretical Chemistry (CTTC)	BARC, Mumbai	26 – 28 September, 2013	National (Session Chair)
S. C. Pan	Recent Developments of Chemistry	NIT Durgapur	3-5 October, 2013	National
S. C. Pan	16th CRSI National Symposium in Chemistry	IIT Bombay	7-9 February, 2014	National

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
T. Punniyamurthy	Design and Development of Small Novel Molecules of Medicinal and Biological Interest,	Recent Development in Chemistry: Young Scientists Meet, NIT Rourkela	Rourkela	March 15, 2014
T. Punniyamurthy	Design and Development of Small Novel Molecules of Medicinal and Biological Interest,	Faculty of Science, Kyushu University	Japan	December 4, 2013



Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
T. Punniyamurthy	Design and Development of Small Novel Molecules of Medicinal and Biological Interest,	International Symposium on Integrated Science and Molecular Chirality in Biology and Chemistry (ISM CBC-1), Kumamoto University	Japan	December 2, 2013
T. Punniyamurthy	Development of New Synthetic Methods for Heterocycles Synthesis,	University of Minnesota-Duluth	Minnesota-Duluth	June 6, 2013
S. C. Pan	Aminocatalytic New Asymmetric Transformations	Division of International Relations, Max-Planck-Gesellschaft	Trivandrum	18 April, 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Clare P. Grey, FRS	Department of Chemistry, University of Cambridge, Cambridge, UK Department of Chemistry, Stony Brook University, Stony Brook, USA	Following Function in Real Time: New NMR and MRI Methods for Studying Structure and Dynamics in Batteries and Supercapacitors	5 February, 2014
Dr. Philip Earis	Managing Editor of Royal Society of Chemistry Journals: Energy & Environmental Science   Nanoscale   Physical Chemistry Chemical Physics   Faraday Discussions	RSC Publishing and India: An Editor's Advice on Writing High Impact Papers	30 January, 2014
Prof. E Arunan	Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore	Molecular Beam Microwave Spectroscopy: Understanding Hydrogen Bonding and Defining Carbon Bonding	November 15, 2013
Prof. N. Suryaprakash, Ph.D., FNASc	Professor, NMR Research Centre, Indian Institute of Science, Bangalore	Challenges in NMR Spectroscopy for Chiral Analysis: Our Recent Methodological Developments	30 January, 2014
Dr. Vijayamohan K Pillai	Director Central Electrochemical Research Institute, Karaikudi, Tamil Nadu	Graphene Quantum Dots from Carbon Nanotubes: Preparation, electron transfer behavior and humidity dependent charge trap states	11 November, 2013
Prof. Sreebrata Goswami	Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata	ortho-Carom-N Bond Formation Reactivity of Aniline Using Transition Metal Templates	May 2, 2013
Prof. A. G. Samuelson	IISc Bangalore	PhD. Viva-voce	May 13, 2013
Prof. Siddharth Pandey	IIT Delhi	PhD. Viva-voce	May 10, 2013
Prof. Debashis Ray	IIT Kharagpur	PhD. Viva-voce	November 22, 2013
Prof. Samaresh Bhattacharya	Jadavpur University	PhD. Viva-voce	January 7, 2014

**AWARDS AND HONOURS:**

1. Prof. A. Chattopadhyay, Fellow of Royal Society of Chemistry (2014).
2. Prof. B. K Patel, Awarded Bronze Medal by Chemical Research Society of India 2014

**STUDENTS' ACHIEVEMENTS**

Santosh Kumar Sahoo, received Eli Lilly and Company Asia Outstanding Thesis Awards for Best Thesis. The award was given at IISER Bhopal During 9th J- NOST Meeting held in December 4-6, 2013.

Arghya Banerjee, Received Prof. Goverdhan Mehta best poster award in 16th CRSI National Symposium in Chemistry (NSC-16) held at IIT Bombay February 7-9, 2014.

Ganesh Majji, won stage 2 First prize on "In celebration of Earth day, Elsevier Reaxys Challenges you to a Green Chemistry Online Quiz!"

Dr. Atul Kumar Dwivedi a PhD student of Department of Chemistry was awarded 2nd Prize of "2013 Lilly Outstanding Thesis Awards". The award consists of USD 1000 and a Lilly plaque.

Dr. Krishna Chaitanya Nadimpally is selected for Gandhian Young Technological Innovation Awards / Appreciations 2014 (GYTI) for his project: "Concept Of  $\beta$ -Breaker Dipeptides and Its Application In Alzheimer's Amyloid Disruption". The award was given away by Padmabhushan Dr. R. A. Mashelkar, President Global research alliance and Chairman, NIF at IIM-Ahmedabad on 29 March, 2014.

The poster titled "Proton Transfer Induced Twisted Intramolecular Charge Transfer in 2-(4'-N,N-dimethylaminophenyl)imidazo[4,5-c]pyridine" by Santosh Kumar Behera and G. Krishnamoorthy, received best poster award in 3rd National Symposium on Functional Applications of Colorants (NSFAC 2013), Organized by Department of Dyestuff Technology, INSTITUTE OF CHEMICAL TECHNOLOGY, MUMBAI during 29-30 October, 2013.

The Poster titled, "Effects of Ortho Substituent Groups of Protocatechualdehyde Derivatives on Binding to the C1 Domain of Novel Protein Kinase C" by Narsimha Mamidi and D. Manna received Best Poster Award in 20th ISCB International Conference (ISCBC-2014) at Department of Chemistry, University of Delhi, Delhi, India, 1st - 4th March, 2014.

**SPECIAL MENTION**

1. Nani Babu Palakurthy, Dharm Dev, Shubhasmin Rana, Krishna Chaitanya Nadimpally and Bhubaneswar Mandal\*, Sulfonamide Synthesis via Oxyma-O-sulfonates – Compatibility to Acid Sensitive Groups and Solid-Phase Peptide Synthesis, European Journal of Organic Chemistry, Volume 2013, Issue 13, 2627–2633, May 2013, (The article is highlighted in Vertical News, as "Findings on Organic Chemistry Reported by Investigators at Indian Institute of Technology" on June 14th, 2013. <http://www.verticalnews.com/newsletters/Chemicals-and-Chemistry/2013-06-14/64489CH.html>; Highlighted in ChemInform, Volume 44, Issue 40, October 1, 2013).

2. Dharm Dev, Nani Babu Palakurthy, Nitesh Kumar and Bhubaneswar Mandal\*, An unexpected involvement of ethyl-2-cyano-2-(hydroxyimino) acetate cleaved product in the promotion of the synthesis of nitriles from aldoximes: A mechanistic perception, Tetrahedron Letters, Volume 54, Issue 33, 4397-4400, 14 August, 2013. (The article is highlighted in Vertical News, as "New Nitriles Findings has been reported by Investigators at Indian Institute of Technology" on SEP 13, 2013. <http://chemical-and-chemistry.verticalnews.com/articles/10215040.html>; Highlighted in ChemInform, Volume 44, Issue 47, November 19, 2013.)

3. Terminal aryl alkenes and alkynes as arylcarboxy surrogates towards o-benzoylation of 2-phenylpyridine catalyzed by copper. Rout, S. K.; Guin, S.; Gogoi, A.; Majji, G.; Patel, B. K. Org. Lett. 2014, 16, 1614. Top 20 Most Read Article.

4. A ligand free copper (II) catalyst is as effective as a ligand assisted pd(II) catalyst towards intramolecular C-S bond formation via C-H functionalization. Banerjee, A.; Santra, S. K.; Rout, S. K.; Patel, B. K.\* Tetrahedron, 2013, 69, 9096. Most Down Loaded Tetrahedron Article.

5. Directing group assisted copper-catalyzed chemoselective o-acylation of phenols and enols using alkylbenzenes. Rout, S. K.; Guin, S.; Banerjee, A.; Khatun, N.; Gogoi, A.; Patel, B. K. Org. Lett. 2013, 15, 4106. Top 20 Most Read Article.

6. A copper-catalyzed synthesis of 3-aryloxyindoles via a sp<sup>3</sup> C-H bond activation followed by C-C and C-O bond formation. Gogoi, A.; Guin, S.; Rout, S. K.; Patel, B. K. Org. Lett. 2013, 15, 1802. Top 20 Most Read Article.

7. Dwivedi, A. K.; Iyer, P. K. Therapeutic Strategies to Prevent Alzheimer Disease Pathogenesis Using Fluorescent Conjugated Polyelectrolyte. Macromolecular Bioscience (2013) DOI: 10.1002/mabi. 201300107 (Chosen to appear as VIP paper) (Highlighted in Materials Views June 2013).

## FACULTY MEMBERS

Sl. No.	Name	PhD	Designation	Areas of Interest
01	A. S. Achalkumar	CSMR, Bangalore	Assistant Professor	Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Green Chemistry
02	S. S. Bag	IIT Kharagpur	Associate Professor	Bioorganic Chemistry and Chemistry of Nucleic Acid
03	J. B. Baruah	IISc Bangalore	Professor	Homogeneous Catalysis, Supramolecular chemistry and material design
04	S. P. Biswas (Joined on 01.07.2013)	Ulm University, Germany	Assistant Professor	Gas/Vapor/Liquid Adsorption and Catalytic Applications of Metal-Organic Frameworks (MOFs)
05	A. Chattopadhyay	Columbia University	Professor	Nanoscale Science and Technology
06	S. Chatterjee (Joined on 02.12.2013)	IISc Bangalore	Assistant Professor	Peptidomimetics: Synthesis, Conformation and Biological activity
07	G. Das	IIT Kanpur	Professor	Supramolecular, Bioorganic chemistry and Biomineralization
08	D. Das	IACS, Kolkata	Assistant Professor	Supramolecular dynamic aggregates, peptides, lipids
09	S. Dutta	IACS, Kolkata	Assistant Professor	Experimental & Theoretical Physical Chemistry / Self-organization and Nonlinear dynamics
10	A. K. Gupta	Univ. of California, Los Angeles	Associate Professor	Quantum Molecular Dynamics
11	P. K. Iyer	CSMCRI, Bhavnagar	Professor	Polymer synthesis, Organic / Organometallic Chemistry & Device fabrication, Sensors
12	C. K. Jana	WWU Muenster, Germany	Asst. Professor	Total Synthesis/ Natural Product Based Drug Discovery/ Synthetic Methodology/ Development of New Reaction
13	A. T. Khan	Kalyani University, W.B	Professor	Synthesis of Natural Products, Heterocycles and Carbohydrate Chemistry, Newer Methodologies
14	G. Krishnamoorthy	IIT Kanpur	Associate Professor	Organic Photochemistry & Spectroscopy
15	L. M. Kundu	LMU Munich, Germany	Assistant Professor	Nucleic Acid / Peptide Chemistry, DNA / RNA Damage and Repair, DNA Hybrid Materials
16	K. Mahata	University of Siegen, Germany	Assistant Professor	Solar Fuel from Water, Supramolecular Catalysis, Theranostic Nano-Medicine
17	V. Manivannan	IACS, Calcutta	Professor	Coordination Chemistry
18	B. Mandal	EPFL, Lausanne, Switzerland	Asst. Professor	Peptide Chemistry and Amyloid Research
19	D. Manna	University of Illinois at Chicago	Asst. Professor	Lipid-Protein Interaction, Lipid Synthesis

Sl. No.	Name	PhD	Designation	Areas of Interest
20	B. Mondal	IIT Bombay	Associate Professor	Coordination and Bioinorganic Chemistry
21	C. Mukherjee	Max-Planck Institute of Bioinorganic Chemistry, Germany	Asst. Professor	Oxidation Catalysis / Molecular Magnetism / Synthesis of Single-Molecule Magnets (SMMs) / MRI Contrast agents / Water Oxidation Chemistry
22	S. C. Pan	Max-Planck-Institut fuer Kohlenforschung, Germany	Asst. Professor	Synthetic organic chemistry: Natural product synthesis with the emphasis of new synthetic methodology; development of new reactions, asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study
23	A. N. Panda	IIT Kanpur	Associate Professor	Dynamics of bimolecular scattering processes
24	B. K. Patel	IIT Kanpur	Professor & Head	Bio-Organic Chemistry and Newer Methodologies
25	A. Paul	Columbia University	Associate Professor	Surface Science, Catalysis, Thin Films
26	S. Paul	IIT Kanpur	Associate Professor	Computational Biophysics and Chemistry
27	T. Punniyamurthy	IIT Kanpur	Professor	Synthetic Organic Chemistry
28	M. Qureshi	IIT Kanpur	Associate Professor	Materials Chemistry
29	M. Ray	IIT Kanpur	Professor	Bioinorganic and Coordination chemistry
30	K. Sahu	IACS, Kolkata	Asst. Professor	Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS
31	A. K. Saikia	RRL Jorhat	Professor	New Synthetic Methodology & Natural Product Synthesis
32	C. V. Sastri	University of Hyderabad	Asst. Professor	Biomimetic Chemistry and Chemical Biology
33	M. Sarma	IIT Bombay	Asst. Professor	Development of new theoretical approaches to Laser Assisted Control of Chemical Reactions, and Resonances in Electron – Molecule Scattering Reactions

# DEPARTMENT OF CIVIL ENGINEERING

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1998

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech)** in  
o Civil Engineering

**Master of Technology (MTech)** in  
(a) Structural Engineering,  
(b) Water Resources Engineering and Management,  
(c) Geotechnical Engineering,  
(d) Environmental Engineering,  
(e) Transportation Systems Engineering and  
(f) Infrastructure Engineering and Management

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 80
- MTech: 85
- PhD: 34

**FACULTY STRENGTH:**

- Professor: 10
- Associate Professor: 15
- Assistant Professor: 12

**NUMBER OF NEW FACULTY JOINED DURING 1 APRIL  
2013 – 31 MARCH 2014:**

- Assistant Professor: 1

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

The Department of Civil Engineering hosts altogether 9 laboratories with the brief details discussed below. The Infrastructure Engineering and Management laboratory currently hosts a few personal computers only and the process of acquiring other facilities is going on.

**Structural Engineering Laboratory**

Structural Engineering is one of the five specializations offered by the department, and earthquake engineering is one of the primary focuses within this specialization. Faculty members are also working in other research areas related to structural mechanics, fracture mechanics, finite element analysis, durability of structures, construction management and non-destructive testing. Major equipments in the laboratory include Overhead EOT Crane for Structural test hall, Universal Test frame, NDT equipments like Corrosion analyzer, Rebar locator, Permeability tester, Resistivity meter, Extraction Tester, Dynamic Actuator System, Earthquake Simulator, Pseudo Dynamic Test Facility, FFT analyzer for vibration testing of structural elements, Resonant Frequency Meter, HBM-48 channel data acquisition system, Hydraulic Fork Lift, A-Frame Aluminium Ladder (16ft high), Automatic Vicat's apparatus for SC, Initial and Final Setting of Cement, 300 LPM in Powerpack for MTS test system, Reaction Mass Assembly for Electoseis Long Stroke Shaker Model 113 etc. HBM Data Acquisition System, MTS Actuator etc. State-of-the-art computer programs like Abaqus, ANSYS, SAP2000, MIDAS, Primavera, LS-DYNA, Optislang etc., are also being used by students of structural engineering

**Environmental Engineering Laboratory**

The research in environmental engineering laboratory deals with the treatment of water and wastewater, air quality modeling and solid waste management. The undergraduate and postgraduate students carry out work in a state-of-the-art laboratory, exploring exciting questions related to the acidification of surface waters, to discharges of waste gases from thermal power plants, to the composting of water hyacinth. The prediction of the behaviour of pollutants in natural systems is also attempted with the subsequent design of appropriate remediation technologies. Major equipments and facilities include Laser particle size analyzer, Atomic Absorption Spectrophotometer, Ultra-

pure water System, Ambient air pollutant measurement sampler, fine particular sampler, Micro-meteorological monitoring equipment with required accessories and data logging system and software (automatic), Trinocular laboratory microscope complete with essential accessories and digital camera, Ozone analyzer, Personal Sampler, Automotive gas analyzer, Cascade Impactor, BOD incubator, Electric muffle furnace, Drying oven, Air compressor, Sound Level Meter etc.

### **Geotechnical Engineering Laboratory**

The geotechnical engineering laboratory is equipped to perform all the necessary basic characterization of soils, rocks and geosynthetics along with several advanced testing facilities. The vision of this division is to utilize the state-of-the-art knowledge for solving problems related to subsurface. Major equipments include De-airing apparatus for triaxial testing, Multi-channel data logging, relative density apparatus, Rock testing equipments, Rock Triaxial Setup, Digital Triaxial Setup, Cyclic Triaxial Setup, MSW apparatus, Miniature Pressure Transducer Tensiometer, Refilling kit for T-5 tensiometer, Research Centrifuge with rotor, Cross permeability test apparatus, HygoclipCP302 XXPVC, Humidity Temp Controller Model – 902 Duel Channel, Guelph Permeameter kit, Upgrading of Block vibration to computerized block vibration test equipment, Direct Q-3 Ultrapure water purification system etc. State-of-the-art computer programs include GeoStudio 2007 products, PLAXIS, FLAC etc.

### **Transportation Engineering Laboratory**

In Transportation Engineering, extensive research work and experiments for academic purpose are carried out in two laboratories, namely (a) Pavement engineering laboratory and (b) Traffic engineering laboratory. Major equipments include Bump integrator for pavement management, Brooke Field Viscometer for testing of bituminous material as well as Marshall Design of flexible pavement facilities, plate compactor, CBR field apparatus, Driver vision screen tester, Universal Penetrometer for bitumen testing including automatic penetrometer timer, Electric plate compactor for preparation of triaxial sample, Testing equipment for falling Weight Deflectometer, Radar Gun, Video VBox 10Hz system etc. Servo-Pneumatic Universal Testing Machine 14 kN capacity through FIST grant, for performance testing of bituminous and granular materials in Transportation Engineering Lab of Civil Engineering Department. State-of-the-art computer programs include HDM4 for highway development model, MXROADS for highway geometric design, rolling thin file oven, TRANSYT, ISIS, HCS, PTV vision software VISSIM, Standard TransCAD software (V-5),

Trazer Online etc.

### **Hydraulic and Water Resources Engineering Laboratory**

The hydraulics laboratory has flumes for undertaking cutting edge research in the area of pipe flow, open-channel flow, sediment transport processes and other dedicated equipments like Venturimeters, Pelton wheel, Kaplan and Francis turbines and Reynold's apparatus. The major areas of current research in this field include meso-scale distributed hydrological modeling, RS and GIS for water resources management, computational river hydraulics, stochastic subsurface hydrology, heuristic method in reservoir optimization, GIS based water-shed modeling, dam break analysis, flow through porous media, sediment dynamics in fluvial systems and environmental impact assessment. Work is also being carried out in land use and land cover classification, river migration, water-shed delineation, flow accumulation and hill slope hydrology. Major equipments include Hydraulic Tilting Flume, Micro ADV 16-MHz Splash-Proof System, Multi-parameter Water Quality Monitoring System, Level Scout, DGPS, Spectro-radiometer, Canopy analyzer etc. State-of-the-art computer programs include Geomatica, MIKE 21C, CCHE2D etc.

### **Surveying Laboratory**

Surveying laboratory has several modern equipments like EDM, Total station, Electronic Theodolite, GIS for remote-sensing, Digitizer, GPS etc for various studies topographic, Volumetric bench with set of weir and notches, Impact of Jet, Free and Force Vertex flow, Losses in Pipe system, Total Station etc.

### **Engineering Geology**

The engineering geology laboratory has equipments like Trinocular Stereo zoom Microscope, Petrographic Microscope with digital image capturing facility, hardness box etc.

### **Computational Laboratory**

The computational laboratory has several desktop computers arranged systematically in cubicles with working space. It is also connected equipped with a WiFi system. It has also two servers and a number of network softwares.

### **Centre of Excellence (Integrated Landuse Planning and Water Resources Management)**

The Centre of Excellence is equipped with Runoff Sediment Sampler, Digital Water Level Recorder, Soil Moisture Profile Probe, Oxy Top IS 6, Digital BOD Analyser, Oxi3205 Dissolved Oxygen Meter, Digital Rainfall Recorder, Ground Penetrating Radar, Scanner, Plotter etc., along with ArcGIS Master Lab Kit 9.3.1 – 3 license.

### MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:

A number of equipments have been added to three laboratories of the department, during the year 2013-2014, namely (a) Transportation Engineering Laboratory, (b) Water Resources Engineering Laboratory and (c) Environmental Engineering Laboratory. The list of equipments is furnished below:

#### Transportation Engineering Laboratory

- (a) Brass Sieve (30 cm size)
- (b) Flash and Fire point
- (c) Pavement Dynamic cone penetrometer
- (d) Aggregate sample divider riffle boxes
- (e) Automatic Compactor for bituminous mix for Marshall Stability test
- (f) Proving ring (100kN, 25 kN, 10kN)
- (g) Hydrometer analysis test apparatus
- (h) Hot Air Oven
- (i) Upgrade TRAZER Version 1.1

#### Water Resources Engineering Laboratory

- (a) (ROTOSPOIN) Rotary Mixer
- (b) (SPINOT) Magnetic Stirrer Hot Plate
- (c) Multi Frequency Survey Echo Sounder
- (d) Snow Density Gauge
- (e) Wind Speed Meter
- (f) Digital Moisture Meter
- (g) Basic Wind Tunnel

- (h) Metacentric Height Apparatus
- (i) Bernoulli's Theorem closed circuit
- (j) Pitot tube Apparatus
- (k) Pipe Friction Apparatus
- (l) Venturimeter Test Rig
- (m) Determination of minor losses in pipe fittings
- (n) Orifice Test Rig
- (o) Triangular and rectangular notch tank apparatus
- (p) Reynolds Apparatus
- (q) Impact of jet Apparatus
- (r) Free Vortex Apparatus
- (s) Hydraulic bench

#### Environmental Engineering Laboratory

- (a) Hot Air Drying Oven
- (b) Single Beam Scanning Visible Spectrophotometer
- (c) High Volume Sampler
- (d) Respirable Dust Sampler with Gaseous Sampling Attachment
- (e) Microprocessor based pH meter
- (f) Microbiological Hood with Laminar Flow
- (g) B.O.D. Incubator
- (h) Electric muffle furnace
- (i) Vertical Autoclave with Low water level cut off
- (j) Fume Hood
- (k) Magnetic Stirrer
- (l) Digital Analytical Balance
- (m) Weather Monitor Portable

### RESEARCH PROJECTS

#### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
S. Sreedeeep	Hydro-chemical evaluation of bentonite-fly ash as backfill material in near surface hazardous waste disposal facility	DST	40.00	-	
Sandip Das	Seismic Design Criteria for RC Structures Considering Main-shock-Aftershock Sequence for Northeastern India	DST	23.15	Hemant B. Kaushik	3 years
M. Jawed	Rajiv Gandhi National Chair on WATSAN Studies	Ministry of Drinking Water & Sanitation	250	-	5 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
A.K.Sarma	Mathematical Modelling of Main stem Brahmaputra to Evaluate Impact of Climate Change on River Training Works	MoWR, Govt. of India	30	-	
H. B. Kaushik	Evaluation and Enhancement of Seismic Capacity of Assam-type Housing	DST	38.725	Sandip Das	3 years
Rajan Choudhary	Study on Lowering of Mixing and Compaction Temperatures of Bituminous Mixes through Warm Mix Asphalt (WMA) Additives	DST	59.031	Akhilesh Kumar Maurya	3 years

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
H. Sharma	Performance-Based Probabilistic Capacity Models for Concrete Structures subject to Blast loading	DRDO	21.56	-	-
Manish Kumar Goyal	Green House gas emission and Carbon Sequestration	SG-IIT	5.00	-	-
T. L. Ryntathiang	Determining the suitability of Assam aggregates of different sources as ingredient for microsurfacing	DST	39.97	-	-
S. Sreedeeep	Design and evaluation of closure cap system for near surface radioactive waste disposal facility	BRNS	24.74	-	-
L. Boeing Singh	A study on feasibility of PPPs as mitigation strategy for climate change	HUDCO	15.69	-	-
Mallikarjuna C.	Evaluation of the urban road network in terms of the traffic and road way conditions: a case study of Guwahati	DST	27.38	-	-
P. K. Ghosh	Development of bioreactor system for simultaneous removal of multi-pollutants such as iron, nitrate, arsenic and fluoride from ground water	MoDW	14.09	-	-
T. V. Bharat	Innovation in Science Pursuit for Inspired Research (INSPIRE AWARD)	DST	35.0	-	-
H. B. Kaushik	Equivalent Diagonal Strut Properties for Masonry Infills in RC Frames	DST	10.8	-	3 Years
A. Murali Krishna	Seismic Requalification of Geotechnical Structures	UKIERI	32	Subhamoy Bhattacharya, University of Bristol, UK	2 years



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
A. K. Sarma	B. P. Chaliha Chair Prof. for Water Resources	Ministry of Water Resources	100	-	2009-2014
A. K. Maurya	Development of Indo-Highway Capacity Manual (HCM)	CSIR-CRRI	100.45	-	2012-2017

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. Kalamdhad	Composition of water Hyacinth using different composition technologies	SERB	17.00	-	2012-2013
P. K. Ghosh	Micro - Aerobic Process of Sulfate Reduction to Elemental Sulfur	CSIR	16.60	-	2012-2013
Sreedeeep S.	A study on multiple-constraint interacting soils	DST	10.48	-	2012-2013
A. K. Sarma	Center for Integrated Landuse Planning and Water Resources Management	MoUD	277.00	-	2010-2013

**CONSULTANCY PROJECTS**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
A. Chakraborty	Proof Consultancy for structural Design	Mott MacDonald, Bellevue Mansion, Shillong-793001	1,57,895	2013-14
A. Dutta	Review of Design and Drawings of a curved box girder bridge in Kolkata	M/s CDAC, 12, Lake West Road, Santoshpur, Kolkata-700075, India	1,34,832	2013-14
A. Dutta	Proof checking of Design and Drawing for Railway Over Bridge at Dhing Gate, Nagaon	M/s D2S Infrastructures Pvt. Ltd., A.T. Road, Guwahati-781001	3,37,080	2013-14
C. Mahanta	Assessment of Rural Drinking Water Supply Services for the World Bank-assisted RWS-LIS project	Govt of Assam, PHE, Assam, Hengrabari, Guwahati-781036	24,54,617	2013-14
Mallikarjuna C	Safety audit of Shillong Bypass connecting NH-40 and NH-41	National Highways Authority of India, New Delhi-110075	9,75,320	2013-14
S. Talukdar	Proof Checking of Truss (Arch type) bridge over River Siyon at Paya, Arunachal Pradesh	M/S PWD, Arunchal Pradesh-791001	5,13,464	2013-14
A. K. Sarma	Flood and erosion Management Project for Assam considering climate change in association with ASDMA	Assam State Disaster Management Authority, Guwahati.	15,91,298	2013-14

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
A. Dutta	Proof checking of Horizontal deflection of G8 of Span P2-P3 of Vanivihar Flyover and Girder G5 of span P3- P4 of Phulnakra Flyover	M/S Simplex Infrastructures Ltd, Kolkata	56,180	2013-14
A. Dutta	Proof checking of design and drawings for bridge no.53 of N. F. Railway	M/S Stup Consultants Pvt. Ltd., P-11 Darga Road Kolkata- 700017.	2,80,900	2013-14
Dr. T. L. Ryntathiang	Engineering Consultancy Service for upgradation of TT parking area by Providing Concrete Driveway and Improvement of associated drainage at LPG Bottling Plant, North Guwahati	M/S DFM (LPG), NEISO, IOC Ltd, Bamunimaidan Guwahati- 21.	1,76,967	-
S. Talukdar	Widening and Strengthening of existing National Highways from 2-Lane to 4-Lane from Guwahati to Dharamtul section of Km 205 to Km 183 in package- AS- 20 on NH-37	Mr. G. Srinivasa Naidu, KMC Construction KLtd., Ulubam, Khetri, Kamrup Metro, Pin- 785403.	7,987	-
A. Chakraborty	Structural safety of ACR Constructed using PEB	M/S AXOM Sarba Sikha Abhiyan Mission, Kahilipara, Guwahati- 781019.	1,05,000	-
A. Kalamdhad	Operation and maintenance services of sewage system in IIT Guwahati	M/S D. P. Traders	16,854	-
A. Dutta	Proof checking of drawings and design of 70m span bow sting girder across the Rly. Track	M/S Rites Ltd, Regional Project Office, Kolkata- 700012.	4,87,744	-
S. Dutta	Preparation of digital land use/ land cover maps for the project site and its influencing region	M/S Lafarge Umiam Mining pvt. Limited, Shillong- 793112.	5,24,700	-
A. Dutta	Proof checking of detailed design and drawing for Construction of Bridge No.1/1 including approaches and protection work over at Jatinga at Borkhola on Mahasadak to Borkhola road under NLCPR in Cachar District	M/S D2S Infrastructures Pvt. Ltd., H. No. 457, A. T. Road., Guwahati- 781001 (Assam).	5,61,800	-
A. Dutta	Proof checking of design and drawings of 40m Curved Composite Span of Flyover connection EM Bypass & Kavi Nazrul Islam Sarani, Kolkata for KMDA	M/S STUP Consultants Pvt. Ltd., Park Circus, Kolkata 700017.	3,37,080	-
A. K. Sarma	Proof Checking of Ro-Ro Jetty at Dhubri in NW 2 at Brahmaputra	Executive Engineer, Guwahati Central Division, CPWA, Guwahati- 21.	8,50,000	-

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
A. Dutta	Proof checking of design & drawings. Of bridge no.1/2 over river Aie at Chilapara, Kahibari Village	Mr. Rudra Kumar Pathak, Abhayauri, Bongaigaon-783384.	2,80,900	-
H. Sharma	Proof checking consultancy of the structural drawings for the proposed development at Sahalimar, West Bengal	M/S Consulting Engineering Services (India) Private Ltd, Salt Lake, Kolkata- 700091.	12,48,320	-
S. Talukdar	Vetting of Design of 500kL capacity Crude Oil Storage Tank at Oil India Limited, Duliajan (Assam)	Managing Director, MECH TECHNIK (INDIA) PVT. LTD., Mani Ram Dewan Road, Guwahati.	1,71,155	-
T. V. Bharat	Widening & Strengthening of the existing NH-37 from 2lane to 4 lane from Km 230.500 to Km 205 pof Dharamtul to Jagiroad in Assam under East West corridor under phase II programme of NHDP	M/S IL & FS Engineering & Construction Company Ltd, Assam- 782410	41,573	-
A. Dutta	Proof checking of design and drawings for Santragachi Station Development project for S. E. Railway	M/S STUP Consultants Pvt. Ltd., Kolkata- 700017.	2,80,900	-
Mallikarjuna C.	Expert opinion on the revised profile of ROB 1 at km 79+830.45 of NH-31c section	M/s Gayatri- ECI (JV), B-1., T. S. R. Towers, 6-3-1090, Hyderabad- 500082.	56,000	-
A. K. Sarma	Impact of climate change on precipitation pattern of Barak Basin	NIT, Silchar- 788010	6,74,160	-
S. Talukdar	Proof checking of Design & drawings for open foundation at ROB, Changsari	PLL/AS4/PFIN06/PLNG/A101/2180	50,000	-
A. K. Sarma	Hydrological and Hydrodynamic model study of Brahmaputra River near Guwahati city in connection with the water supply project of North Guwahati	JITF Water Infrasturature Ltd., Last Gate, Dispur, Guwahati-781006.	-	-
H. B. Kaushik	Quality evaluation of prestressed porcupine members	M/S Flood & River Management Agency Assam, Beltola, Guwahati.	2,44,720	-
S. Talukdar	Conducting the reinforcement mapping of well cap w3 of Major river over Pahumara River at Ch-1025+507, NHDP Package No. EW-II (AS/7)"	M/S Simplex Infrastructure Ltd., Bethkuchi, Kamrup.	1,14,100	-

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
A. K. Sarma	Review of the Report on Mishap at Myntdu Leshka hydroelectric project	Meghalaya Energy Corporation Limited	3,97,080	-
H. B. Kaushik	Quality evaluation of prestressed porcupine members	Flood and River Erosion Management Agency of Assam (FREMAA), Guwahati	2.4472	6 months
A. Murali Krishna	Determination of soil strength parameters	M/s J P Associates, Jorhat	1.5	1 month
B. Singh	Proof checking of design and drawings for open foundation at ROB, Changsari	Punj Lloyd Ltd., Guwahati, Assam	50,000	July 2013 to Sep. 2013
B. Singh	Evaluation of granular material for widening and strengthening of existing National Highway	Egis International-STUP-AARVEE (JV), Barpeta, Assam	28,600	Dec. 2013
B. Singh	Proof check for temporary staging design for Major Bridge 184/1 (middle span)	KMC Constructions Limited, Ulabam, Khetri, Kamrup Metro, Assam	25,000	Jan. 2014

## RESEARCH PUBLICATIONS

### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
Nayak, A.K., Kalamdhad, A.S.	Feasibility of composting combinations of sewage sludge, cattle manure and sawdust in a rotary drum reactor	Environmental Engineering Research	-	-	2014
Singh, J., Kalamdhad, A.S.	Influences of natural zeolite on speciation of heavy metals during rotary drum composting of green waste	Chemical Speciation and Bioavailability	-	-	2014
Singh, W.R., Shasi, P., Singh, J., Kalamdhad, A.S.	Evaluation of bioavailability of heavy metals and nutrients during agitated pile composting of green Phumdi	Research Journal of Chemistry and Environment	-	-	2014
Ahamad K.U. and Jawed M	Breakthrough studies with mono-, binary- and ternary-ion systems comprising of Fe(II), F- and As(III) using river sand packed columns	Journal of Water and Health	11 (2)	224-243	
Animesh Deb-nath, Saswati Chakraborty	Experimental design to optimise colour removal of diazo dye Congo Red using zero-valent iron	International Journal of Environment and Waste Management	11 (3)	267-288	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Biju Prava Sahariah and Saswati Chakraborty	Effect of cycle and fill time on performance of sequential anaerobic-anoxic-aerobic fed batch moving bed reactor	Environmental Technology	34 (1-4)	245-56	2013
Biju Prava Sahariah and Saswati Chakraborty	Performance of anaerobic-anoxic-aerobic batch fed moving bed reactor at varying phenol feed concentrations and hydraulic retention time	Clean Technology and Environmental Policy	15 (2)	225-233	2013
Das S. P., Ravindran R., Ghosh A., Deka D., Das D., Jawed M., Fontes Carlos M. G. A. and Goyal A.	Efficient pretreatment for bioethanol production from water hyacinth ( <i>Eichhornia crassipes</i> ) involving naturally isolated and recombinant enzymes and its recovery	Environmental Progress and Sustainable Energy	doi: 10.1002/ep.11885		2013
Das S.P., Ravindran R., Deka D, Jawed M., Das D. and Goyal A	Bioethanol production from leafy biomass of mango ( <i>Mangifera indica</i> ) involving naturally isolated and recombinant enzymes,	Preparative Biochemistry and Biotechnology	43 (7)	717-734	2013
Deka D, Jawed M. and Goyal A	Purification and characterization of an alkaline cellulase produced by <i>Bacillus subtilis</i> (AS3)	Preparative Biochemistry and Biotechnology	43	256-270	2013
Deka D., Das S. P., Das D., Jawed M., Goyal D., Goyal A. and Sahoo N	Enhanced cellulose production from <i>Bacillus subtilis</i> by optimizing physical parameters for bioethanol production	ISRN Biotechnology	DOI: 10.5402/2013/965310		2013
Deka D., Das S. P., Ghosh A., Das D., Jawed M. and Goyal A.	Scale up and efficient bioethanol production involving recombinant cellulase (Glycoside hydrolase family 5) from <i>Clostridium thermocellum</i>	Sustainable Chemical Processes	1 (19)	1-11.	2013
Nayak, A.K., Dhamodharan, K., Kalamdhad, A.S.	Stability and kinetic analysis during vermicomposting of sewage sludge. International Journal of Agricultural	Biosystems Science and Engineering	7 (10)	388-396	2013
Nayak, A.K., Kalamdhad, A.S.	Composting of sewage sludge based on different C/N ratios. Journal of Chemical	Biological and Physical Sciences	3 (3)	2251-2268	2013
Nayak, A.K., Varma, V.S., Kalamdhad, A.S.	Effects of various C/N ratios during vermicomposting of sewage sludge using <i>Eisenia Fetida</i>	Journal of Environmental Sciences and Technology	6 (2)	63-78	2013

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Nayak, A.K., Varma, V.S., Kalamdhad, A.S.	Stability and kinetic analysis of sewage sludge composting	International journal of Environmental Science and Engineering Research			2013
Prasad, R., Singh, J., Kalamdhad, A.S.	Assessment of nutrients and stability parameters during composting of water hyacinth mixed with cattle manure and sawdust	Research Journal of Chemical Sciences	3 (4)	70-77	2013
Sahoo, N. K., Ghosh, P. K. and Pakshirajan, K.	Biodegradation of 4-Bromophenol using <i>Arthrobacter chlorophenolicus</i> A6 in a novel packed bed reactor	Journal of Bioscience and Bioengineering	115 (2)	182-188	2013
Sahoo, N. K., Pakshirajan, K. and Ghosh, P. K.	Biodegradation of 4-Bromophenol by <i>Arthrobacter chlorophenolicus</i> A6 in batch shake flasks and in a continuously operated packed bed reactor	Biodegradation	DOI 10.1007/ s10532 -013- 9658-x.		2013
Singh, J., Kalamdhad, A.S.	Assessment of bioavailability and leach ability of heavy metals during rotary drum composting of green waste (water hyacinth)	Ecological Engineering	52	59-69	2013
Singh, J., Kalamdhad, A.S.	Bioavailability and leachability of heavy metals during composting- A review	International Research Journal of Environmental Sciences	2 (4)	59-94	2013
Singh, J., Kalamdhad, A.S.	Bioavailability and leachability of heavy metals during water hyacinth composting	Chemical Speciation and Bioavailability	25 (1)	1-14	2013
Singh, J., Kalamdhad, A.S.	Chemical speciation of heavy metals in compost and compost amended soil- A review	International Journal of Environmental Engineering Research	2 (2)	27-37	2013
Singh, J., Kalamdhad, A.S.	Effect of lime on speciation of heavy metals during agitated pile composting of water hyacinth	Frontiers of Environmental Science and Engineering			2013
Singh, J., Kalamdhad, A.S.	Effect of rotary drum on speciation of heavy metals during water hyacinth composting	Environmental Engineering Research	18 (3)	177-189	2013

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Singh, J., Kalamdhad, A.S.	Speciation of heavy metals during vermicomposting of water hyacinth	Ecological Engineering	60	214-223	2013
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Singh, J., Prasad, R., Varma, V.S., Kalamdhad, A.S.	Estimation of compost stability during rotary drum composting of municipal solid waste	Global Journal of Environmental Science and Technology	1 (1)	1-7	2013
Sonowal, P., Dhamodharan, K., Khwairkpm, M., Kalamdhad, A.S.	Feasibility of vermicomposting of dewatered sludge from paper mill using perionyx excavatus	European Journal of Environmental Sciences	3 (1)	17-26	2013
Sonowal, P., Khwairakpam, M., Kalamdhad, A.S.	Stability analysis of dewatered sludge of pulp and paper mill during vermicomposting	Waste and Biomass Valorization			2013
Varma, V.S., Chatuphale, M., Kalamdhad, A.S.	Effects of bulking agent in composting of vegetable waste and leachate control using rotary drum composter	Sustainable Environmental Research			2013
Varma, V.S., Kalamdhad, A.S.	Composting of municipal solid waste (MSW) mixed with cattle manure	International Journal of Environmental Sciences	3 (6)	2068-2079	2013
Varma, V.S., Kalamdhad, A.S.	Effects of leachate during vegetable waste composting using rotary drum composter.	Environmental Engineering Research			2013
Abhijit, D. and Sreedeeep, S	Evaluation of measurement methodologies used for establishing water retention characteristic curve of fly ash	Journal of Testing and Evaluation			2014

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Garg, A., Garg, A., Tai, K. and Sreedeeep, S	An integrated SRM-multi-gene-genetic programming approach for prediction of factor of safety of 3-D soil nailed slope	Engineering Application of Artificial Intelligence			2014
Garg, A., Garg, A., Tai, K. and Sreedeeep, S	Estimation of factor of safety of rooted slope using an evolutionary approach	Ecological Engineering	64	314-324	2014
Pawan K. S. and Sreedeeep, S	Evaluation of bentonite based thermal backfill materials	Environmental Geotechnics			2014
Sreedeeep, S	Vision ahead for environmental geotechnics	Environmental Geotechnics			2014
T. V. Bharat	Analytical model for 1-D through-diffusion transport of sorptive contaminants through clay barriers	Environmental Geotechnics			2014
Abhijit, D. Malaya, C. and Sreedeeep, S	A Study on Tensiometer Measurements in Salt Laden Soil Used for Irrigation Scheduling	Geotechnical and Geological Engineering	31 (4)	1349-1357	2013
Biswas, A., Murali Krishna, A. and Dash, S. K	Influence of Subgrade Strength on the Performance of Geocell-Reinforced Foundation Systems	Geosynthetics International	20	6	2013
Das, T. and Singh, B.	Review of benefits and impacts of scrap tyre use in geotechnical engineering	Journal of Environmental Research & Development	7 (3)	1262-1271	2013
Malaya, C. and Sreedeeep, S.	Estimated unsaturated hydraulic conductivity of hill soil of North-East India	ISH Journal of Hydraulic Engineering			2013
Mali, S. and Singh, B.	A study on shear strength of sand reinforced with glass fibers	International Journal of Science & Engineering Research	4 (5)	285-288	2013
Meena, S., Choudhary, L and Dey, A	Quasi-static analysis of geotextile reinforced unpaved roads resting on c-φ sub-grade	Procedia-Social and Behavioral Sciences	104	235-244	2013
Poly, B. and Sreedeeep, S	A study on the adsorption of ammonium in bentonite and kaolinite	International Journal of Chemical, Environmental and Biological Sciences	1	1, 4	2013
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Shankar Kumar, S. and Murali Krishna, A.	Seismic Ground Response Analysis of Some Typical Sites of Guwahati City	International Journal of Geotechnical Earthquake Engineering	4 (1)	83-101. DOI: 10.4018/ jgee. 2013010106	2013
Singh, B. and Goswami, R. K.	Shear strength characteristics of lateritic soil mixed with fly ash and lime	International Journal of Geotechnics and Environment	5 (1)	15	2013
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T. V. Bharat, P. V. Sivapullaiah and M. M. Allam	Novel procedure for the estimation of swelling pressures of bentonites based on diffuse double layer theory	Environmental Earth Sciences (formerly, Environmental Geology; Springer)	70	303-314	2013
Vinot, V. and Singh, B	Shredded tyre-sand as fill material for embankment applications	Journal of Environmental Research & Development	7 (4A)	1622-1627	2013
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Dasgupta, K. and Murty, C.V.R.	Improved Geometric Design of Earthquake-Resistant Reinforced Concrete Slender Structural Walls - Part II: Design Implications	Journal of Engineering Mechanics			2014
Mamta R. Sharma, Arbind K Singh, G. S. Benipal	Parametric resonance of concrete beam columns under pulsating axial force	Latin American Journal of Solids and Structures	11 (6)	925-945	2014
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V. Yadav, A.K. Singh and U. S. Dixit	An Approximate Method for Computing the Temperature Distributions in Roll and Strip during Rolling Process	Proceedings of IMECH, Part B, Journal of Engineering Manufacture in press.			2014
A. Shelke, S. Banerjee, E. Kabiri Rahani, A. Habib, T. Kundu	Ultrasonic Wave Guiding and Wave Modulation using Phononic Crystal Defects	Journal of Intelligent Material Systems and Structures			2013
A. Shelke, Uddin, Yang	Impact Identification in Sandwich Structures Using Solitary Wave-supporting Granular Crystal Sensors	AIAA			2013
A.M. Choudhury, S.K. Deb and A. Dutta	Study on size effect of FRP retrofitted RC beam-column connections under cyclic loading	Canadian Journal of Civil Engineering	40 (4)	353-360	2013
Bihari, P., Shelke, A., ET AL.	Strain Measurement of Abdominal Aortic Aneurysm with Real-time 3D Ultrasound Speckle Tracking.	European journal of vascular and endovascular surgery	45 (4)	315-323	2013
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Kaushik, H.B., and Dasgupta, K	Assessment of Seismic Vulnerability of Structures in Sikkim, India, based on Damage Observation during Two Recent Earthquakes	Journal of Performance of Constructed Facilities	27 (6)	697-720	2013
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Rupam Jyoti Nath, Sajal Kanti Deb and Anjan Dutta	Base isolated RC building – performance evaluation and numerical model updating using recorded earthquake response	Earthquakes and Structure	4 (5)	471-487	2013
Shelke, A., Blume, M., Mularczyk, M., Landes, et al.	Visualization of Localized Elastic Properties in Human Tooth and Jawbone as Revealed by Scanning Acoustic Microscopy	Ultrasound in medicine & biology	39 (5)	853-859	2013
V. Yadav, J. Thakuria, A.K. Singh and U. S. Dixit	An Approximate Fast Finite Element Analysis of Temperature Distribution in Rolling	International Journal of Mechatronics and Manufacturing Systems	6 (4)	381-396	2013
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Bokare, P.S., and Maurya, A.K.	Study of effect of speed, acceleration and deceleration on small petrol car on its tailpipe emission	International Journal for Traffic and Transport Engineering	3 (4)	465 – 478	2013
Chandra, S. and Choudhary, R.	Performance Characteristics of Bituminous Concrete with Industrial Wastes as Filler	Journal of Materials in Civil Engineering	25 (11)	1666–1673	2013
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Goyal Manish Kumar and Ojha C.S.P.	Evaluation of Rule and Decision Tree Induction Algorithms for Generating Climate Change Scenarios for Temperature and Pan Evaporation on a Lake Basin	ASCE-Journal of Hydrologic Engg	DOI: 10.1061 / (ASCE) HE.	1943 - 5584 .000 0615	2014
Rahul Hiremath, P. Balachandra, Bimlesh Kumar, S S Bansode and J Murali	Indicator based Urban Sustainability-a Review	Energy for Sustainable Development, Elsevier			2014
Richards J., Madramootoo C. A. and Goyal Manish Kumar	Determining irrigation requirements for vegetables and sugarcane in Jamaica	Irrigation and Drainage	DOI: 10.1002/ ird.1811		2014
Sahoo, S. N. and Sreeja, P.	A methodology for determining runoff based on imperviousness in an un-gauged peri-urban catchment	Urban Water Journal	11 (1)	42-54	2014
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Seshan H, Goyal Manish Kumar, Falk Michael W and Wuertz Stefan	Support Vector Regression Model of Wastewater Bioreactor Performance Using Microbial Community Diversity Indices: Effect of Stress and Bio augmentation	Water Research	53	282–296	2014
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Thiyam Tamphasana Devi and Bimlesh Kumar	Effect of Superficial gas velocity on Process Dynamics in Bioreactors	Thermophysics and Aeromechanics			2014
Thiyam Tamphasana Devi and Bimlesh Kumar	Large Eddy Simulation of Turbulent Flow in Stirred tank with Curved Blade Impeller	Journal of Engineering Thermophysics			2014
B. Sarma, A. K. Sarma and V. P. Singh	Optimal Ecological Management Practices (EMPs) for Minimizing the Impact of Climate Change and Watershed Degradation Due to Urbanization	Water Resource Management	27	4069–4082 (DOI 10.1007/ s11269-013-0396-y)	2013

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Barua and Alam	An analytical model for predicting transient flow into equally spaced ditch drains receiving water from a uniformly ponded field	Water Resources Management VII	171	323-334	2013
Barua and Alam	An analytical solution for predicting transient seepage into ditch drains from a ponded field	Advances in Water Resources,	52	78-92	2013
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Bhattacharjya, Rajib Kumar, Ambuj Srivastava, and Satish, Mysore, G.	A Hybrid-Optimization Approach for Estimating Parameters of Virus Transport Process in Aquifer	Journal of Hazardous, Toxic, and Radioactive Waste			2013
Bhattacharjya, Rajib Kumar, and Chourasia, Sandeep	Geomorphology Based Semi-Distributed Approach for Modelling Rainfall-Runoff Process	Journal of Water Resources management	27 (2)	567-579	2013
Bhave, S. and Sreeja, P.	Influence of initial soil condition on infiltration characteristics determined using a disk infiltrometer	ISH Journal of Hydraulic Engineering	19 (3)	291-296	2013
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Chandan Kumar and Sreeja, P.	Reply to Discussion on "Evaluation of selected equations for predicting scour at downstream of ski-jump spillway using laboratory and field data"	Engineering Geology	152	212	2013
Chandan Kumar and Sreeja, P.	Reply to Discussion on Evaluation of selected equations for predicting scour at downstream of ski-jump spillway using laboratory and field data	Engineering Geology	155	96	2013

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Dey Avedibya, and Bhattacharjya, Rajib Kumar	Monitoring River Center Line and Width - A Study on River Brahmaputra	Journal of the Indian Society of Remote Sensing			2013
Dongqing Zhang, Richard M. Gersberg, Tao Hua, Junfei Zhu, Goyal Manish Kumar, Wun Jern Ng, Soon Keat Tan	Fate of pharmaceutical compounds in wetland mesocosms planted with <i>Scirpus validus</i>	Environment Pollution, Elsevier Ltd	181	98-106	2013
Goyal Manish Kumar, Burn Donald H. and Ojha C.S.P.	Precipitation Simulation based on k-Nearest Neighbour Approach using Gamma Kernel	ASCE-Journal of Hydrologic Engg.	18 (5)	481-487	2013
Lalsangzela Sailo and Chandan Mahanta	Hydrogeochemical factors affecting the mobilization of As into the groundwater of the Brahmaputra alluvial plains of Assam, Northeast India	Environ. Sci. Processes Impacts	15	1775-1782	2013
R. L. Deka & C. Mahanta & H. Pathak & K. K. Nath & S. Das	Trends and fluctuations of rainfall regime in the Brahmaputra and Barak basins of Assam, India	Theoretical and Applied Climatology			2013
Richards J., Madramootoo C.A., Goyal Manish Kumar and Trotman Adrian	Application of the SPI and NDVI for evaluating irrigation in Jamaica	ASCE-Journal of Irrigation and Drainage Engineering	39 (11)	922-932	2013
Sahoo, S. N. and Sreeja, P.	Role of rainfall events and imperviousness parameters in urban runoff modeling	ISH Journal of Hydraulic Engineering, Taylor and Francis	19 (3)	329-334	2013
Sahoo, S. N. and Sreeja, P.	A review of Decision Support System Application in Flood Management	International Journal of Hydrology Science and Technology	3 (3)	206-220	2013
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Tapas Karmaker and Subashisa Dutta.	Modeling seepage erosion and bank retreat in the composite riverbank	J. Hydrology	476 (7)	178-187	2013

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Biswas, A., Murali Krishna, A. and Dash, S. K	Influence of Subgrade Strength on the Performance of Geocell-Reinforced Foundation Systems	Geosynthetics International	20 (6)	376-388	2013
Shankar Kumar, S. and Murali Krishna, A.	Seismic Ground Response Analysis of Some Typical Sites of Guwahati City	International Journal of Geotechnical Earthquake Engineering	4 (1)	83-101	2013
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Mali, S. and Singh, B.	Strength behaviour of cohesive soils reinforced with fibers	Journal of Civil Engineering Research	5 (4)	353-360	2014
Mali, S. and Singh, B.	Strength behaviour of geocell reinforced sand	Journal of Civil Engineering & Applications	3 (5)	33-36	2013
Mishra, Anil Kumar	Effect of salt on the hydraulic conductivity and compressibility of two soil-bentonite mixtures with different bentonite content	Annual International Conference on Architecture and Civil Engineering (ACE), Singapore			2013
Murali Krishna, A., Madhav, M. R., and Kumar, K	Ground Engineering with Granular Inclusions for Loose Saturated Sands subjected to Seismic Loadings	Indian Geotechnical Journal		DOI: 10.1007/s40098-013-0085-z	2013
A.M.Choudhury, P. Poluraju, A. Dutta and S. K. Deb	Effective retrofitting of plain concrete elements using externally bonded fibre reinforced polymer	Journal of Structural Engineering	39 (6)		2013
Mamta R. Sharma, Arbind K Singh, G. S. Benipal	Nonlinear elastodynamics of concrete water tanks with shaft-type staging	Indian Concrete Journal	87 (2)	47-60.	2013
P. Mittal, S. Kamleshwar & A. Chakraborty	Time Dependent Gaussian Equivalent Linearization of Duffing Oscillator Using Continuous Wavelet Transform	Journal of Civil Engineering & Architecture	7 (8)	1006-1017	2013
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Barua and Alam	Hydraulics of an auger hole in a phreatic aquifer of finite horizontal and vertical extents	Earth Science India	6 (III)	90-125	2013
Rahul Verma and Subashisa Dutta	Vegetation Dynamics from Denoised NDVI Using Empirical Mode Decomposition	Journal of Indian society of Remote sensing	41 (3)	555-566	2013
Rishabh Dev Sharma, Rupak Sarkar and Subashisa Dutta	Runoff generation from fields with land use and land covers under extreme storm events	Current Science	104 (8)	1046-1053	2013
Murali Krishna, A., Madhav, M. R., and Kumar, K	Ground Engineering with Granular Inclusions for Loose Saturated Sands subjected to Seismic Loadings	Indian Geotechnical Journal	DOI: 10.1007/s40098-013-0085-z		

**Proceedings of Conference/Workshop/Seminar/Symposia**

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Ali, S., Singh, K.R., Kalamdhad, A.S.	Assessment of water quality in around the disposal site of Guwahati- Assam	Regional Seminar on Eco-Restoration for Development in North-East India	Cotton College, Guwahati, India	International	22-23 April, 2013
Varma, V.S., Kalamdhad, A.S.	Chemical and microbial aspects during rotary drum composting of vegetable waste	International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India	International	23-14 August, 2013
Prasad, R., Singh, J., Kalamdhad, A.S.	Estimation of nutrients and stability parameters during vermicomposting of water hyacinth using Eisenia fetida	International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India	International	23-14 August, 2013
Dhamodharan K., Kalamdhad, A.S.	Effects of food to microorganism ratio in anaerobic digestion of institutional food waste	International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India	International	23-14 August, 2013



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Singh, J., Kalamdhad, A.S.	Uptake of bioavailable and leachable fraction of Zn, Cu, Ni, and Cr by natural zeolite during rotary drum composting of water hyacinth	International Conference on Waste Management and environment	University of Malaya, Kuala Lumpur, Malaysia	International	26-27 August, 2013
Kalamdhad, A.S.	Decentralized composting of institutional wastes using drum composting	International Conference on Waste Management and environment	University of Malaya, Kuala Lumpur, Malaysia	International	26-27 August, 2013
Dhamodharan K., Kalamdhad, A.S.	Microbial dynamics during anaerobic batch digestion of mixed food waste	International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2013)	Dr. D. Y. Patil Vidhyapeeth, Pune, India	International	25-27 November, 2013
Vishan, I., Kanekar, H., Kalamdhad, A.S.	Microbial community dynamics during composting of water hyacinth	International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2013)	Dr. D. Y. Patil Vidhyapeeth, Pune, India	International	25-27 November, 2013
Sarika, D., Varma, V.S., Singh, J., Kalamdhad, A.S.	Biodegradation of Lignocellulose during drum composting of water hyacinth	First Symposium on Advances in Sustainable Polymers	Indian Institute of Technology Guwahati, India	National	10-11 January, 2014
Prasad, R., Singh, J., Kalamdhad, A.S.	Study of physico-chemical and stability parameters during water hyacinth vermicomposting	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trends	Cotton College, Guwahati, India	International	29-31 January, 2014
Gunawat, V., Meena, K.K., Meena, R.K., Meena, S.K., Handa, K., Kalamdhad, A.S.	Understanding of e-waste management and handling in India along with global prospectus	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trends	Cotton College, Guwahati, India	International	29-31 January, 2014
Ali, S., Singh, K.R., Kalamdhad, A.S.	Status of heavy metals pollution in water of Bharalu River, Assam	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trends	Cotton College, Guwahati, India	International	29-31 January, 2014
Kalamdhad, A.S.	Composting of organic waste using decentralized drum composting	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trends	Cotton College, Guwahati, India	International	29-31 January, 2014

Name of Author	Name of Paper	Name of Conference	Organizer/Venue	National/International	Year and Date of Publication
Varma, V.S., Ramu, K., Kalamdhad, A.S.	Decentralized composting of mixed organic waste using in-vessel system	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trends	Cotton College, Guwahati, India	International	29-31 January, 2014
Prasad, R., Singh, J., Kalamdhad, A.S.	Study of physico-chemical parameters during rotary drum composting of water hyacinth	International Conference on Environmental Technology and Sustainable Development: Challenges & Remedies	Babasaheb Bhimrao Ambedkar University, Lucknow, India	International	21-23 February, 2014
Singh, W.R., Satish, R., Pankaj, S., Akbar, N., Kalamdhad, A.S.	Heavy metals during composting of Phumdi biomass	International Conference on Environmental Technology and Sustainable Development: Challenges & Remedies	Babasaheb Bhimrao Ambedkar University, Lucknow, India	International	21-23 February, 2014
Thoudam, R.D., Kalamdhad, A.S.	Municipal waste generation and characterization – A case Study of Guwahati city	Seminar on Solid Waste Management and Disposal with Special Reference to Guwahati City	PHE Retired Engineers Forum (PREF), Guwahati	National	29 March, 2014
Varma, V.S., Kalamdhad, A.S.	Co-composting of vegetable waste using rotary drum composer	Seminar on Solid Waste Management and Disposal with Special Reference to Guwahati City	PHE Retired Engineers Forum (PREF), Guwahati	National	29 March, 2014
Prasad, R., Singh, J., Kalamdhad, A.S.	Study of physico-chemical parameters during rotary drum composting	Seminar on Solid Waste Management and Disposal with Special Reference to Guwahati City	PHE Retired Engineers Forum (PREF), Guwahati	National	29 March, 2014
Mohanty M. P., Laskar M., Brahmacharimayum B., and Ghosh P. K.	Kinetics of Sulfate Bioreduction and Sulfide Oxidation by Mixed Microbial Consortia	Poster presentation in 6th International Congress of Environmental research 'ICER-2013'	Aurangabad, India	International	December 19-21, 2013
Dhamodharan K., Kalamdhad, A.S.	Effects of food to microorganism ratio in anaerobic digestion of institutional food waste. Proc.	International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India	International	23-14 August
Dhamodharan K., Kalamdhad, A.S.	Microbial dynamics during anaerobic batch digestion of mixed food waste	Proc. International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2013)	Dr. D. Y. Patil Vidhyapeeth, Pune, India	International	25-27 November 2013

Name of Author	Name of Paper	Name of Conference	Organizer/ Venue	National/ International	Year and Date of Publication
Kalamdhad, A.S.	Decentralized composting of institutional wastes using drum composting	Proc. International Conference on Waste Management and environment 2013	University of Malaya, Kuala Lumpur, Malaysia.	International	26-27 August 2013
Prasad, R., Singh, J., Kalamdhad, A.S.	Estimation of nutrients and stability parameters during vermicomposting of water hyacinth using <i>Eisenia fetida</i>	Proc. International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India.	International	23-14 August 2013
Singh, J., Kalamdhad, A.S.	Uptake of bioavailable and leachable fraction of Zn, Cu, Ni, and Cr by natural zeolite during rotary drum composting of water hyacinth	Proc. International Conference on Waste Management and environment 2013	University of Malaya, Kuala Lumpur, Malaysia	International	26-27 August 2013
Varma, V.S., Kalamdhad, A.S.	Chemical and microbial aspects during rotary drum composting of vegetable waste	Proc. International Conference on Technologies for Sustainable Waste Management in Developing Countries (ICTW-2013)	Vignan University, Guntur, India.	International	23-14 August 2013
Vishan, I., Kanekar, H., Kalamdhad, A.S.	Microbial community dynamics during composting of water hyacinth	Proc. International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2013)	Dr. D. Y. Patil Vidhyapeeth, Pune, India.	International	25-27 November 2013
Abhijit, D. and Sreedeeep, S.	Evaluating the utility of Tensiometer for establishing Water retention characteristics curve of fly ash	Geo-Characterization and Modeling for Sustainability, Geo-Congress 2014, ASCE	Atlanta, Georgia USA.	International	February 23-26, 2014
Malaya, C. and Sreedeeep, S.	A Study on the Influence of fly ash addition on water retention characteristics of soil	Geo-Congress 2014, ASCE	Atlanta, Georgia USA	International	February 23-26, 2014
Malaya, C. and Sreedeeep, S.	Influence of range of suction measurement on soil-water characteristic curve	Geo-Congress 2014, ASCE	Atlanta, Georgia USA	International	February 23-26, 2014
Dave, T. N., Dasaka, S. M., Khan, N. and Murali Krishna, A.	Evaluation of Seismic Earth Pressure Reduction using EPS Geofam	Proc. 18th International Conference on Soil Mechanics and Geotechnical Engineering	Paris, France,	International	2-6 September 2013

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publication</b>
Poly, B. and Sreedeeep, S.	A study on the adsorption of organic contaminant sodium on Kaolinite and a locally available soil in Eastern India	ASSURE-2013, ASSURING SUSTAINABILITY via University with REsearch 2013: Towards a sustainable earth system environment in Asia Pacific	Prince of Songkla University, Thailand.	International	May. 16-18, 2013
Poly, B. and Sreedeeep, S.	Adsorption performance of Flyash for nickel in waste containment applications	ASSURE-2013, ASSURING SUSTAINABILITY via University with REsearch 2013: Towards a sustainable earth system environment in Asia Pacific	Prince of Songkla University, Thailand.	International	May. 16-18, 2013
Poly, B. and Sreedeeep, S.	Analysis of the efficiency of Flyash as an adsorbent to heavy metal (Cu+2 and Ni+2) and inorganic ion (Na	UNESCO sponsored 8th conference on sustainable development of energy, water and environment systems (SDEWES 2013)	Dubrovnik, Croatia.	International	Sept. 22-27, 2013
Boeing Singh, L. and Nilesh Patil	Infrastructure development through public private partnership route - A review from sustainability perspective	Proceedings of International Conference on Renewable Energy and Sustainable Development,	Pune	International	09-10 January, 2014
M. Teja, S.Mahato & A. Chakraborty	Modal Parameter Estimation of LTI System Using Hilbert-Huang Transform of Wireless Sensor Data	The Second Australasia and South-East Asia Structural Engineering and Construction Conference ASEA-SEC-2	Bangkok, Thailand	International	3rd – 7th November, 2014
S. Mahato & A. Chakraborty	On Efficiency of EKF for Parameter Estimation of LTI System from Non-Stationary Acceleration Responses	The Second Australasia and South-East Asia Structural Engineering and Construction Conference ASEA-SEC-2	Bangkok, Thailand	International	3rd – 7th November, 2014
A. Hasan, D. Dinkler and S. Talukdar	Estimation of element damage parameter for locating and quantifying damage	Proceedings of 11th International Conference on Structural Safety and Reliability	Columbia University, New York	International	16-20 June, 2013
A. Reddy and S. Talukdar	Estimation of fatigue life and inspection interval of orthotropic bridge deck	Proceedings of 11th International Conference on Structural Safety and Reliability	Columbia University, New York	International	16-20 June, 2013
Basha, S.H., and Kaushik, H.B.	Influence of Masonry Properties on Lateral Load Response of Reinforced Concrete Frames	Proceedings of the International Conference on Structural Engineering and Mechanics (ICSEM-2013)	National Institute of Technology, Rourkela, India	International	20-22 December 2013

Name of Author	Name of Paper	Name of Conference	Organizer/ Venue	National/ International	Year and Date of Publication
Pradhan, B.	Performance evaluation of concrete against rebar corrosion in composite chloride-sulfate exposure conditions	International Conference on Structural Engineering and Mechanics (ICSEM 2013),	NIT Rourkela,	International	December 20 – 22, 2013
Samim Mustafa and Anjan Dutta	Bayesian probabilistic approach for model updating and damage detection	proceedings of VEESD 2013	Vienna , Austria	International	28-30 August 2013
Shaheen, F., and Pradhan, B.	Potentiodynamic polarization study on bare steel in concrete powder solution extracts contaminated with chloride and sulfate ions	International Conference on Structural Engineering and Mechanics (ICSEM 2013)	NIT Rourkela,	International	December 20 – 22, 2013
Budhkar, A. and Maurya, A.K.	Modeling of Bidirectional Mixed Traffic Stream with Weak Lane Discipline”,	proceeding of 93rd Annual Transportation Research Board (TRB)	Washington D.C	International	Jan 12-14, 2014
Bokare, P.S., and Maurya, A.K.	Sample Size Requirements for Vehicle's Speed Data Collection Using Global Positioning System”,	presentation and publication in 2nd Conference of Transportation Research Group of India (CTRG)	Agra, India	International	12-15 December, 2013
Mahapatra, G. and Maurya, A.K.	Study of vehicles lateral movement in non-lane discipline traffic stream on a straight road	presentation and publication in 2nd Conference of Transportation Research Group of India (CTRG)	Agra, India	International	12-15 December, 2013
Metkari, M., Budhkar, A. and Maurya, A.K.	Development of Simulation Model for Heterogeneous Traffic with No Lane Discipline	presentation and publication in 2nd Conference of Transportation Research Group of India (CTRG)	Agra, India	International	12-15 December, 2013
Borah Trip-timoni , and Bhattacharjya, Rajib Kumar	Matlab-WMS based pollution source identification model for groundwater aquifer	IAH 2013	Perth Convention Centre, Western Australia	International	15-20 September, 2013
Sarma, A. K., Kalita, H. M. and Bhattacharjya, R. K.	Simulation-Optimization Linked model for Deciding Optimal River Training Work	International Workshop on Morphology of River Brahmaputra,	Guwahati, India	International	23-24 of October 2013
Someswaran, R. and Kartha, S.A.	Reactive Solute Transport Modeling of Acid Mine Drainage to Unconfined Groundwater Aquifers	40th International Association of Hydrogeologists Congress (IAH 2013)	Perth Convention and Exhibition Centre Perth, Australia	International	15– 20 September 2013,

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publication</b>
Tapas Kar-maker and Subashisa Dutta	Characterization of seepage erosion from alluvial river banks of the Brahmaputra River	International symposium on river and sedimentation	Kyoto, Japan	International	September 2-5, 2013.
Vishal Deshpande, Mahesh Patel and Bimlesh Kumar	Spatio-Temporal variation of Critical Parameters in Threshold Channel	International Conference On Climate Change, Water Resources and Disasters in Mountainous Regions: Building Resilience to Changing Climate"	SOHAM-Nepal, Babarmahal, Kathmandu.	International	November 27-29
Abhijit, R. and Sreedeeep, S.	Hydraulic evaluation of sand and gravel as drainage materials using volumetric water content sensors	4th Indian young Geotechnical engineers conference, 4IYGEC	Chennai,	International	Sept., 17-18, 2013
Arghadeep B, Murali Krishna, A. and Dash, S. K	Behavior of circular footing on layered soil: Sand overlying clay subgrades	Proc. 4th Indian Young Geotechnical Engineers Conference	Chennai	International	17-18, May 2013
Balireddy, S. and Murali Krishna, A.	Numerical study on geofom applications in retaining structures	Proc. 4th Indian Young Geotechnical Engineers Conference	Chennai	International	17-18, May 2013,
Bhattacharjee, A. and Murali Krishna, A.	Strain behavior in backfill soil of rigid faced reinforced soil walls under seismic.	Indian Geotechnical Conference 2013	shaking Roorkee, India,	International	22-24 December, 2013
Poly, B. and Sreedeeep, S.	Evaluation of adsorption performance for a locally available soil in the NE region of India for nickel and lead sorption and influence of potassium in their fate prediction	4th Indian young Geotechnical engineers conference, 4IYGEC	Chennai	International	Sept., 17-18, 2013
Shankar Kumar, S. and Murali Krishna, A.	Seismic ground response analysis of Guwahati city	North East Students Geocongress on Advances in Geotechnical Engineering	Guwahati, India	International	28 September 2013,
Acharjya, A. and Dasgupta, K.	Influence of Staircase and Elevator Core on Twisting Behavior of RC Frame Buildings	Proceedings of International Conference on Structural Engineering and Mechanics	NIT Rourkela	International	20-22 December 2013.
Ahmed, Benazir F. and Dasgupta, K	Influence of Location of Staircase on Seismic Behavior of RC Flat Slab Buildings	Proceedings of International Conference on Structural Engineering and Mechanics	NIT Rourkela	International	20-22 December 2013

Name of Author	Name of Paper	Name of Conference	Organizer/Venue	National/International	Year and Date of Publication
Kaushik, Snehal H. and Dasgupta, K.	Seismic Behavior of Slab-Structural Wall Junction in RC Building	Proceedings of International Conference on Structural Engineering and Mechanics	NIT Rourkela	International	20-22 December 2013.
Mahesh Patel and Bimlesh Kumar	Resistance predictor with bed forms in alluvial channel	International Conference On "Sustainable Innovative Techniques In Civil and Environmental Engineering" (SITCEE)	Jawaharlal Nehru University, New Delhi	international	5th-6th June 2013
T. Bebina Devi, Bimlesh Kumar and S. Dutta	Analysis of flow predictors in rigid vegetated channel	National Conference on Sustainable Water Resources Planning, Management and Impact of Climate Change	BITS Pilani, Hyderabad Campus	International	5-6th April, 2013
Vishal Deshpande, Harish Patel and Bimlesh Kumar	Channel Stability with Seepage, workshop on "Holistic Scientific Approach using Integrated Geophysical Studies for the Management of Natural Hazards	North Eastern Space Applications Centre (NESAC), Govt of India, Dept of Space	Umiam-793103, Meghalaya	International	22-23 April 2013
Vishal Deshpande, Harish Patel and Bimlesh Kumar	Evolution of Channel Shape with Seepage	Recent Advances in Civil Engineering" (RACE)	NIT Patna	International	13-14 June 2013
Vishal Deshpande, Satish Patel and Bimlesh Kumar	Effect of Seepage on Mannings' Coefficient in Alluvial Channel	Recent Advances in Civil Engineering" (RACE),	NIT Patna	International	13-14 June, 2013.

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
A. Murali Krishna	Indian Geotechnical Conference 2013	Roorkee	22-24 Dec 2013	National
A. Murali Krishna	North East Students Geo-congress on Advances in Geotechnical Engineering	Guwahati	28 September 2013	National
A. Murali Krishna	18th International Conference on Soil Mechanics and Geotechnical Engg.	Paris, France	2-6 Sept 2013	International
B. Singh	IGC-2013	Roorkee	2013	National
B. Singh	NCRACE-2013	Itanagar	2013	National
B. Singh	NES GEO-CONGRESS 2013	Guwahati	2013	National
B. Singh	Sixth ICER-13	Aurangabad	2013	International

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
B. Singh	Research Symposium on Engineering Advancements, SAIM-RSEA 2013	Colombo	2013	International
Ajay Kalamdhad	Seminar on Solid Waste Management and Disposal with Special Reference to Guwahati City	Guwahati	29 March 2014	National

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Ajay Kalamdhad	Characteristics of solid waste generated from guwahati city and feasibility solutions for its management	Workshop on 'Challenges of Urbanisation' with focus on Solid Waste Management and specific issues facing the eight North-eastern states, Indian Council for Research on International Economic Relations (ICRIER)	NEDFi, Guwahati	29-30 April 2013
Ajay Kalamdhad	Evaluation of solid waste management	AICTE sponsored Training course on Biotechniques for Pollution Control and Resource Recover	Centre for Environment, IIT Guwahati	1-5 July 2013
Ajay Kalamdhad	High Rate Composting of Institutional Wastes	First Symposium on Advances in Sustainable Polymers	Indian Institute of Technology Guwahati	10-11 January 2014
Ajay Kalamdhad	Rapid Composting of Organic Wastes	National Symposium on Sustainable Chemistry: Frontiers & Challenges (SCFC-2014)	North-Eastern Hill University, Shillong	27 Feb-01 March 2014
Arindam Dey	Numerical/Software Modeling: What, Why and How??	NCRACE 2013	NERIST, Nirjuli, A.P.	2013
Arindam Dey	Embankments Resting on PVD Incorporated Soft Soil: Modeling Issues, Analysis and Interpretation	Indian Plaxis Users Meeting 2014	Kolkata	2014
Arindam Dey	Dynamic Analysis of Full-Scale Instrumented Embedded Retaining Wall	Indian Plaxis Users Meeting 2014	Kolkata	2014

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Date
Dr. Richard Scott	Durham University, UK	2014
Prof. Vijay P. Singh	Texas A & M University, USA	2014



**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Name of Sem./Wor./Con.	Funded By	Date	International/ National	Convener/ Co-ordinator	No. of Participants
Symposium on Solid Waste Management		6 April, 2013	National	A. Kalamdhad	30
Seismic Safety Agenda in North-Eastern Region of India	National Information Centre of Earthquake Engineering (NICEE) at IIT Kanpur	22 March 2014	National	H. B. Kaushik	29
Short Term Course on "Geotechnical Engineering Practices & Developments" (GEPD 2014)	QIP cell	6-10 January 2014	National	A. Murali Krishna and Arindam Dey	35

**STUDENTS' ACHIEVEMENTS**

(i) Mr. Syed Humayun Basha, a PhD student in Department of Civil Engineering, received Best Paper Award at International Conference on Structural Engineering and Mechanics (ICSEM-2013), 20-22

December 2013, National Institute of Technology, Rourkela, India.

(ii) Mr. Thainswemong Choudhury, a PhD student in Department of Civil Engineering, received Erasmus Mundus scholarship to work at Milan, Italy for a period of eight months.

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1	G. Barua	IIT Kharagpur	Associate Professor	Flow through porous media
2	T. V. Bharat	IISc Bangalore	Assistant Professor	Behavior of unsaturated soils during infiltration & drainage, Settlement behavior of ultra-soft soils and mine tailings, Contaminant transport through landfill liners, Mineralogical aspects of clays, Inverse analysis of geotechnical & geo-environmental engineering problems
3	R. Bhattacharjya	IIT Kanpur	Associate Professor	Water Resources System Management, Genetic Algorithms, Artificial Neural Networks
4	A. Chakraborty	Trinity College, Dublin, Ireland	Associate Professor	Dynamic and Random Vibration. System identification and damage detection. Wavelet analysis
5	S. Chakraborty	IIT Bombay	Professor	Water and Wastewater Treatment, Biodegradation of Industrial Wastewater, Removal of Heavy Metals from Wastewater
6	R. Choudhary	IIT Roorkee	Assistant Professor	Pavement Analysis and Design. Highway Construction and Quality Control. Pavement Material Characterization. Pavement Evaluation and Maintenance. Traffic Engineering.
7	S. Das	IIT Kanpur	Assistant Professor	Earthquake Engineering, Structural Dynamics, Random Vibration
8	K. Dasgupta	IIT Kanpur	Assistant Professor	Earthquake Engineering. Design of Reinforced Concrete Structures. Retrofitting of Structures

Sl. No.	Name	PhD	Designation	Areas of Interest
10	S. K. Deb	IIT Roorkee	Professor	Passive and semi-active control, Performance based seismic design, System identification & structural health monitoring, Seismic damage assessment
11	A. Dey	IIT Kanpur	Assistant Professor	Geo-synthetic Reinforced Foundation Beds, Geotechnical Lumped Parameter and Continuum Mechanics Modeling, Parameter Estimation of Geotechnical Models, Optimization, GA, ANN and Soft Computing in Geotechnical Engineering, Ground Modification and Improvement Practices, Soil-Structure-Foundation Interaction, Reinforced Soil Structures, Landslides and Slope Stability Analysis, Seismic and Ambient Health Monitoring of Geotechnical Structures, Reliability and Uncertainty Analysis in Geotechnical Engineering, Forensic Investigation in Geotechnical Engineering, Subsurface Profiling and Soil Investigation, Soil Dynamics and Earthquake Engineering
12	A. Dutta	IIT Delhi	Professor	Finite Element Mesh Generation, Optimization, Control, Health Monitoring and Retrofitting of structures
13	S. Dutta	IIT Kanpur	Professor	Meso-Scale Distributed hydrological modeling, Satellite Remote Sensing and GIS for Water resources Management, Computational river hydraulics and its applications, Watershed and Irrigation Management
14	P. K. Ghosh	IIT Kharagpur	Associate Professor	Water treatment for domestic and industrial use, Domestic and Industrial wastewater treatment, Sludge treatment by physicochemical and biological process
15	M. K. Goyal	IIT Roorkee	Assistant Professor	Stochastic Hydrology and Distributed Hydrological Modeling, Hydro-climatology and Statistical Downscaling, Irrigation Management and Crop Modeling Applications, Multivariate Statistical Analysis, Machine Learning Models and Data Mining
16	S. Gokhale	IIT Delhi	Associate Professor	Urban Vehicular Pollution, Industrial Stack Pollution, Indoor Air Pollution, Environmental Impact Assessment
17	M. Jawed	IIT Kanpur	Professor	Biological Processes, Anaerobic Wastewater Treatment, Heavy Metal Removal and Recovery, Water Treatment and Supply, Domestic & Industrial Wastewater Treatment
18	A. Kalamdhad	IIT Roorkee	Assistant Professor	Solid waste management. Mechanical composting and vermicomposting. Analysis of solid wastes
19	S. A. Kartha	IIT Kanpur	Associate Professor	Flow and transport through porous media, Heap leaching, Hydrology, Numerical modeling
20	H. B. Kaushik	IIT Kanpur	Associate Professor	Earthquake Resistant Design, Nonlinear Behaviour of Structures, Retrofitting of Structures, Finite Element Modeling
21	B. Kumar	IISc Bangalore	Assistant Professor	Small scale studies of mixing tanks. Experimental Studies of Aeration Systems. Sediment Transport analysis. Pipeline analysis. CFD simulation. Surge analysis
22	C. Mahanta	Jawaharlal Nehru University, New Delhi	Professor	Water Quality, Sediment Dynamics in Fluvial Systems, Environmental Impact, Risk Assessment and Management, Environmental Geo-informatics, Engineering Geology

Sl. No.	Name	PhD	Designation	Areas of Interest
23	C. Mallikarjuna	IIT Delhi	Associate Professor	Traffic flow theory and Modeling, Traffic data collection and analysis, Travel demand modeling
24	A. K. Mauryya	IIT Kanpur	Associate Professor	Driver behaviour, Traffic flow theory and modeling, Traffic Engineering
25	A. K. Mishra	Kyushu University, Fukuoka, Japan	Assistant Professor	Chemical compatibility studies of soil-bentonite mixtures, Waste (municipal, industrial and hazardous) management and disposal & Unsaturated soil mechanics
26	A. M. Krishna	IISc Bangalore	Associate Professor	Soil Investigation, Reinforced Soil Structures, Geosynthetics and Ground Improvement, Earthquake Geotechnical Engineering
27	Sreeja P.	IIT Bombay	Associate Professor	Urban Hydrology and Hydraulics, Computational Fluid Dynamics, Multi-Objective Water Resources Systems Analysis, Stochastic Hydrological Modeling, Coastal Hydrodynamics
28	B. Pradhan	IIT Delhi	Associate Professor	Durability studies in concrete, Corrosion of steel reinforcement and protection measures, High performance concrete, Mass transport in cementitious materials, Non-destructive testing of concrete structures, Construction management
29	T. L. Ryntathing	IIT Kharagpur	Associate Professor	Pavement Materials, Precast Concrete Block Pavement, Cast In-Situ Concrete Block Pavement
30	Sreedeeep S.	IIT Bombay	Associate Professor	Behavioral Studies of Unsaturated Porous Media, Characterization of Geomaterials, Contaminant Transport and Retainment in geomaterials, Soil stabilization, Dynamic behavior and Study on liquefaction potential of soil
31	A. K. Sarma	Gauhati University, Guwahati	Professor & Head	Modelling & simulation in Free Surface Flow, Heuristic Method in Reservoir Optimization, GIS based Watershed Modelling
32	H. Sharma	Texas A&M University, USA	Assistant Professor	Impact and Blast Resistant Design, Reliability Analysis and Performance Based Engineering, Design and Optimization of Protection Measures
33	A. Shelke (Joined on 04.07.2013)	The University of Arizona, USA	Assistant Professor	Ultrasonic wave propagation, Acoustic-Impact detection, Non-destructive testing
34	A. K. Singh	IISc Bangalore	Professor	Information Technology in Construction Engineering, Object-Oriented Programming, Constitutive modelling
35	B. Singh	IIT Delhi	Professor	Marine Geotechnology, Modelling of Onshore & Off-shore Foundations, Soil Stabilization & Ground Modification, Pavement Subgrade & Site Characterization
36	K. D. Singh	Southampton University	Associate Professor	Structural Analysis and Design, Finite Element Method, Fracture and Fatigue Mechanics
37	L. B. Singh	IIT Madras	Assistant Professor	Public Private Partnerships. Risk Management. Construction Management
38	S. Talukdar	IIT Kanpur	Professor	Structural Dynamics, Bridge Engineering, Wind induced vibration & control, Non destructive techniques

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1995

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech)** in  
o Computer Science and Engineering

**Master of Technology (MTech)** in  
Computer Science and Engineering

**Dual Degree (MTech + PhD)** in  
Computer Science and Engineering

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

• BTech:	81
• MTech:	44
• Dual Degree (MTech + PhD):	3
• PhD:	18

**FACULTY STRENGTH:**

- Professor: 7
- Associate Professor: 5
- Assistant Professor: 15
- Visiting (Honorary) Professors: 3

**NUMBER OF NEW FACULTY JOINED DURING 1 APRIL  
2013 – 31 MARCH 2014:**

- Visiting Professor: 3

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

**Hardware Lab.:** This laboratory is equipped with educational tools to promote better understanding of computer hardware and peripherals among the students. Microprocessor and Microcontroller trainer kits are used to provide hands on experience to students about basic hardware. New PIC based

microcontrollers and FPGA boards have also been acquired. These are supported by Logic Analyzers and Pattern Generators, Function/Arbitrary wave generators, digital oscilloscopes and other similar essentials.

**Robotics Lab.:** The Department has a separate lab. for Bio-inspired Robotics funded by the DST FIST scheme. The lab. is equipped with Lego NXT Mindstorm and NI robots and sensor nodes, GPS, cameras and a wide range of sensors. A CSL Workstation for Speech allows for studies in speech synthesis and processing for robots. The lab. has developed Typhon - a Mobile Agent platform based on LPA Prolog's Chimera Agent System which can be used to realize Networked Robotics and Cyber-physical Systems and Intelligent Internet of Things. The platform supports programming and development of mobile agents that can migrate, clone and even evolve in real or overlay networks. It can also support specific robotic hardware-in-the-loop and is available for download from the Lab's website ([www.iitg.ernet.in/cse/robotics](http://www.iitg.ernet.in/cse/robotics)). Three patents have been filed based on the work done at this lab. so far.

**Aakash Lab. (Project):** This lab. is part of a bigger project and is dedicated to the development of useful mobile device applications and content for use with Aakash tablets. Teachers can blend pedagogy with technology, e-contents, etc. using application developed for such tablets. Sample projects, help, etc. are currently available for download at the link <http://www.iitg.ernet.in/cseweb/aakashlab/>

**Library:** The Department has an exclusive library cum reading room equipped with more than 4000 books/ CDs and access to journals published by IEEE, ACM, etc.

**USP of the Department**

- The Department encourages open interactions with all faculty members and non-teaching staff;

- Individual workspaces are allotted to each student: Each student registered with the Department is provided with a cubicle and computer; and
- 24 × 7 × 365 access to all facilities and labs. in the Department.

#### MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

The major areas in which research is being conducted includes: Algorithms; Computational Geometry; Systems Biology (Bio-computing); Bio-inspired Robotics and related algorithms; Intelligent Mobile Agent Based Cyber-physical Systems; Human-Computer Interactions; Speech Processing; Natural Language Processing; Multimedia: Image and Video Processing; Machine Learning; Information Retrieval; Data Mining; Web Mining; Formal Verification; Embedded Systems; CAD for VLSI; Multi-processor Computer Architecture;

Real-time Systems and Scheduling; Computer Security; Networks; Operating Systems; Distributed Systems. The faculty members of the Department are also involved in sponsored research and consultancy in several areas.

The Department functions as a nodal centre for the ERNET, a Resource Centre for Indian Language Technology Solutions (RCILTS) and a Resource Centre for the Information Security Education & Awareness Programme.

The Department collaborates with the following entities in Industry/Academia: Microsoft University Relations, Intel India, Tata Consultancy Services Ltd., Technical University of Ilmenau Germany, ISI Kolkata, IIT Kanpur, IIT Madras, CDAC Kolkata, Carl von Ossietzky University, Oldenburg, Germany, OFFIS, Oldenburg, Germany and Institute for Real-Time Computer Systems, Technical University of Munich, Germany.

#### RESEARCH PROJECTS

##### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Priyankoo Sarmah, Dr. P. K. Das and Prof. S. R. M. Prasanna	Acoustic and Tonal Features based automatic speech recognition system for Mizo and Meitei-lon	DeitY	73.68	None	2013 onwards

##### b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Arijit Sur	Shot based Video Watermarking for Very low bit Rate Video	DST	6.4		2012-2014
T. Venkatesh	Architectures and Protocols for High Speed networks with tiny or no buffers	DST	11.1		2012-2015
Sanasam Ranbir Singh	Setting up of Aakash Application Development Lab	MHRD	28.75	T. Venkatesh	2012-2015
Sanasam Ranbir Singh	Multi-Modal Broadcast Analytics - Structured Evidence Visualization for Events of Security Concern	DeitY	139	Prithwijit Guha, S Nandi, S. R. Mahadeva Prasanna	2013-2016
Shakuntala Mahanta	Digital preservation and analysis and technology development of language of the North East	DeitY	239	S. R. Mahadeva Prasanna, S Nandi, Priankoo Sarma	2013-2016

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Arijit Sur	Design, Development of A Watermarking System for Scalable Video Authentication	DeitY	102	S Nandi	2013-2016
Santosh Biswas	On-line Testing of Complex VLSI Circuits using FDD Theory of Discrete Event System	DeitY	124	S Nandi, J K Deka	2013-2016
S. R. Mahadeva Prasanna	Speech based multi-level person authentication system	DeitY	170	S Nandi, R Sinha	2012-2015
Pradip K. Das	Development of Pronunciation Lexicon based on Experimental Study of Phonetics and Phonemics of Indian Languages	Deity	37.66		2012-2014
Samit Bhattacharya	Modeling visibility of web page objects	DST	3.35	-	2012-2014
Hemangee Kapoor	Reducing Cache Access Time in Tiled Chip MultiProcessors	DeitY	79	Gaurav Trivedi	2013-2016
Hemangee Kapoor	Advanced embedded systems laboratory	Intel India	5.62	Sonali Chauhan	2012-2014
Prof. S.B. Nair (as Head of the Dept.)	Intelligent Robot Human Interaction and Embedded Systems	DST	50	Dr. J.K. Deka, Dr. P.K. Das, Prof. P. Bhaduri	2009-14

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Arijit Sur	Shot based Video Water Marking for Very Low Bit Rate Video	SERB	6.40	None	2012-2013
S Nandi	Information Security Education and Awareness	DeitY	190	G Sajith	Till March 2013
S Nandi	Design, Development and Verification of Network Specific Intrusion Detection system using FDD of Discrete Event Systems	DeitY	111.78		2009-2012
Head of the Department	Philips M Tech and Ph D Fellowships	Philips Research, India	20		2006-2009
Gautam Barua	Resource Centre for Indian Language Technology Solution (2nd Phase) (Assamese and Bodo)	MCIT	26	D Goswami, Shakuntala Mahanta	2007-2011
D. Goswami	Fault Tolerance with Check Point and Recovery Protocols in Cluster based Distributed Systems	DST	10	S Nandi	2007-2010

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Sukumar Nandi	A Test bed for Mobile e-learning Systems	Hewlett Packard, Asia Pacific & Japan	31.5	D Goswami, J K Deka, S V Rao	2007-2010
Gautam Barua	Resource Center for Indian Language Technology Solutions	DeitY	26	D Goswami	2007-2010

### CONSULTANCY PROJECTS

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. V. Vijaya Saradhi	Interaction with Insideview	InsideView, Hyderabad	1.5	None	6 months
Dr. P. K. Das and Prof. S. B. Nair	Real-time monitoring and supportive supervision of VHND & RI using mobile Technology	UNICEF	19.448	None	Started from 2014 onwards
Prof. Gautam Barua	Integrated Modern Software Systems	IFFCO TOKYO General Insurance, Gurgoan	11.236	None	2013-2014
Prof. G. Barua	ERP Consultancy for OPTCL	Orissa Power Transmission Corporation Limited	7	Sukumar Nandi	2006 -
Prof. G. Barua	IT Consulant Agency	Department of Revenue, Govt. of Assam	Rs. 5000/- for every two hours of work		Open
Santosh Biswas	Development of Framework for Logging and Analysis of Network Traffic to secure IT infrastructure	MCIT at Manipur University, Guwahati University, Assam University	15	Mr. Arijit Sur, Prof. Sukumar Nandi	2009-

### RESEARCH PUBLICATIONS

#### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
Hari Prahbat Gupta, S. V. Rao, T. Venkatesh,	Critical Sensor Density for Partial Coverage under Border Effects in Wireless Sensor Networks	IEEE Transactions on Wireless Communications	-	-	Online Since March, 2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S Chakraborty, S Chakraborty, S Nandi and S Karmakar	ADCROSS: Adaptive Data Collection from Road Surveilling Sensor	IEEE Transactions on Intelligent Transportation Systems	-	-	Online Since March, 2014
A Sarma, S Chakraborty, S Nandi and A Choubey	Context Aware Inter-BSS Handoff in IEEE 802.11 Networks: Efficient Resource Utilization and Performance Improvement	Wireless Personal Communications, Springer	-	-	Online Since February, 2014
P Swain, S Chakraborty, S Nandi, and P Bhaduri	Performance Modeling and Evaluation of IEEE 802.11 IBSS Power Save Mode	Ad Hoc Networks	13, Part B	336 – 350	February, 2014
V. Vijaya Saradhi and K. R. Girish	Effective Parameter Tuning of SVMs Using Radius/Margin Bound Through Data Envelopment Analysis	Neural Processing Letters	-	-	Online since January 2014
F A Barbhuiya, G Bansal, N Kumar, S Biswas and S Nandi	Detection of Neighbor Discovery Protocol Based Attacks in IPv6 Network	Networking Science	2 (3- 4)	91 – 113	2013
S Chakraborty, S Chakraborty, S Karmakar and S Nandi	Dynamic Tree Switching for Distributed Message-Passing Applications	Journal of Network and Systems Management	-	-	Online since May 2013
S Chakraborty and S Nandi	IEEE 802.11s Mesh Backbone for Vehicular Communication: Fairness and Throughput	IEEE Transactions on Vehicular Technology	62 (5)	2193 – 2203	2013
S Chakraborty, S Chakraborty, S Nandi and S Karmakar	Converge cast Tree Management from Arbitrary Node Failure in Sensor Network	Ad Hoc Networks	11 (6)	1796 – 1819	August, 2013
M Mitra, P Banerjee, F A Barbhuiya, S Biswas and S Nandi	IDS for ARP Spoofing using LTL based Discrete Event System Framework	Networking Science	2 (3-4)	114-134	2013
M Barooah, S Chakraborty, S Nandi and D U. Kotwal	An Architectural Framework for Seamless Handoff between IEEE 802.11 and UMTS Network	Wireless Networks	9 (4)	-	2013
A B Paul, S Konwar, S Nandi and S Biswas	Trusted M-OLSR for Secure Routing in Wireless Mesh Networks	Journal of Information Assurance and Security	8 (1)	17 – 32	2013
Rupayan Das and Pradip K. Das	Design and Implementation of Monophones and Triphones-based Speech Recognition Systems for Voice Activated Telephony	International Journal of Information Technology	5 (1)	8 – 14	2013



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Pinki Roy and Pradip K. Das	Comparison of VQ and GMM approaches for Identifying Indian Languages	International Journal of Applied Pattern Recognition Journal	1 (1)	99 – 107	2013
Shashi Shekhar Jha, Shrinivasa Nair and Shivashankar Nair	Driving Robots Using Emotions	Transactions on Computational Science (Springer)	8160	64 – 89	2013
S Bhattacharya and S Laha	Bengali Text Input Interface Design for Mobile Devices	Universal Access in the Information Society (UAIS)	12 (4)	441 – 451	2013
A Yadav, M Barooah, S Chakraborty and S Nandi	Vertical Handover over Intermediate Switching Framework: Assuring Service Quality for Mobile Users	Wireless Personal Communications	-	-	Online since November, 2013.
B K Patra, and S. Nandi	Effective data summarization for hierarchical clustering in large datasets	Knowledge and Information Systems	-	-	30 November, 2013.
S. Das and H. K. Kapoor	Victim Retention for Reducing Cache Misses in Tiled Chip Multiprocessors	Journal of Microprocessors and Microsystems	-	-	Online since 13 November, 2014
Suchetna Chakraborty, Sandip Chakraborty, Sukumar Nandi, Sushanta Karmakar	ADCROSS: Adaptive Data Collection from Road Surveillance Sensors	IEEE Transactions on intelligent Transportation Systems	-	-	Online since 23 February, 2014

#### CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA (PUBLISHED AND ATTENDED)

Name of Author	Name of Paper	Name of Conference	Organizer/Venue	National/International	Year and Date of Publication
Deepanjan Kesh and Shashank K. Mehta	A Divide and Conquer Method to Compute Binomial Ideals	Proceedings of Latin American Theoretical Informatics Symposium	-	-	31 March 2014 – 04 April, 2014.
M Samal, V V Saradhi and S Nandi	Scalability of Correlation Clustering Through Constraint Reduction	ACM IKDD Conference on Data Sciences	-	-	New Delhi, 21-23 March, 2014.
R Pamula, J K Deka and S Nandi	An outlier detection method based on cluster pruning	Second international conference on business and information management	-	-	9-11 January, 2014.

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publica- tion</b>
S Chakraborty and S Nandi	Evaluating the Effect of Path Diversity over QoS and QoE in a High Speed Indoor Mesh Backbone	The Sixth International Conference on Communication Systems and Networks (IEEE/ACM COMSNETS)	-	-	7-9 January, 2014.
S Chakraborty, S Chattopadhyay, S Chakraborty and S Nandi	Defending Concealedness in IEEE 802.11n	The Sixth International Conference on Communication Systems and Networks (IEEE/ACM COMSNETS)	-	-	7 – 9 January, 2014.
A B Paul, S Konwar, S Biswas and S Nandi	M-HRP for Wireless Mesh Networks and its Performance Evaluation	The Sixth International Conference on Communication Systems and Networks (IEEE/ACM COMSNETS)	-	-	7 – 9 January, 2014.
Girish G N, Shrinivasa Nair, Pradip K. Das	Face Recognition using MB-LBP and PCA: A Comparative Study	International Conference on Computer Communication and Informatics (ICCCI)	-	-	3 – 5 January, 2014.
A. Bhushan and G. Sajith	I/O Efficient Algorithms for the Minimum Cut Problem on Unweighted Undirected Graphs	WALCOM	-	-	13 – 15 February, 2014.
S. Das, D. Buragohain and H. K. Kapoor	A Reduced Overhead Replacement Policy for Chip Multiprocessors having Victim Retention	International Conference on Electronics and Communication Systems (ICECS)	-	-	2014.
S. Chakraborty, D. Deb, D. Buragohain and H. K. Kapoor	Cache Capacity and its Effects on Power Consumption for Tiled Chip Multi-Processors	International Conference on Electronics and Communication Systems (ICECS)	-	-	2014.
Hari Prahbat Gupta, S. V. Rao, and T. Venkatesh	Analysis of Stochastic k-Coverage in Wireless Sensor Networks with Boundary Deployment	IEEE Wireless Communications and Networking Conference (WCNC)	-	-	April 2014.
Krishna Mohan Agarwal, T. Venkatesh and Deep Medhi	A Dynamic Popularity Based Partial Caching Scheme Video on Demand Service in IPTV Networks	6th International Conference on Communications Systems and Networks (COMSNETS)	-	-	January, 2014.

Name of Author	Name of Paper	Name of Conference	Organizer/Venue	National/International	Year and Date of Publication
Asish Mukhopadhyay, S. V. Rao, Sidharth Pardeshi and Srinivas Gundlapalli	Linear Layouts of Weakly Triangulated Graphs	8th International Workshop on Algorithms and Computation (WALCOM)	-	-	13 – 15 February 2014.
S. Chakraborty, S. Karmakar, H. Dutta	Hierarchical Topology Adaptation for Distributed Convergecast Application	29th ACM Symposium on Applied Computing	-	-	24 – 28 March 2014.
S. Karmakar and S. Chattopadhyay	A Trigger Counting Mechanism for Ring Topology	37th Australasian Computer Science Conference (ACSC)	-	-	20 – 23 January 2014.
P. D. Halwe, S. Das and H. K. Kapoor	Towards a Better Cache Utilization Using Controlled Cache Partitioning	11th IEEE International Conference on Embedded Computing (EmbeddedCom2013)	-	-	2013
Deepak Mangal, Niladri Sett, Sanasam Ranbir Singh, Sukumar Nandi	Link Prediction on Evolving Social Network using Spectral Analysis,	Seventh IEEE International Conference on Advanced Networks and Telecommunication Systems (IEEE ANTS 2013)	-	-	15 – 18 December, 2013.
S. Das and H. K. Kapoor	Dynamic Associativity Management using Fellow Sets	Proc. of the 4th International Symposium on Electronic System Design (ISED 2013)	-	-	2013.
S. Das, P. Nagaraju, P. Halwe and H. K. Kapoor	Random-LRU: A Replacement Policy For Chip Multiprocessors	17th International Symposium on VLSI Design and Test (VDAT 2013)	-	-	2013.
S. K. Mohanty and G. Sajith	Out-of-Core Tridiagonal Reduction	ADCOM 2013	-	-	21 – 24 October, 2013.
Harsha Sai Thota, V. Vijaya Saradhi and T. Venkatesh	Network Traffic Analysis Using Principal Component Graphs	Workshop on Mining and Learning with Graphs co located with ACM SIGKDD	-	-	11th August 2013.
Harsha Sai Thota, V. Vijaya Saradhi and T. Venkatesh	Network Traffic Analysis Using Principal Component Graphs	Indian Workshop on Machine Learning, IIT Kanpur	-	-	3 – 5 June, 2013.
M Agarwal, S Biswas and S Nandi	Detection of De-authentication Denial of Service attack in 802.11 networks	INDICON 2013	-	-	13 – 15 December, 2013.

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publication</b>
N Kumar, G Bansal, S Biswas and S Nandi	Host based IDS for NDP related attacks: NS and NA Spoofing	INDICON 2013	-	-	13 – 15 December, 2013.
B K Patra, O Ville, R Lau- nonen, S. Nandi and S B Korra	Distance based Incremental Clustering for Mining Clusters of Arbitrary Shapes	International Conference on Pattern Recognition and Machine Intelligence	-	-	10 – 14 December, 2013.
S Chakraborty, S Nandi and S Chattopad- hyay	Surpassing Flow Fairness in a Mesh Network: How to Ensure Equity among End Users?	Seventh IEEE Interna- tional Conference on Advanced Networks and Telecommunication Sys- tems (IEEE ANTS 2013)	-	-	15 – 18 December, 2013.
P Choudhury, K R Prasanna Kumar	Analysis of VBR coded VoIP for traffic classification	International Conference on Advances in Comput- ing, Communications and Informatics	-	-	22 – 25 August, 2013.
N Kumar and S Nandi	DisTree: A scheme for DHT	International Conference on Advances in Comput- ing, Communications and Informatics	-	-	22 – 25 August, 2013.
T Dutta, A Sur and S Nandi	Motion Coherent Region De- tection in H.264 Compressed Videos	IEEE International Confer- ence on Multimedia and Expo (ICME2013)	-	-	15 – 19 July 2013.
S Chakraborty, S Chakraborty, S Nandi and S Karmakar	RelBAS: Reliable Data Gather- ing from Border Area Sensors	18th IEEE Symposium on Computers and Commu- nications	-	-	7 – 10 July 2013.
S Chakraborty, S Chakraborty and S Nandi	Beyond Conventional Rout- ing Protocols: Opportunistic Path Selection for IEEE 802.11s Mesh Networks	IEEE 24th International Symposium on Personal, Indoor and Mobile Radio Communications: Mobile and Wireless Networks	-	-	8 – 11 September, 2013.
S Chakraborty, S Chakraborty, S Nandi and S Karmakar	Exploring Gradient in Sensor Deployment Pattern for Data Gathering with Sleep based Energy Saving	9th International Wire- less Communications and Mobile Computing Conference (IEEE IWCMC 2013)	-	-	1 – 5 July, 2013.
Sandipan Dandapat, Shakuntala Mahanta and Sibansu Muk- hopadhyay	Fuzzy Match Score and Translation Memory Match: A Linguistic Insight	10th Conference on Natu- ral Language Processing, ICON2013	-	-	22 – 26 September, 2013.

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publication</b>
Aswarth Abhilash Dara, Sandipan Dandapat, De- clan Groves, Josef vanGen- abith	TMTprime: A Recommender System for MT and TM Inte- gration	The 2013 Conference of the North American Chapter of the Associa- tion for Computational Linguistics: Human Lan- guage Technologies, NAACL HLT 2013	-	-	10 – 12 June, 2013.
D. Goswami, S. Chakraborty, P. Bhaduri and S. K. Mitter	Characterizing Feedback Sig- nal Drop Patterns in Formal Verification of Networked Control Systems, Invited CACSD-SU Session on Formal Methods for Cyber-Physical Systems	IEEE Multi-Conference on Systems and Control (MSC 2013)	-	-	August, 2013.
I. Stierand, P. Reinkemeier, T. Gezgin and P. Bhaduri	Real-Time Scheduling Inter- faces and Contracts for the Design of Distributed Em- bedded Systems	8th IEEE International Symposium on Industrial Embedded Systems	-	-	June, 2013.
Vivek Kumar Gupta and Pradip K. Das	ASR System based on Pitch, Energy Contours and Un- voiced Regions	Oriental COCODA/CASL- RE 2013	-	-	25 – 27 Novem- ber, 2013.
Kunal Shrivastava, Nishant Singhal, Pra- dip K. Das	A Speech Recognition Client- Server Model for Control of Multiple Robots	Advances in Robotics (AIR-2013), International Conference of the Robot- ics Society of India	-	-	4 – 6 July, 2013.
Saurabh Pra- japati, Shashi Shekhar Jha, Shrinivasa Naika and Shivashankar Nair	On Rendering Emotions on a Robotic Face, Advances in Robotics	International Conference of the Robotics Society of India	-	-	4 – 6 July, 2013.
Shashi Shek- har Jha, Kunal Shriv- astava and Shivashankar Nair,	Autonomous Mobile Robot Navigation using Artificial Immune System, Advances in Robotics	International Conference of the Robotics Society of India	-	-	4 – 6 July, 2013.
Shashi Shek- har Jha, Kunal Shriv- astava and Shivashankar Nair	On Emulating Real-world Distributed Intelligence using Mobile Agent based Local- ized Idiomatic Networks	The First International Conference on Mining Intelligence and Knowl- edge Exploration (MIKE 2013)	-	-	18 – 20 Decem- ber, 2013

<b>Name of Author</b>	<b>Name of Paper</b>	<b>Name of Conference</b>	<b>Organizer/ Venue</b>	<b>National/ International</b>	<b>Year and Date of Publication</b>
W.Godfrey, Shashi S. Jha, Shivashankar B. Nair	On A Mobile Agent Framework for an Internet of Things	International Conference on Communication System and Technologies, CSNT 2013	-	-	05-08 April 2013.
Y. Despande, P. Yammiyavar & S. Bhattacharya	A Study of the Impact of Task Complexity and Interface Design on E-Learning Task Adaptations	11th Asia Pacific Conference on Computer Human Interaction (APCHI 2013)	-	-	25 – 27 September, 2013.
D. Bansal & S. Bhattacharya	Semi-Supervised Learning based Aesthetic Classifier for Short Animations Embedded in Web Pages	14th IFIP TC13 Conference on Human-Computer Interaction (INTERACT 2013)	-	-	2 – 6 September, 2013.
S. Biswas	Equivalence of Fair Diagnosability and Stochastic Diagnosability of Discrete Event Systems	IEEE Conference on System Man and Cybernetics (IEEE SMC)	-	-	October, 2013.
Hari Prahbat Gupta, S. V. Rao, and T. Venkatesh	Critical Sensor Density for Fault-tolerant Coverage in 3D Heterogeneous Wireless Sensor Networks	IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)	-	-	15 – 18 December, 2013.
Hari Prahbat Gupta, S. V. Rao, and T. Venkatesh	Minimum Sensor Density for Coverage in Sensor Networks	14th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)	-	-	July, 2013.
Hari Prahbat Gupta, S. V. Rao, and T. Venkatesh	Critical Sensor Density for Connectivity in Heterogeneous Wireless Sensor networks	14th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)	-	-	July, 2013.
Hari Prabhbat Gupta, S. V. Rao, T. Venkatesh	Analysis of the Redundancy in Coverage of A Heterogeneous Wireless Sensor Network	Proc. of IEEE International Conference on Communications (ICC)	-	-	June 2013.
A. R. Ashok Kumar, S. V. Rao, Diganta Goswami	Network Simulator 3 for a study of Data Center Networks	12th International Symposium on Parallel and Distributed Computing (ISPDC)	-	-	June 2013.
R. Ashok Kumar, S. V. Rao, Diganta Goswami	BCube-IP - BCube with IP address hierarchy for efficient routing	International Conference on Advanced Computing, Networking, and Informatics (ICACNI)	-	-	June – 2013.
A. Bhushan and G. Sajith	External Memory Soft Heap, and Hard Heap, a Meldable Priority Queue	Proceedings of COCOON	-	-	20 – 22, August, 2013.

Name of Author	Name of Paper	Name of Conference	Organizer/ Venue	National/ International	Year and Date of Publica- tion
S Singh and A Awekar	Incremental shared nearest neighbor density based clustering.	Proceedings of CIKM 2013	-	-	28-October-2013 to 01-November-2013.

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Dr. V. Vijaya Saradhi	Learning from Cricket Text Commentary	Indian Institute of Technology Kanpur	Kanpur	3 – 5 June 2013
Dr. V. Vijaya Saradhi	Matrix Factorization and Machine Learning	Aditya Institute of Management and Technology	Tekkali	8 – 10 January, 2014
Prof. Shivashankar B. Nair	Artificial Immune Systems	Workshop on Advances in Computational Neuroscience (ACNE 2014) sponsored by INCNE, NBRC, Department of Biotechnology, Government of India	North-Eastern Hill University, Shillong	24 March 2014
Prof. Shivashankar B. Nair	Bio-Inspired AI and Mobile Agent Systems	AICTE Sponsored Programme on Recent Advances in Theory and Practice of Computer Science	College of Engineering, Cherthala, Kerala	12th October 2013
Prof. Shivashankar B. Nair	Bio-Inspired AI	IEEE Seminar on Pattern Analysis and Machine Intelligence	St. Thomas College of Engineering and Technology, Kolkata	8th October 2013
Prof. Shivashankar B. Nair	Plenary Lecture on Agent Based Systems	8th International IT Symposium (BI-CON-2013) - Technology by an integrated approach of Computing, Engineering and System Science	Biyani Group of Institutions, Jaipur, Rajasthan	22nd September 2013
Prof. Shivashankar B. Nair	Keynote Address: An Artificial Being	The Third International Conference on Advances in Computing and Communications (ACC-2013)	Rajagiri School of Engineering & Technology, Cochin, Kerala	29th August 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./ Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
Dr. Manojit Choudhury	Microsoft Research, India	Crowdsourcing for Linguistic Data Creation: Good, bad and the Ugly	9-Sept-2013	Organized by Dr. Sandipan Dandapat
Dr. Nikhil Rasiwasia	Yahoo! Research India	Cross-modal Retrieval: Retrieval Across Different Content Modalities	30-May-2013	Dr. V. Vijaya Saradhi and Dr. P. Guha

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Name of Sem./Wor./Con.	Fund-ed By	Date	International/ National	Convener/ Co-ordinator	No. of Participants
Foundations of Software Technology and Theoretical Computer Science		12 – 14 December, 2013	International	Dr. R. Inkulu (Chair), Purandar Bhaduri (member), Benny George (member), Diganta Goswami (member), Santosh Biswas (member)	
Optoelectronics and Optical Communications	AICTE	16 – 20 September, 2013	National	Dr. R. Shonkar and Dr. T. Venkatesh	30
Recent Advances in Network Algorithms	AICTE	2013	National	Dr. Sushanta Karmakar	

**STUDENTS' ACHIEVEMENTS**

- Rishi Barua and Parag Agarwal received Innovative student project 2013 award from INAE.
- R Pamula received Best Paper award in the second international conference on business and information management for his research paper titled "An outlier detection method based on cluster pruning".
- S. Chakraborty and S. Chattopadhyay received Best Paper award in the Seventh IEEE ANTS conference for their research work titled "Surpassing Flow Fairness in a Mesh Network: How to Ensure Equity among End Users?"

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1	Dr. Ashish Anand	Nanyang Technological University, Singapore	Assistant Professor	Machine Learning and applications in Computational Biology, Systems Biology, Evolutionary Algorithms
2	Dr. Amit Awekar	North Carolina State University, Raleigh	Assistant Professor	Data Mining
3	Prof. Gautam Barua	University of California, Santa Barbara	Professor	Distributed Systems, Networks, Operating Systems, Database Management Systems
4	Prof. Purandar Bhaduri	Washington State University, Pullman	Professor	Formal Modeling, Synthesis and Verification of Embedded Systems
5	Dr. Samit Bhattacharya	IIT Kharagpur	Assistant Professor	Human Computer Interaction, User Modeling, Model Based Evaluation of Interactive Systems, Rehabilitation Engineering
6	Dr. Sandipan Dandapat	Dublin City University	Assistant Professor	Machine Translation, Natural Language Processing, Machine Learning
7	Dr. Santosh Biswas	IIT Kharagpur	Associate Professor	Networking, Fault Tolerance, VLSI Testing, Embedded Systems
8	Dr. P. K. Das	Delhi University	Associate Professor	Speech Recognition, Pattern Recognition, Man-Machine Interaction Systems
9	Dr. J K Deka	IIT Kharagpur	Associate Professor	Formal Verification, VLSI System Design



Sl. No.	Name	PhD	Designation	Areas of Interest
10	Prof. D. Goswami	IIT Kharagpur	Professor	Software Engineering, Distributed Systems
11	Dr. R. Inkulu	IIT-Chicago	Assistant Professor	Algorithms, Computational Geometry
12	Dr. Benny George	TIFR Mumbai	Assistant Professor	Word Combinatorics, Algorithms and Combinatorics
13	Dr. Hemangee Kalpesh Kapoor	London South Bank University, UK	Associate Professor	Formal Verification of Circuits
14	Dr. Sushanta Kar-makar	IIT Kharagpur	Assistant Professor	Distributed algorithms, fault-tolerance, distributed algorithms for ad hoc and sensor networks
15	Dr. Deepanjan Kesh	IIT Kanpur	Assistant Professor	Computational Commutative Algebra, Data Streaming
16	Dr. Pinaki Mitra	Simon Fraser University, Canada	Associate Professor	Computational Geometry, Parallel Algorithms, Randomized Algorithms, Optimization
17	Prof. Shivashankar B. Nair	Amravati University	Professor and Head	Bio-Inspired Robotics, Intelligent Mobile Agents, Cyber-Physical Systems and Internet of Things
18	Prof. Sukumar Nandi	IIT Kharagpur	Professor and Deputy Director	Networks (QoS, Wireless networks), Computer and Network Security
19	Prof. S. V. Rao	IIT Kanpur	Professor	Computational Geometry, Pattern Recognition, Image Processing
20	Dr. Aryabartta Sahu	IIT Delhi	Associate Professor	Advanced Computer Architecture, Multicore Parallel Programming and Compiling, Embedded Systems, VLSI and FPGA Design
21	Prof. G. Sajith	IIT Kanpur	Professor	Parallel and Distributed Computing
22	Dr. V. Vijaya Sarda-dhi	IIT Kanpur	Assistant Professor	Machine Learning, Kernel Methods and their applications
23	Dr. Arnab Sarkar	IIT Kharagpur	Assistant Professor	Real-Time and Embedded Systems, Computer Architecture, Algorithms
24	Dr. Saswata Shan-nigrahi	TIFR Mumbai	Assistant Professor	Data Structures and Algorithms, Combinatorial Geometry, Analysis of Social networks
25	Dr. Sanasam Ran-bir Singh	IIT Madras	Assistant Professor	Web Search, Machine Learning, Information Retrieval, Data Mining especially in the area of Web Search Engine
26	Dr. Arijit Sur	IIT Kharagpur	Assistant Professor	Information Hiding: Steganography and Steganalysis. Multimedia Security: Image and Video Watermarking. Network Security: Intrusion Detection System and Network Steganography
27	Dr. T. Venkatesh	IIT Madras	Assistant Professor	WDM Optical Networks, IP over WDM Networks, Broadband Access Networks, Performance Evaluation of Computer Networks, Network Tomography

<b>Sl. No.</b>	<b>Name</b>	<b>PhD</b>	<b>Designation</b>	<b>Areas of Interest</b>
<b>Honorary Faculty</b>				
28	Prof. Deep Medhi	University of Missouri at Kansas City	Professor	Next Generation Internet Architecture, Network Design, Optimization and Performance, Network Management
29	Prof. Ashish Mukhopadhyay	University of Windsor	Professor	Computational Geometry, Approximation Algorithms, Bio-geometry
30	Prof. Sugata Sanyal	Tata Consultancy Services Ltd.	Professor	Mobile Ad Hoc Networks, Secure Mobile Computing, Steganography and Steganalysis

# DEPARTMENT OF DESIGN

## YEAR OF ESTABLISHMENT OF THE DEPARTMENT:

1995

## ACADEMIC PROGRAMMES OFFERED:

**Bachelor of Design (BDes)** in  
o Design

**Master of Design (MDes)** in  
o Design

**Doctor of Philosophy (PhD)**

## STUDENTS ADMITTED IN THE YEAR 2013-2014:

- BDes: 41
- MDes: 27
- PhD: 12

## FACULTY STRENGTH:

- Professor: 4
- Associate Professor: 1
- Assistant Professor: 9

## NUMBER OF NEW FACULTY JOINED DURING 1 APRIL 2013 – 31 MARCH 2014:

- Assistant Professor: 1

## NUMBER OF FACULTY MOVING OUT/RETIRED DURING 1 APRIL 2013 – 31 MARCH 2014:

Assistant Professor: 2

## NO. OF LABORATORIES WITH BRIEF INTRODUCTION:

Usability Engineering & Human Computer Interaction Lab (UE-HCI Lab)

Embedded Interaction Lab

Ergonomics Lab

New Media Lab & Video Lab

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

Interaction Design, E-Learning, Usability Engineering, Human Computer Interaction, Design Management, Cognitive ergonomics aspect of product design evaluation, Graphic design, Type design, Design for Sustainability, Gestural Controlled User Interfaces, Tangible User Interfaces, Creativity, Furniture and Lighting Design.

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

Starting of Design Innovation Centre at Dept. of Design

## RESEARCH PROJECTS

### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. Pradeep Yammiyavar	Standardization of Virtual Keyboards in Indic Languages	Ministry of Communications & Information Technology	10.92 Lakhs	Dr. Samit Bhattacharya	One Year

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. Pradeep Yammiyavar	Knowledge Incubation Cell	MHRD	250		One Year

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Ravi Mokashi Punekar	Creating Digital Resource for Design In India – E-kalpa	NME ICT	157	Avinash Shende, Keyur Sorathia	3 years

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Ravi Mokashi Punekar	Design and Development of Avalanche Survival Gear (Project involved development of working prototype of a life saving device for soldiers caught in an Avalanche in snowbound mountainous regions.)	ARTRAC, Indian Army, MoD, Gol	32		Completed in 2014
Sougata Karmakar	Visual and Tactile Information Processing in Product Selection Process	DBT	40.83	Prof. Debkumar Chakrabarti	3 years (2011-2014)
Keyur Sorathia	Research investigations on wearable computing interventions in healthcare and entertainment	Nokia Research	8.5	Sonali Chouhan	1 year
Keyur Sorathia	Accessibility and Mobile User Interfaces	Samsung Research	2.2	Prasad Bokil	3 months

**CONSULTANCY PROJECTS**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. K. Das	Revised DPR of Common Sliver Plant	KVIC	6.13	-	Three Month
A. K. Das	Revised DPR of Khadi Haat	KVIC	6.13	-	Three Month
D. Udaya Kumar	Flag and Badge Design	Assam Rajiv Gandhi University of Cooperative Management	.30	-	One Month
D. Udaya Kumar	Presentations & Infographics	Northeast Consumer Awards	.75	-	Two Weeks
D. Udaya Kumar	Logo Design for IIIT Sricity	IIIT Sricity	1.80	-	Ongoing

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
D. Udaya Kumar	Logo Design for Piramal Mohanlal Pvt. Ltd.	Piramal Mohanlal Pvt. Ltd.	1.00	-	Ongoing
D. Udaya Kumar	Kite Festival of Assam	Jeevan Foundation	-	-	Two Weeks
Avinash Shende	Designing Bamboo Products	UNIDO	2.00		5Months

## RESEARCH PUBLICATIONS

### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
Patel, T. and Karmakar, S.	Anthropometric and strength data of Indian agricultural workers for farm equipment design: Book review (doi: 10.1016/j.ergon.2013.10.006)	International Journal of Industrial Ergonomics	44	189-190	2014
Sanjog, J., Karmakar, S., Patel, T. and Chowdhury, A.	Towards virtual ergonomics: aviation and aerospace(DOI: 10.1108/AEAT-05-2013-0094)	Aircraft Engineering and Aerospace Technology			2014
Karmakar, S., Sanjog, J. and Patel, T.	Digital Human Modeling and Simulation in Product and Workplace Design: Indian Scenario	International Journal of Engineering Research and Applications	Special issue	06-12	2014
Karmakar, S.	Book Review: Ergonomics in the Automotive Design Process [DOI: 10.1177/1064804614522753]	Ergonomics in Design		33	
Chowdhury, A., Karmakar, S., Ghosh, S. and Chakrabarti, D.	Purchase intention of anthropomorphic chair is influenced by visual attractiveness and perceived pleasure	International Review of Applied Engineering Research	4 (2)	133-140	2013
Patel, T., Sanjog, J., Chowdhury, A., and Karmakar, S.	Applications of DHM in Agricultural Engineering: A Review [doi:10.4028/www.scientific.net/AEF.10.16]	Advanced Engineering Forum	10	16-21	2013
Patel, T., Karmakar, S., Sanjog, J., Kumar, S. and Chowdhury, A.	Socio-Economic and Environmental Changes with Transition from Shifting to Settled Cultivation In North-Eastern India: An Ergonomics Perspective	International Journal of Agricultural Science and Research	3 (2)	117-136	2013
Chakrabarti, D., Deori, M., Pandit, S., & Ravi, T.	Virtual Ergonomics Laboratory: Human Body Dimension Relevance	Advanced Engineering Forum	10	22-27	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Pandit, S., Kumar, P., & Chakrabarti, D.	Ergonomic Problems Prevalent in Handloom Units of North East India	International Journal of Scientific and Research Publications	3 (1)		2013
Bokil, P., & Ranade, S.	Across the time and space: Application of systems thinking to bridge the past and future of design practices	International Journal of Design Management and Professional Practices	6	9 (2)	2013
Salve, S., & Yammiyavar, P.	Towards proposing an intelligent error limiting User Interface for rural Indian data entry operators	Australian Journal of Intelligent Information Processing Systems	13 (4)		2014

**International Conference**

Kumar, A., & Das, A.K. (2013). Technology As A Design Strategy For Products Useful For Elderly People In Indian Context. In: Proceedings of 15th International Conference on Engineering And Product Design Education, (E&PDE 2013), 5th-6th September 2013. Published in the conference Proceeding 'Design Education-Growing our Future', p-562 -p567.

Thakurta Roy, S., & Das, A.K. (2013). Myths and Facts Of Indian Folk Painting. In: Proceedings of International Symposium for Culture, Art and Literature, (ISCAL2013) Bangkok, 6th to 8th November, 2013.

Majhi, M. and Chakrabarti, D., 2013. 'Image analysis and understanding semiotics in design'. In: Proceedings of ICISVC 2013: International Conference on Image, Signal and Vision Computing, New York, USA, June 05-06, 2013.

Barua, U., 2013: "Design and digital compatibility: a look into some ethnic traditional design. In: Proceedings of Olympic Fine Art Associatiob (OFAA), 2-4 June, 2013, Venice, Italy.

Udaya Kumar, D., 2013. 'History of Printing in India and Tamil Typography'. In: Proceedings of 5th International Conference On Typography and Visual Communication (ICTVC 2013), University of Nicosia, Nicosia, Cyprus, 4 – 12 June 2013

Udaya Kumar, D., 2013. 'Indian Politics: Typography: Cultural Identity. In: Proceedings of international conference 'Point Counter Point', Association Typographique Internationale, Amsterdam, 9 –13 October 2013

Hemani, Shruti & Ravi Mokashi Punekar, 2013. Design

Education for Sustainability - Envisioning a sustainable Guwahati Railway Station Complex of the future, IADIS International Conference on Sustainability, Technology and Education, University of Putra, Kaula Lumpur, Mayasia

Harshit Agarwal and Keyur Sorathia, 2013. Astro Graps : A Tangible User Interface For Teaching Basic Astronomy Concepts. In proceedings of 11th International Conference on Computer Human Interaction, APCHI '13, Bangalore, India.

Mannu Amrit, Jatin Pherwani, Mohit Yadav and Keyur Sorathia, 2013. Dropbox – Drop physical data into your digital world. In proceedings of 11th International Conference on Computer Human Interaction, APCHI '13, Bangalore, India.

Mehul Agarwal, Vikas Luthra, Minal Jain, Ashok Thariyan and Keyur Sorathia, 2013. ChemicAble: Tangible Interaction Approach for learning Chemical Bonding. In proceedings of 11th International Conference on Computer Human Interaction, APCHI '13, Bangalore, India.

Himanshu Seth and Keyur Sorathia, 2013. Parichaya - A Low-Cost Device to Increase Adherence Among Tuberculosis Patients in Rural Assam. In proceedings of 11th International Conference on Computer Human Interaction, APCHI '13, Bangalore, India.

Arka Maini, Harshit Agrawal, Abhinav Krishna and Tushar Chhabra, Keyur Sorathia, 2013. REALCAM : A pedagogical tool for learning basic videography. In proceedings of 11th International Conference on Computer Human Interaction, APCHI '13, Bangalore

Mannu Amrit, Minal Jain, Anway Meshram, Ranju Ravindran and Keyur Sorathia, 2013. Design

Intervention for Sex Education for University Students in India, *Journal of Design for All Institute of India*.

Sanjog, J., Patel, T., Chowdhury, A., Kumar, S. and Karmakar, S., 2013. Ergonomics Investigations across Durable Goods Manufacturing Sector in India: an Insight. In: *Proceedings of International Conference on Ergonomics and Human Factors "Ergo 2013: ergonomics for Rural development"* (HWWE 2013), 4th-6th December 2013, Vidyasagar University, Midnapore, West Bengal, India. Bangalore, India. 183-189.

Udaykumar, B., Bora, A., Sanjog, J., and Karmakar, S., 2013. Proactive Ergonomics through Digital Human Modeling and Simulation for Product Design Innovation: A Case Study. *2013 International Computer Science and Engineering Conference (ICSEC 2013)*, 4th-6th Sept., Bangkok, Thailand. p. 319-323. IEEE Catalog Number: CFP13IBE-ART (doi: 10.1109/ICSEC.2013.6694801)

Salve, S. and Yammiyavar, P.; Influence of Local 'Language' in Data Entry Errors: a Pilot Study in the Rural Indian Setting; *IEEE Explorer*; Paper ID: 2869377; 24 July 2013

Agarwal, Raina & Yammiyavar, P.; Bridging the Gap Between Traditional and Online Shopping Methods for Indian Customers Through Digital Interactive Experience; *IEEE 2nd International Conference on Advances in Computing, Mysore, India Communication & Informatics; Mysore; 2013,*

Arnita Saini and Yammiyavar, P.; Weak Eyesight Therapy: A case study in designing an application for m-Health system; *IEEE Proceedings of the International Conference on Human Computer Interaction 2013. Madras. Number: 362 ; July 2013.*

Yogesh Deshpande; Samit Bhattacharya; Yammiyavar, P.; A Study of the Impact of Task Complexity And Interface Design on E-Learning Task Adaptations; *ACM Proceedings of the 11th Asia Pacific Conference on Computer Human Interaction, Bangalore; September 2013.*

Ojha, S. and Yammiyavar, P.; Smart Assembly Systems: Need for Future Products; *Proceedings of National Conference in Recent Advancements in Mechanical Engineering, NERIST, Nirjuli, Arunachal Pradesh, India; pp. - 321-326; 8th-9th Novemebr 2013.*

Vikash Kumar, Yammiyavar, P.; Towards development of a tool for integration of sustainable development in education – a case study of design education in India; *International Conference on Environment and Humanities, Eco-revolution; Pokhara, Nepal; ISBN: 978-62951-818-3. 1st October 2013.*

Avinash Shende, Das, A.K.; Assessing creativity among students with heterogeneous backgrounds while solving product design problems; *Seventh International Conference on Design Principles and Practices, Chiba University, Chiba, Japan 6-8 March 2013*

#### **National Conference /Workshop/Seminar/ Symposia:**

Shende, A., 2013. Nature Inspired Design. In: *Proceedings of National Conference -Mini Dew (December 2013)*, IIIT Jabalpur, India.

Mokashi Punekar, R., 2014. Design and Development of Bamboo Hospital Furniture, In: *Proceeding of the National Symposium on Sustainability and Built Environment: Searching for Synergies, Bengal Engineering and Science University, Shibpur.*

#### **Book, Chapter, etc.**

Chakrabarti, D., 2013. Theme based design ideation exercise for learning design ergonomics, *Ergonomics for enhanced productivity*. In: Parimalam, P., Premalatha, M.R. and Banumathi, P. (eds.), *Ergonomics for Enhanced Productivity*, pp. 3-6. Excel India Publishers: New Delhi. [ISBN: 978-93-82880-43-1]

Mokashi-Punekar, R., 2013, 'Documentation of Traditional Indian Footwear' in Shilpa Das (Ed.) *50 Years of The National Institute of Design, NID Publication, Ahmedabad.*

Chowdhury, A., Reddy, S.M., Karmakar, S., Ghosh, S. and Chakrabarti, D., 2013. Is Perception of Product Personality Related with Product Usability?- A Cognitive Ergonomics Perspective. In: Parimalam, P., Premalatha, M.R. and Banumathi, P. (eds.), *Ergonomics for Enhanced Productivity*, pp. 177-182. Excel India Publishers: New Delhi

Patel, T., Karmakar, S., Sanjog, J., Kumar, S. and Chowdhury, A., 2013. Digital Human Modeling for Virtual Ergonomic Evaluation of Tractor Operator's Workplace: A Review. In: Parimalam, P., Premalatha, M.R. and Banumathi, P. (eds.), *Ergonomics for Enhanced Productivity*, pp. 203-208. Excel India Publishers: New Delhi

Bokil, P. and Ranade, S., 2014. Function-Behaviour-Structure Respresentation of the Grids in Graphic Design. In: Gero, J.S. (ed), *Design Computing and Cognition '12, Netherlands: Springer, 533-552*

Deshpande, Pradeep Yammiyavar & Samit Bahttacharya; *Adaptation' in Children - A GUI Interaction Based Task-Performance Study; Information and Communication Technology series, Springer; 4238; ISBN 978-3-642-41144-1; volume 0407; August 2013.*

**CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED**

<b>Name of Author</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>National/International</b>
Dr. Utpal Barua	1st China Changzhou International Art Workshop/symposium	Jintan, China	6th to 12th September 2013	International
Dr. Utpal Barua	Haiyan International Art Fund-raising Exhibition 2014	Philippines	5th to 14th January 2014	International
Prof. A K Das	15th International Conference on Engineering And Product Design Education	Dublin, Ireland	5th - 6th September 2013	International
Prof. A K Das	TEDMINT (Technology, Economy, Design) workshop	Stockholm, Sweden	18th – 23rd November 2013	International
Dr. Sougata Karmakar	International Conference on Ergonomics and Human Factors (HWWE 2013)	Vidyasagar University, West Bengal, India	4th-6th December 2013	International
Dr. Sougata Karmakar	International Computer Science and Engineering Conference (ICSEC 2013)	Shilpcorn University, Bangkok, Thailand	4th-6th Sept., 2013	International
Dr. Sougata Karmakar	2nd International conference on Ergonomics (ICE)	University of Malaya, Kuala Lumpur, Malaysia	3rd-4th Sept., 2013	International
Dr. Sougata Karmakar	Advances in Engineering and Technology (AET- 2014)	MM University, Ambala, Haryana, India	29th March 2014	National
Keyur Sorathia	Asia Pacific Human Computer Interaction	Bangalore, India	4th-7th September 2013	International
Keyur Sorathia	Microsoft Faculty Summit	Santa Monica, LA, USA	15th-16th July 2013	International
Prof. Ravi Mokashi Punekar	IADIS International Conference on Sustainability, Technology and Education,	University of Putra, Kuala Lumpur, Malaysia	November 29 – Dec 1st, 2013	International
Prof. Ravi Mokashi Punekar	11th International Conference on Computer Human Interaction, APCHI '13, Bangalore, India	Bangalore, India.	Sept 24-27, 2013	International
Prof. Ravi Mokashi Punekar	National Symposium on Sustainability and the Built Environment: Searching for Synergies	BESU, Howrah, Kolkata	February, 22, 2014	National
Dr. D. Udaya Kumar	5th International Conference on Typography and Visual Communication (ICTVC 2013), University of Nicosia,	Nicosia, Cyprus	4 – 12 June 2013	International
Dr. D. Udaya Kumar	Point Counter Point, Association Typographique Internationale,	Amsterdam	9 –13 October 2013	International
Dr. D. Udaya Kumar	Typography Day 2014	SID, Pune	1-3 March 2014	National



**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

<b>Name of Faculty</b>	<b>Name of Lecture</b>	<b>Name of Inst./Org.</b>	<b>Place</b>	<b>Date</b>
Dr. Sougata Karmakar	Ergonomics: Applications in Engineering and Industrial Design	Department of Production Engineering, PSG College of Technology	Coimbatore, India	August 24 to 25, 2013
Dr. Sougata Karmakar	Ergonomics and Safety in Product Design	Agricultural Engineering Dept., NERIST	Nirjuli, India	14-18 May 2013
Dr. Sougata Karmakar	Ergonomics in Built Environment	Royal Group of Institutions	Guwahati, India	29th April 2013
Avinash Shende	Nature Inspired Design	IIT Jabalpur	Jabalpur, India	December 7-8, 2013
Keyur Sorathia	Gesture Controlled Interfaces for Developing Regions	IBM Research	Delhi, India	5th August 2013
Keyur Sorathia	Chetna - Gesture enabled Television based health information system for rural pregnant women	IBM Research	Banaglore, India	11th February 2014
D. Udaya Kumar	The Gift – Creativity	Dibrugarh University	Dibrugarh	15 September 2013
D. Udaya Kumar	Workshop on Children's Book Design	Maeer's Institute of Design	Pune	14 – 16 November 2013
D. Udaya Kumar	History of Indian Printing	Rashtrasant Tukadoji Maharaj Nagpur University	Nagpur	10 March 2014
D. Udaya Kumar	Workshop on Designing Logotype in Regional Script	Typography Day 2014, Symbiosis Institute of Design	Pune	28 Feb – 03 March 2014
D. Udaya Kumar	Introduction to the world of Design	IEEE Workshop on Graphics and Presentation (IWGP 2013), IEEE Student Branch, IIT Guwahati	IIT Guwahati	5 October 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

<b>Name</b>	<b>Name of Inst./ Univ./Org.</b>	<b>Purpose/ Name of Lecture</b>	<b>Date</b>
Saurabh Shrivastava	IBM Research	Mobile Technology Innovation Trends and Impact	8th January 2014
Amit Patil	Honeywell	Multimodal Interface Design for Aviation	15th January 2014
Prof. Bipin Indurkha	IIT Hyderabad	Perceptual Similarity in Visual Metaphors & Creativity	7th January 2014

**PATENTS**

Prof. Chakrabarti, D. & Prof. Bhattacharyya, N., India Patent No. (Application number) 668/KOL/2013.

**AWARDS AND HONOURS**

Name of Faculty	Awards	International/ National
Avinash Shende	Good Design Award (USA)	International
Avinash Shende	Interior Innovation Award ( German Design Council)	International
Avinash Shende	FX 'Finalist' Award (London)	International
Keyur Sorathia	Gandhian Young Technological Innovation Award 2013	National
Keyur Sorathia	Gandhian Young Technological Innovation Award 2014	National
Keyur Sorathia	Top 50 Innovation - Indian Innovation Growth Program (DST, Stanford Business School, FICCI, Lockheed Martin, IUSSTF)	National
Shruti Hemani and Ravi Mokashi Punekar	'Outstanding Paper Award' at the IADIS International Conference on Sustainability, Technology and Education (STE) 2013 for -'Design Education for Sustainability – Envisioning a Sustainable Guwahati Railway Station Complex of the Future'	International

**STUDENTS' ACHIEVEMENTS**

Ms. Arushi Singh and Mr. Kunal Drego (M.Des 1st year) have been awarded 3rd prize at Honeywell AeroChallenge 2014

Pill time - a mobile application designed to increase patient adherence rates, design by 3rd year B.Des student Ms. Soumya Tiwari won Annual Student Academic Project competition under User Interface Design category at Pune Design Festival

Himansu Seth - Parichaya, a low cost TB adherence medikit won Gandhian Young Technological Innovation Award 2014

Amit Ranjan and Jagriti Kumar - Chetna - mobile device for maternal healthcare won Gandhian Young Technological Innovation Award 2013

Harshvardhan Upadhyay (M.Des 2012-2014) was awarded Indira Gandhi Priyadarshini Award for his

Masters Thesis Project based on National Unity & Integration. Award was presented by All Indian National Unity Conference on 20th November 2013 at the India International Center, New Delhi.

**SPECIAL MENTION**

Design exhibitions:

1. Dr. Utpal Barua- 2014: One man Exhibition on Visualisation of Human Crisis, at Jahangir Art Gallery, Mumbai
  2. Dr. Utpal Barua 2014: Haiyan International Art Fundraising Exhibition, Philippines.
  3. Mriganka Madhukailya- 2013: Walking Drifting Dragging, New Museum of Contemporary Art, New York
- Avinash Shende- 2014: Chair Exhibition at IIM Cologne, Germany

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1	Sharmistha Banerjee (Joined on 02.08.2013)	-	Assistant Professor	Design for sustainability, Bio-inspired design, Medical Product Design
2	Utpal Barua	IIT Guwahati	Associate Professor	Graphic Design, Design Drawing and Visualization, Visual Design- Principles and Applications, Indian Symbology

Sl. No.	Name	PhD	Designation	Areas of Interest
3	Prasad Bokil	PhD	Assistant Professor	Visual language, Design semiotics, Graphic Design, Type Design, Design Research, Design ontology
4	Debkumar Chakrabarti	Calcutta University	Professor and Head	Ergonomics Research, Human Compatibility Factor, Design Ergonomics, Product-Environment Interface Design, Occupational Health
5	Amarendra Kumar Das	IIT Guwahati	Professor	Industrial Design, Rapid Prototyping and Tooling, Space Design, Environmental Graphics, Design for Disabled
6	D. Udaya Kumar	IIT Bombay	Assistant Professor	Typography, Type Design, Information Graphics, Motion Graphics, Design Research, Exhibition Design, Architecture
7	Shareka Iqbal	--	Assistant Professor	Adaptive Reuse, Solar Passive Architecture
8	Sougata Karmakar	Bharathiar University, Coimbatore	Assistant Professor	Virtual Simulation (Digital Human Modeling), Physical Ergonomics, Cognitive Ergonomics, Work environment and Occupational Health
9	Mriganka Madhukailya	--	Assistant Professor	Short Film, New Media Theory, Video art, Documentary film, Participatory video
10	Manoj Majhi	--	Assistant Professor	Animation, Special Effects, Cartooning, Traditional animation
11	Ravi Mokashi Puneekar	IIT Bombay	Professor	Industrial Design, Space Design, Facility Design, Environmental Graphics, Design for Disabled
12	Avinash Shende	--	Assistant Professor	Product Design, Furniture Design, Lighting Design
13	Keyur Sorathia	--	Assistant Professor	Interaction Design, Gesture Controlled User Interfaces, Tangible Interfaces, Design for Development
14	A. K. Swain (Up to 25.11.2013)	IISc Bangalore	Assistant Professor	CAD/CAM, Geometric Modelling, Product Design, Computer Aided Prototyping, Computational Geometry, Assembly features, Design for Manufacturing and Assembly, Assembly Planning, Information Modeling and Knowledge based System in CAD, Product Lifecycle Management (PLM), Virtual Manufacturing, Virtual reality in Product Development, Sustainability in Design
15	Pradeep Yammiyavar	IISc Bangalore	Professor	HCI-UE-Interaction Design, Product Design, Design Semantics, Design Management, Experiential Design, Interdisciplinary Design & Pedagogy, Design Research

# DEPARTMENT OF ELECTRONICS AND ELECTRICAL ENGINEERING

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1995

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech) in**

- o Electronics and Communication Engineering (ECE)
- o Electronics and Electrical Engineering (EEE)

**Master of Technology (MTech) in**

- o Signal Processing
- o VLSI
- o Power and Control
- o Communication Engineering

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 116 (ECE: 74 and EEE: 42)
- MTech: 56
- PhD: 25

**FACULTY STRENGTH:**

- Professor: 10
- Associate Professor: 9
- Assistant Professor: 15
- Visiting Professor: 2

**NUMBER OF FACULTY MOVING OUT/RETIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

Professor: 1

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

The Department of EEE has 18 laboratories which are equipped with state-of-the-art equipment and software. These laboratories are used for both instructional purposes and carrying out R&D activities

in the various areas of interest. The list of laboratories presently functioning in the Department is as follows:

- 1 Electrical Machines Lab
- 2 Power System Lab
- 3 Electronic Circuit Lab
- 4 Control & Instrumentation Lab
- 5 Embedded System Lab
- 6 High Frequency Lab
- 7 System Simulation Lab
- 8 Communication & Networking Lab
- 9 Power & Control Lab
- 10 Communication Lab-2
- 11 Communication Lab-3
- 12 Multimedia Analytics Lab
- 13 Image & Signal Processing Lab
- 14 VLSI-ADSP & Communication Lab
- 15 VLSI R&D Lab
- 16 Electro-Medical & Speech Technology Lab
- 17 Signal Informatics Lab
- 18 Image Processing & Computer Vision Lab

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

- 1) 30MHz Dual Trae Oscilloscope with Component Tester - 32 nos / 3 MHz Multi Waveform Signal Generator - 32 nos. /3.5 Digit True RMS Digital Multimeter - 32 nos. / 3.5 Digit Hand-held Digital Multimeter - 10 nos. — Rs. 15,27,968.00
- 2) OPTI-SPICE Software — Rs. 5,55,700.00
- 3) Electroglottograph Device — Rs. 2,97,413.00

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

Image Processing, Computer Vision, Speech Processing, Biomedical Signal and Image Processing, Multimedia Signal Processing; Microwave, Antenna Design, Wireless Communication, Error Control Coding; Analog and Digital Design, MEMS, VLSI CAD, Photonics, Semiconductor Devices; Electrical Converters, Electric

Drives, Smart Grids, Wind Energy, Solar Energy, Solar Photovoltaic, Power Electronics and Power Systems; Control Systems, Stochastic Systems, Relay Based Identification and Auto tuning, Control Systems, Control Theory Applications

### MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

We have taken a major initiative for research in the area of smart grid and e-mobility. In this direction, we

have submitted a major project proposal to DST which is awaiting final approval (the PAB completed on May 2013). The project aims at setting up a comprehensive test bed for smart grid design for Indian scenario. APDCL and TCS have already agreed to become the industry partners. The groundwork in this field has been initiated through the research work of PhD students – two of the students have already completed the thesis work.

### RESEARCH PROJECTS

#### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
P. Kumar	Dual Mechanical Port Based Electric Vehicle Power train	DST	54.99	S. Majhi	2014-2016
P. Guha	Multi-modal Broadcast Analytics – Structured Evidence Visualization for Events of Security Concern	DeitY	139.51	S.R.M. Prasanna (EEE), S. Ranbir Singh (CSE) and S. Nandi (CSE)	2013-2016

#### b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
R. Bhattacharjee	Remote triggered fibre optics communication laboratory	MHRD under NME-ICT	48.00	S. K. Bose and R. Sonkar	3 years
C. Mahanta	Robust Control of a Robotic Manipulator using Sliding Mode Controller	SERB, DST	15.00	NIL	3 years
I. Kar	Navigation and Path Planning of Mobile Robots and Extension to Multi-Agent Systems	DST	13.44	NIL	3 years
R.P. Paily	Design and Implementation of a Blind Assistance System using FPGAs and Sensors	DIT	70.26	H.B. Nemade and Josephine S.	3 years
M.K. Bhuyan	Development of an Indian Sign Language Education & Recognition System for Hearing Impaired students of India	MHRD	132.00 (for pilot phase)	P.K. Bora	6 years
S. Chouhan	Advanced Embedded Systems Laboratory	Intel India Pvt. Ltd.	5.12	H. K. Kapoor (CSE)	2.5 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
R. Sinha	Virtual Laboratory on Signals and Systems	MHRD, under NME-ICT	30.00	S.R.M. Prasanna	3 years
S.R.M. Prasanna	Development of speech based multilevel person authentication system	DEITY	162.00	S. Nandi (CSE), R. Sinha and S. Dandapat	3 years
S.R.M. Prasanna	Development of text to speech systems in Assamese and Manipuri Languages	DEITY	109.00	R. Singh (CSE)	2 years
S.R.M. Prasanna	Development of prosodically guided phonetic engine in Assamese	DEITY	40.00	S. Dandapat	2 years
P.K. Bora	Development of robust Document image understanding System for Document in Indian Scripts (OCR) Phase-II	Ministry of Communications and Information Technology	28.75	M.K. Bhuyan and Sanjib Das	4 years
P. Kumar	Dual Mechanical Port Based Electrica Vehicle Power Train	DST	54.99	S. Majhi	12 years

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co- Investigator	Duration
R. Sinha	Speech based Access for Agricultural Commodity Prices in Six Indian Languages	DIT	57.63	S.R.M. Prasanna and P.K. Das (CSE)	3 years
R. Sinha	Characterization and Compensation of Acoustic and Linguistic Mismatch for Robust Children's Speech Recognition	DIT	18.00	S.R.M. Prasanna	3 years

**CONSULTANCY PROJECTS**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co- Investigator	Duration
P. Kumar	Heat Rate Estimation of NTPS and LTPS	APGCL	8.00	G.B. Shrestha	6 months
P. Kumar	Investigation of iron Loases in Induction Motors	TMEIC, Japan	15.00	S.K. Nayak	1 year

**RESEARCH PUBLICATIONS****Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
D. Pal and H. K. Pillai	Representation Formulae for Discrete 2D Autonomous Systems	SIAM Journal on Control and Optimization	Vol. 51, Issue 3	2406-2441	2013
D. Pal and M.N. Belur	Nyquist plots, finite gain/phase margins & dissipativity	Systems & Control Letters	Vol. 62 Issue 10	890-894	October 2013
M. Singh, K. Thiruganam, P. Kumar and I. Kar	Real-Time Coordination of Electric Vehicles to Support the Grid at the Distribution Substation Level	IEEE Systems Journal	DOI: 10.1109/JSYST.2013.2280821	--	September 2013
K. Karthik and S. Kashyap	Transparent Hashing in the Encrypted Domain for Privacy Preserving Image Retrieval	Springer Journal of Signal, Image and Video Processing, Special issue on Image and Video Processing for Security	Vol. 7, Issue 4	647-664	July 2013
B. Kumbhani and R.S. Kshetrimayum	Outage Probability Analysis of Spatial Modulation Systems with Antenna Selection	Electronics Letters	Vol. 50, issue 2	125-126	January 2014
B. Kumbhani, L.N.B. Reddy and R.S. Kshetrimayum	Approximate SER of cooperative communications over generalized $\eta$ - $\mu$ and $k$ - $\mu$ fading channels	IET Journal of Engineering	--	4	January 2014
M. Manohar, R.S. Kshetrimayum and A.K. Gogoi	Printed Monopole Antenna with Tapered Feed Line, Feed Region and Patch for Super Wideband Applications	IET Microwaves, Antennas and Propagation	vol. 8 issue 1	39-45	January 2014
M.K. Bhuyan and B.K. Chakraborty	Motion Adaptive Video Coding Scheme for Time-varying Network	International Journal of Communication Systems (2013)	--	--	DOI: 10.1002/dac.2712
M. K. Bhuyan, Gaku Watanabe, Shinji Fukui, Yuji Iwahori, Robert J. Woodham and Yoshinori Adachi	Tracking Method in Consideration of Existence of Similar Object around Target Object	Procedia Computer Science, Elsevier	22	366-374	2013
Shuya Ishida, Shinji Fukui, Yuji Iwahori, M.K. Bhuyan and Robert J. Woodham	Shadow Detection Method Based on Shadow Model with Normalized Vector Distance and Edge	Springer Computer and Information Science (Studies in Computational Intelligence)	493	103-113	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Takuya Nakagawa, Yuji Iwahori and M. K. Bhuyan	Defect Classification of Electronic Board using Multiple Classifiers and Grid Search of SVM Parameters	Springer Computer and Information Science	493	115-127	2013
B. Deka and P.K. Bora	Removal of correlated speckle noise using sparse and over-complete representations	Biomedical Signal Processing and Control	Vol. 8, issue 6	520-533	November 2013
S. Padam Priyal and P.K. Bora	A robust static hand gesture recognition system using geometry based normalizations and Krawtchouk moments	Pattern Recognition	Vol. 46, issue 8	2202-2219	August 2013
N. Saikia and P.K. Bora	Perceptual hash function for scalable video	International Journal of Information Security	Vol. 13, issue 1	81-93	February 2014
S. Shrivastava, A. Rajesh and P.K. Bora	Sliding Window Dixon's Tests for Malicious Users' Suppression in a Cooperative Spectrum Sensing System, IET Communications	IET Communications	--	--	online version, February 2014
G. Pradhan and S.R.M. Prasanna	Speaker Verification by Vowel and Nonvowel like Segmentation	IEEE Trans. Audio, Speech and Language Processing	Vol. 21 Issue 4	854-867	April 2013
D. Govind and S.R.M. Prasanna	Expressive speech synthesis: A review	International Journal of Speech Technology	vol. 16 issue 2	237-260	2013
D. Chakrabarty, S. R.M. Prasanna and R.K. Das	Development of evaluation of online text-independent speaker verification system for remote person authentication	International Journal of Speech Technology (Springer)	vol. 16 issue 1	75-88	2013
D. Govind and S.R.M. Prasanna	Dynamic prosodic using zero frequency filtered Signal	International Journal of Speech Technology (Springer)	vol. 16 Issue 1	41-54	2013
A. Agrawal, M. Kumar, D. Prajapati, M. Singh and P. Kumar	Smart Public Transit System using Energy Storage System and its Coordination with Distribution Grid	IEEE Transactions on Intelligent Transportation Systems	DOI: 10.1109/TITS.2014.2303501		2014
K. Thirugnanam, E.R. Joy T.P., M. Singh and P. Kumar	Mathematical Modeling of Li-Ion Battery using Genetic Algorithm Approach for V2G Applications	IEEE Transactions on Energy Conversion	DOI: 10.1109/TEC.2014.2298460	--	2014
R. Das, K. Thirugnanam, P. Kumar, R. Lavudiya and M. Singh	Mathematical Modeling for Economic Evaluation of Electric Vehicle to Smart Grid Interaction	IEEE Transactions on Smart Grid	Vol. 5 issue 2	712-721	March 2014



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
M. Singh, K. Thiruganatham, P. Kumar and I. Kar	Real-Time Coordination of Electric Vehicles to Support the Grid at the Distribution Substation Level	IEEE Systems Journal	DOI: 10.1109/JSYST.2013.2280821	--	2013
E.R. Joy T.P., A. Dalal and P. Kumar	The Accurate Computation of Mutual Inductance of Two Air Core Square Coils with Lateral and Angular Misalignments in a Flat Planar Surface	IEEE Transactions on Magnetics	Vol. 50 Issue 1	--	January 2014
Kannan, T., E.R. Joy T.P., M. Singh and P. Kumar	Modeling and Control of Contactless based Smart Charging Station in V2G Scenario	IEEE Transactions on Smart Grid	Vol. 5 Issue 1	337-348	2014
N. Adhikary and C. Mahanta	Integral backstepping sliding mode control for underactuated systems: Swing-up and stabilization of the Cart-Pendulum System	ISA Transactions (Elsevier)	Vol. 52 Issue 6	870-880	November 2013
S. Mondal and C. Mahanta	Chattering free adaptive multi-variable sliding mode controller for systems with matched and mismatched uncertainty	ISA Transactions (Elsevier)	Vol. 52 Issue 3	335-341	May 2013
S. Shahnawazuddin, Deepak K. T., B.D. Sarma, A. Deka, S.R.M. Prasanna and R. Sinha	Low Complexity On-line Adaptation Techniques in Context of Assamese Spoken Query System	Journal of Signal Processing Systems, Springer	--	--	2014
Sam Darshi and R. Bhattacharjee	Outage Analysis of Asynchronous Wireless Networks in Interference Limited Environment	IEEE Transactions on Vehicular Technology	Vol. 62, Issue 8	3863-3874	2013
R. Shrestha and R.P. Paily	High-Throughput Turbo Decoder with Parallel Architecture for LTE Wireless Communication Standards	IEEE Transactions on Circuits and Systems I	In press	--	2014
R.K. Baruah and R.P. Paily	A Dual-Material Gate Junctionless Transistor With High-k Spacer for Enhanced Analog Performance	IEEE Transactions on Electron Devices	Vol. 61, Issue 1	123-128	January 2014
S. Joshi and R.P. Paily	Distributed Arithmetic based Split-Radix FFT	Journal of Signal Processing Systems (Springer)	Vol. 75, Issue 1	85-92	June 2013
G. Saxena and R.P. Paily	Analytical modeling of square microhotplate for gas sensing application	Sensors Journal, IEEE	Vol. 13, Issue 12	4851-4859	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
R. Shrestha and R.P. Paily	Performance and throughput analysis of turbo decoder for the physical layer of digitalvideo-broadcasting-satellite-services-tohandhelds standard	IET Communications, The Institution of Engineering and Technology	Vol. 7, Issue 12	1211-1220	2013
R.K. Baruah and R.P. Paily	A Dual Material Double-Layer Gate Stack Junctionless Transistor for Enhanced Analog Performance	Lecture Notes in Computer Science, Springer Berlin / Heidelberg	Vol. 7373	30-39	2013
N. Mahesh, A. Ganesan, P.K. Manchi and R.P. Paily	An Ultra-Wideband Baseband Transmitter Design for Wireless Body Area Network	Lecture Notes in Computer Science, Springer Berlin / Heidelberg	Vol. 7373	30-39	2013
Rongping Lin, Wen-De Zhong, S.K. Bose and Moshe Zukerman	Constrained light-tree design for WDM mesh networks with multicast traffic grooming	Optical Switching and Networking	Vol. 10 Issue 3	233-245	2013
T. Jacob and R.K. Bansal	Almost Sure Optimality of Sliding Window Lempel Ziv Algorithm and Variants Revisited	IEEE Transactions on Information Theory	Vol-59, Issue-8	4977 - 4984	2013
<b>National</b>					
B. Deka and P.K. Bora	Wavelet based Despeckling of Medical Ultrasound Images	IETE Journal of Research	Vol. 59, issue 2	97-108	June 2013
D. Pati and S. R.M. Prasanna	A comparative study of explicit and implicit modeling of subsegmental speaker-specific excitation source information	Sadhana	Vol. 38 Issue 4	591-620	August 2013

#### Conference/Workshop/Seminar/Symposia

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
K. Dwivedi, K. Biswarnjan and A. Sethi	Drowsy Driver Detection using Representation Learning	4th IEEE International Advance Computing Conference (2014)	--	--	21-22 February 2013
A. Vahadane and A. Sethi	Towards generalized nuclear segmentation in histological images	IEEE 13th International Conference on Bioinformatics and Bioengineering (BIBE)	--	--	2013

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
B. Mandadi and A. Sethi	Unusual event detection using sparse spatio-temporal features and bag of words model	IEEE Second International Conference on Image Information Processing (ICIIP)	--	--	2013
K. Atal, A. Arora, D. Singh Sachan, P.K. Bora and A. Sethi	reCAPTCHA assisted OCR for Devanagiri Texts	Indian Workshop on Machine Learning	--	--	2013
P. Sandeep and T. Jacob	Image restoration from multiple copies: A GMM based method	IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2013	--	1593 – 1597	2013
T. Sandhan, A. Sethi, T. Srivastava and Jin Young Choi	Unsupervised learning approach for abnormal event detection in surveillance video by revealing infrequent patterns	28th International Conference of Image and Vision Computing New Zealand (IVCNZ)	--	--	2013
A. Ashirvad Mohanty, B. Vaibhav and A. Sethi	A frame-based decision pooling method for video classification	Annual IEEE India Conference (INDICON)	--	--	2013
Niyas K. Haneefa and A. Sethi	Application of LSA for Clustering Protein Sequences	International Journal of Engineering Trends and Technology	vol. 4, issue 5	--	2013
D.S. Sachan, U. Tewkwani and A. Sethi	Sports Video Classification from Multimodal Information Using Deep Neural Networks	2013 AAAI Fall Symposium Series	--	--	2013
M. Balakrishna and A. Sethi	Unusual event detection using sparse spatio-temporal features and bag of words model	IEEE Second International Conference on Image Information Processing (ICIIP), 2013	--	--	2013
S.C. Jugade, D. Pal, R.K. Kalaimani and M.N. Belur	Stationary trajectories, singular Hamiltonian systems and ill-posed interconnection	Proceedings of the IEEE European Control Conference (ECC)	--	1740-1745	2013
D.K. Saroj and I. Kar	T-S Fuzzy Model Based Controller And Observer Design for a Twin Rotor MIMO System	IEEE Conference on Fuzzy Systems, Hyderabad	--	--	July 2013
Y.V. Karteek and I. Kar	Consensus of Multi-agent Systems with Back-stepping for Switching Topologies	IEEE Workshop on Computational Intelligence, Kanpur	--	--	July 2013
P. Sodhi and I. Kar	Adaptive Backstepping Control for A Twin Rotor MIMO System'	ACODS 2014	--	--	March 2014

Name of Author/s	Name of Paper	Name of Conf./ Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
K. Karthik	Virtually Reconfigurable Secure Wireless Networks using Broadcast Tokens	Proceedings of International Conference on Network Systems and Security (NSS 2013)	Vol. 7873	599-606	3-4 June 2013
V. S. Manikanta and K. Karthik	Image Similarity based on Eigen-correspondences	Proceedings of INDICON 2013	--	--	13-15 December 2013
B. Kumbhani, K.S. Sastry, T.S. Reddy and R.S. Kshetrimayum	Narrow Band Interference (NBI) mitigation technique for TH-PPM UWB systems in IEEE 802.15.3a channel using wavelet packet transform	Proceedings of International Conference on Emerging Trends and Applications in Computer Science (ICETACS)	--	38-42	September 2013
Malathi T. and M.K. Bhuyan	Foreground Object Detection under Camouflage using Multiple Camera- based Codebooks	Proceedings of the IEEE INDICON 2013 Conference, Mumbai	--	379-382	2013
Malathi T. and M.K. Bhuyan	Multiple Camera-based Codebooks for Object Detection under Sudden Illumination Change	IEEE International Conference on Communications and Signal Processing (ICCSP)	--	310-314	2013
N. Mishra, M.K. Bhuyan, T. Malathi, Yuji Iwahori and Robert J. Woodham	Pixel-wise Background Segmentation with Moving Camera	International Conference on Pattern Recognition and Machine Intelligence, PReMI 2013	--	423-429	2013
Gaku Watanabe, Shinji Fukui, Yuji Iwahori, M.K. Bhuyan, Robert J. Woodham and Yoshinori Adachi	Tracking Method in Consideration of Existence of Similar Object around Target Object	17th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2013)	--	366-374	2013
Sahil Sikka, Karan Sikka, M.K. Bhuyan and Yuji Iwahori	Pseudo vs. True Defect Classification in Printed Circuits Boards using Wavelet Features	CoRR abs/1310.6654	--	--	2013
Yuji Iwahori, Takayuki Shinohara, Akira Hattori, Robert J. Woodham, Shinji Fukui, M.K. Bhuyan and Kunio Kasugai	Automatic Polyp Detection in Endoscope Images Using a Hessian Filter	IAPR International Conference on Machine Vision Applications	--	21-24	2013

Name of Author/s	Name of Paper	Name of Conf./ Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Shuya Ishida, Shinji Fukui, Yuji Iwahori, M.K. Bhuyan and Robert J. Woodham	Shadow Model Construction with Features Robust to Illumination Change	Proceedings of World Congress on Engineering (IAENG WCE 2013)	--	--	2013
A. Bora, M.K. Bhuyan and T. Bezboruah	Investigations on Hierarchical Web service based on Java Technique	Proceedings of the World Congress on Engineering 2013	Vol. 2	--	2013
S. Pawanekar, K. Kapoor and G. Trivedi	Kapees: A New Tool for Standard Cell Placement	Proceedings of VDAT 2013, Springer-Verlag	--	66-73	July 2013
P. Saikrishna and P. K. Bora	Detection and Removal of Random-Valued Impulse Noise from Images using Sparse Representations	IEEE International Conference on Image Processing, ICIP 2013	--	--	September 2013
S. Das, J. Shah and P.K. Bora	Temporally Scalable Compression of Animation Geometry	National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics, NCVPRIPG 2013	--	--	December 2013
S. Ghosh, U. Barman, P.K. Bora, T. Singh and B. Chaudhuri	An OCR System for the Meetei Mayek Script	National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics, NCVPRIPG 2013	--	--	December 2013
Sandeep R. and P.K. Bora	Perceptual Video Hashing Based on the Achlioptass Random Projections	National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics, NCVPRIPG 2013	--	--	December 2013
B.D. Sarma and S.R.M. Prasanna	Analysis of spurious Vowel-like regions (VLRs) detected by excitation source information	Proceeding of INDICON 2013	--	--	December 2013
B.D. Sarma, M. Sarma, M. Sarma and S.R.M. Prasanna	Development of Assamese Phonetic Engine: Some Issues	Proceeding of INDICON 2013	--	--	December 2013
D. Govind, S.R.M. Prasanna and K. Ramesh	Improved method for epoch extraction in high pass filtered speech	Proceeding of INDICON 2013	--	--	December 2013

<b>Name of Author/s</b>	<b>Name of Paper</b>	<b>Name of Conf./ Wor./Sem./Sym.</b>	<b>Volume and Is- sue No.</b>	<b>Page No.</b>	<b>Year and Date of Publica- tion</b>
K.T. Deepak and S.R.M. Prasanna	Remote spoken document retrieval using foreground speech segmentation based isolated word recognizer	Proceeding of INDICON 2013	--	--	December 2013
N. Adiga and S.R.M. Prasanna	Significance of instants of significant excitation for source modeling	Proceeding of INTERSPEECH 2013	--	--	August 2013
K. Ramesh, S.R.M. Prasanna and D. Govind	Detection of glottal opening instants using Hilbert envelope	Proceeding of INTERSPEECH 2013	--	--	August 2013
A. Chakravarty and C. Mahanta	Actuator Fault Tolerant Control Scheme for Nonlinear Uncertain Systems using Backstepping based Sliding Mode	INDICON 2013	--	--	13-15 December 2013
T. Khan N. and C. Mahanta	Hybrid Backstepping Control of DC-DC Buck Converters	37th National Systems Conference 2013 (NSC 2013)	--	--	5-7 December 2013
V.K. Pandey, I. Kar and C. Mahanta	Adaptive Control of onlinear systems using Multiple Models with Second Level Adaptation	37th National Systems Conference 2013 (NSC 2013)	--	--	5-7 December 2013
S. Mandal and C. Mahanta	Chattering Free Adaptive Second Order Terminal Sliding Mode Controller for Uncertain Systems	37th National Systems Conference 2013 (NSC 2013)	--	--	5-7 December 2013
M. Das and C. Mahanta	Optimal Adaptive Sliding Mode Controller for Linear Uncertain Systems	IEEE International Conference on Signal Processing, Computing and Control (ISPCC 2013)	--	--	26-28 September 2013
M. Das and C. Mahanta	Optimal sliding Mode Controller for Systems with Mismatched Uncertainty	8th IEEE Conference on Industrial Electronics and Applications (ICIEA)	--	--	19-21 June 2013
S. Mondal and C. Mahanta	Observer based Sliding Mode Control Strategy for Vertical Take-Off and Landing (VTOL) Aircraft System	8th IEEE Conference on Industrial Electronics and Applications (ICIEA)	--	--	19-21 June 2013
S. Dey, S. Barman, P.K. Bhukya, R.K. Das, Haris B.C., S.R.M. Prasanna and R. Sinha	Speech biometric based attendance system	Proceedings of 20th NCC, IIT Kanpur	--	--	February 2014
S. Shahnawazuddin and R. Sinha	Fast On-Line Adaptation using KSVD based Acoustic Clustering	Proceedings of IEEE INDICON, IIT Bombay	--	--	December 2013

Name of Author/s	Name of Paper	Name of Conf./ Wor./Sem./Sym.	Volume and Is- sue No.	Page No.	Year and Date of Publica- tion
O.P. Singh, Haris B.C. and R. Sinha	Sparse Representation for Language Identification using Prosodic Features for Indian Languages	Proceedings of IEEE INDICON, IIT Bombay	--	--	December 2013
O.P. Singh, Haris B.C. and R. Sinha	Language identification us- ing sparse representation: A comparison between GMM supervector and i-vector based approaches	Proceedings of IEEE INDICON, IIT Bombay	--	--	December 2013
H. Kathania, S. Ghai and R. Sinha	Soft-Weighting Technique for Robust Children Speech Rec- ognition under Mismatched Condition	Proceedings of IEEE INDICON, IIT Bombay	--	--	December 2013
R. Jana and R. Bhat- tcharjee	Analysis of horn antennas in- cluding the horn transition into half space employing a full wave hybrid technique	Proceedings of IET International Radar Conference 2013, Xian China	--	1576- 1579	April 2013
R. Jana and R. Bhat- tcharjee	Analysis of Scattering Param- eters of a Stepped Cylindrical Horn Containing Inner Posts Using MM and 2-D FEM	20th National Conference on Communications (NCC-2014)	--	--	28 Feb- ruary - 2 March 2014
P. Anoop and R. Bhattacharjee	Investigation on Crosspolar Performance of a Coaxial Fed Dual Mode Matched Rectangu- lar Feed Horn with Step Discon- tinuity	20th National Conference on Communications (NCC-2014)	--	--	28 Feb- ruary - 2 March 2014
A. Roy, H.B. Nemade and R. Bhattacharjee	Analysis of SAW Correlator Based Communication Systems Employing Binary Encoded Or- thogonal Frequency Coding	20th National Conference on Communications (NCC-2014)	--	--	28 Feb- ruary - 2 March 2014
P. Anoop and R. Bhattacharjee	Investigation on Crosspolar Performance of a Coaxial Fed Dual Mode Matched Rectangu- lar Feed Horn	IEEE AEMC 2013	--	--	18 – 20 December 2013
G. Saxena and R.P. Paily	Effect of Membrane to Heater Ratio on the Performance of Square Microhotplate	IEEE International conference on Microelectronics, Communication and Renewable Energy (ICMiCR 13)	--	--	4-6 June 2013
S. Mondal and R.P. Paily	A Strategy to Enhance the Output Voltage of a Charge Pump Circuit Suitable for Energy Harvesting	IEEE International conference on Microelectronics, Communication and Renewable Energy (ICMiCR 13)	--	--	4-6 June 2013

Name of Author/s	Name of Paper	Name of Conf./ Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
R. Shrestha and R.P. Paily	A Novel State Metric Normalization Technique and an Implementation of High Throughput MAP Decoder	International Conference on Advances in Computing, Communications and Informatics (ICACCI-2013)	--	--	22-25 August 2013
R.K. Baruah and R.P. Paily	Double-Gate Junctionless Transistor for Low Power Digital Applications	International Conference on Emerging Trends and Applications in Computer Science	--	--	13-14 September 2013
G. Saxena and R.P. Paily	Transient Analysis of Bridge Microhotplate	International Conference on Advanced Electronic Systems (ICAES-2013), CSIR-CEERI	--	--	21-23 September 2013
D. Basak, Nishanth P.V. and R.P. Paily	A Low Noise Preamplifier and Filter For Heart-rate Detector	International Conference on Advanced Electronic Systems (ICAES-2013), CSIR-CEERI	--	--	21-23 September 2013
V. Kumar K., R. Shrestha and R.P. Paily	Design and Implementation of Multi-Rate LDPC Decoder for IEEE 802.16e Wireless Standard	IEEE International Conference on Green Computing, Communication and Electrical Engineering- ICGCCEE'2014	--	--	6-8 March 2014
M. Krishna and R.P. Paily	Efficient Rectifier Design for Wearable Healthcare Applications	IEEE International Conference on Green Computing, Communication and Electrical Engineering- ICGCCEE'2014	--	--	6-8 March 2014
S. Pandey and S. Majhi	Estimation of Process Dynamics using Biased Relay Feedback Approach	IFAC Third International Conference on Advances in Control and Optimization of Dynamical Systems	--	--	13-15 March 2014



Name of Author/s	Name of Paper	Name of Conf./ Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publica- tion
S. Pandey and S. Majhi	Relay based Identification of Process Dynamics under Noisy Environment	International Conference on Control, Automation, Robotics and Embedded Systems	--	--	16-18 December 2013
S. Pandey and S. Majhi	Identification of System Dynamics in Presence of Measurement Noise	IEEE INDICON	--	--	13-15 December 2013
R. Bajarangbali and S. Majhi	Modeling of Stable and Unstable Second Order Systems with Time Delay	IEEE INDICON	--	--	13-15 December 2013
M. Bhaskarnaik, P. Kumar and S. Majhi	Analysis of city-Capabus transportation system failures and solutions with FLC	IEEE Conference on Intelligent Transportation Systems	--	1900 – 1905	September 2013
Yunlei Lui, Gangxiang Shen, Weidong Shao and S.K. Bose	Green IP over WDM Optical Network Design for Mixed Line Rates and Limited Transmission Reaches	COIN 2013, Beijing	--	--	October 2013
Yunlei Lui, Gangxiang Shen, Weidong Shao and S.K. Bose	Design for 'Follow the Sun, Follow the Wind' IP over WDM Networks	COIN 2013, Beijing	--	--	October 2013
Xiaowei Zhao, Anliang Cai, Gangxiang Shen and S.K. Bose	Optimal Time-Dependent Spectrum Sharing between Neighbouring Elastic Optical Channels over a Single Link	Asia Communications and Photonics Conference, Beijing	--	--	November 2013
Yongcheng Li, Hua Dai, Gangxiang Shen and S.K. Bose	Adaptive Lightpath FEC Selection in an Optical Network	Asia Communications and Photonics Conference, Beijing	--	--	November 2013
Yue Wei, Gangxiang Shen and S.K. Bose	Applying Ring Cover Technique to Elastic Optical Networks	Asia Communications and Photonics Conference, Beijing	--	--	November 2013
Yunlei Lui, Gangxiang Shen and S.K. Bose	Energy-Efficient Opaque IP over WDM Networks with Survivability and Security Constraints	Asia Communications and Photonics Conference, Beijing	--	--	November 2013
R. Gnana Praveen and R.P. Paily	Blind Navigation Assistance for Visually Impaired Based on Local Depth Hypothesis from a Single Image	International Conference on Design and manufacturing, IConDM 2013, Procedia Engineering, Elsevier	Vol. 64	351-360	2013

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Nagesh Ch. and R.P. Paily	High Sensitivity Microbridge for Molecular Sensing Applications	International Conference on Design and Manufacturing, IConDM 2013, Procedia Engineering, Elsevier	Vol. 64	234-243	2013
A. Patra and S. Chouhan	Energy Efficient Hybrid Multihop Clustering Algorithm in Wireless Sensor Networks	International Conference on Communication, Networking and Satellite	--	59-63	December 2013

**Book, Chapter, etc.**

Name of Author/s	Name of Book/ Book Chapter	Publisher	Volume and Issue No.	Page No.	Year and Date of Publication
N. Mishra, M.K. Bhuyan, T. Malathi, Yuji Iwahori and Robert J. Woodham	Pixel-wise Background Segmentation with Moving Camera	Pattern Recognition and Machine Intelligence, Springer-Verlag	8251	423-429	2013
G. Haobijam and R.P. Paily	Design and Analysis of Spiral Inductors	Springer	--	--	October 2013

**CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED**

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
R. Bhattacharjee	IEEE Applied Electromagnetics Conference 2013 (IEEE AEMC 2013)	KIIT University, Bhubaneswar	18 – 20 December 2013	International
I. Kar	IEEE Conference on Fuzzy Systems	Hyderabad	July 2013	International
I. Kar	International Conference on Advances in Control and Optimization of Dynamic Systems	Kanpur	March 2014	International
M.K. Bhuyan	International Conference on Pattern Recognition and Machine Intelligence (PReMI' 2013)	Kolkata	10 – 14 December 2013	International
P.K. Bora	IEEE International Conference on Image Processing, ICIP 2013	Melbourne	September 2013	International
P.K. Bora	National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics, NCVPRIPG 2013	Jodhpur	December 2013	National
P.K. Bora	National Conference on Communication (NCC)	IIT Kanpur	March 2014	National
P. Kumar	Compumag 2014	Budapest	30.06.2013-04.07.2014	International

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
C. Mahanta	8th IEEE Conference on Industrial Electronics and Applications (ICIEA)	Melbourne, Australia	19-21 June 2013	International
S. Chouhan	International Conference on Communication, Networking and Satellite	Yogyakarta, Indonesia	December 2013	International

#### INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
M.K. Bhuyan	Vision-based Hand Gesture Recognition for Sign Language Recognition	Ministry of Social Justice and Empowerment, Govt. of India	New Delhi	29-30 November 2013
P.K. Bora	Debabrata Goswami Memorial lecture	Assam Engineering College	Guwahati	October 2013
R. Bhattacharjee	Smart Antennas for Wireless Communication	Workshop on Antenna and RF Design (WARD 2013), IIIT Allahabad	Allahabad	20 September 2013
R. Bhattacharjee	Antennas for Terahertz	IEEE Applied Electromagnetics Conference 2013 (IEEE AEMC 2013), KIIT University	Bhubaneswar	18 December 2013
R. Bhattacharjee	An overview of some current trends in wireless communication technologies	National conference on Emerging Global Trends in Engineering and Technology 2014	Don Bosco College of Engineering and Technology, Assam Don Bosco University	07 March 2013
R. Bhattacharjee	Signal processing in wireless and mobile communication: An overview	Recent Advances in Signal Processing and Semiconductor Devices	NERIST Itanagar	27 January 2014
R. Bhattacharjee	Basics of Fiber Optic Communication	Optical Techniques and Devices in Scientific and Engineering System Applications	NERIST Itanagar	31 October 2013

#### VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Dr. S. Christopher	Distinguished Scientist and Director, Centre for Airborne Systems, DRDO	Invited Talk on 'Airborne Surveillance System in India: Past, present and future'	04.05.2013
Dr. Lalit Kumar	Director, MTRDC, DRDO	Presentation on the activities of MTRDC and explore possibilities of future collaboration	04.12.2013
Dr. Shyam Vasudeva Rao	President & CTO at Forus Health (P) Ltd, Director at MYMO Wireless Technology (P) Ltd at SID – IISc, Bangalore and Technical Director at Maastricht University Medical Center in Netherlands	Invited Talk on 'Retinal Image Processing'	12.03.2014
Prof. Subhasis Chaudhury	Professor, IIT Bombay	Invited Talk on 'Analysis of Videos of Social Gatherings'	08.04.2014

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Ms. Kumid Srinivasan	Intel India Pvt. Ltd.	Invited Talk on 'Possibilities in the Digital Age'	20.03.2014

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Sl. No.	Name of Sem./Wor./ Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of participants
1	Short Term course on Optoelectronics and Optical Communication	AICTE	16-20 September 2013	National	R.K. Sonkar and T. Venkatesh	35
2	Tech 'Phi' Drive	Intel	21.08.2013	National	G. Trivedi	150
3	Workshop on Image and Speech Processing	DEiTY	13-14 December 2013	International	S.R.M. Prasanna (Chairman), R. Sinha (Co-Chairman), L.N. Sharma (Convenor)	200
4	Workshop on Xilinx FPGA Architecture and Design flow		22.11.2013 to 23.11.2013	National		105

**PATENTS**

A.K. Namdeo and H.B. Nemade, 'On-board contactless interdigital transducer and planner antenna for wireless surface acoustic wave devices', Indian Patent App. No. 833/KOL/2013, 12 July 2013

A.K. Namdeo and H.B. Nemade, 'On-chip surface acoustic wave devices in silicon with contactless IDT,' Indian Patent App. No. 834/KOL/2013, 12 July 2013

**AWARDS AND HONOURS**

R. P. Paily and R. Shreshta  
 'Hardware Implementation and Testing of LMAPP Decoder for High Throughput Applications': adjudged as Best entry in Design Contest Winner of 27th International Conference on VLSI Design and the 13th International Conference on Embedded Systems, IIT Bombay, 5-9 January 2014

K.R. Singh  
 Elevated to IEEE Senior Member, March, 2014

S.K. Bose  
 The paper titled "Design for 'Follow the Sun, Follow the Wind' IP over WDM Networks", by Yunlei Lui, Gangxiang Shen, Weidong Shao, Sanjay Kumar Bose won the best paper award in COIN2013, Beijing in October 2013.

M.K. Bhuyan  
 Fulbright Academic and Professional Excellence Fellowship (Fulbright Senior Research Fellowship 2013-14) to carry out a combination of teaching and research at School of Engineering and Technology, University of Purdue, Indiana, USA.

M.K. Bhuyan  
 Elevated to IEEE Senior Member, 2014

**STUDENTS' ACHIEVEMENTS**

Gaurav Saxena, research scholar of the Department of Electronics and Electrical Engineering secured second position in M V Chauhan All India Student Paper Contest 2013 organized by IEEE India Council at All India Student Conference 2013 for the paper titled "Design, Fabrication and Characterization of Square Micro hot plate" (Author: Gaurav Saxena and R.P. Paily).

**SPECIAL MENTION**

R. Bhattacharjee  
 Session Chair: IEEE Applied Electromagnetics Conference 2013 (IEEE AEMC 2013), KIIT University, Bhubaneswar, 18 – 20 December 2013

R. Bhattacharjee  
 Special Invitee: Academic Committee, IETE 2013-14

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1	S.R. Ahmed	IIT Kharagpur	Associate Professor	Adaptive Signal Processing, Mobile Communications, VLSI Signal Processing, Biomedical Signal Processing
2	R. Bhattacharjee	Jadavpur University	Professor and Head of the Department	Electromagnetics, Microstrip Antennas, Microwave Engineering, Wireless Communication
3	M.K. Bhuyan	IIT Guwahati	Associate Professor	Image and Video Processing, Computer Vision, Pattern Recognition and Human Computer Interactions (HCI)
4	P.K. Bora	IISc Bangalore	Professor	Image Processing and Computer Vision
5	S.K. Bose	Stony Brook, USA	Professor	Modeling, Simulation and Analysis of Communication Networks
6	A. Chatterjee	University of California	Visiting Assistant Professor	Devices
7	S. Chouhan	IIT Delhi	Assistant Professor	Wireless Sensor Networks, Coding Theory, Wireless Communications
8	S. Dandapat	IIT Kanpur	Professor	Signal Processing, Speech Processing, Biomedical Signal & Image Processing, Biomedical Instrumentation
9	S. Das	IISc Bangalore	Assistant Professor	Information theory, Error correcting codes
10	K. Dhaka	IIT Delhi	Assistant Professor	Cooperative Communication, Multi-hop relaying systems, Multiple-input multiple-output (MIMO) wireless communication system, Bluetooth 2.0+EDR Physical and MAC layer
11	A.K. Gogoi	IIT Kanpur	Professor and Dean, Outreach Education Programme, IITG	Electro Magnetics, Microwave Engineering, RF circuits, System Design
12	P. Guha	IIT Kanpur	Assistant Professor	Computer Vision, Machine Learning, Robotics
13	T. Jacob	IIT Kanpur	Assistant Professor	Statistical Signal Processing and Information Theory
14	I. Kar	IIT Kanpur	Assistant Professor	Control Theory and Applications, Soft Computing Applications, Neural Network Based Adaptive Control, Applications of Fuzzy Logic and Neural Networks in Nonlinear Control, Kinematic and Dynamic Control of Robot Manipulators
15	K. Karthik	University of Toronto	Associate Professor	Privacy Preserving Authentication and Multimedia Searches, Fine Grained Access Control, Image and Audio Comparisons in lower-dimensional Spaces, Blind Image Forensics and Image Phylogeny
16	S. Krishnaswamy	IIT Bombay	Assistant Professor	Control Systems, Cryptography

Sl. No.	Name	PhD	Designation	Areas of Interest
17	P. Kumar	Delft University of Technology, The Netherlands	Associate Professor	Optimisation of electrical motors and drives, Algorithm development for Multi-objective optimisation and multicriteria decision making in engineering systems, Simulation and design of electrical motors and actuators using Finite Element Methods (FEM), Analytical modeling of electrical motors for rapid simulation, Simulation and Analysis of Hybrid and Electric Vehicles
18	A. Mahanta (Retired on 30.07.2013)	IIT Delhi	Professor	Digital Signal Processing, High-speed VLSI structures for Signal Processing & Communication
19	C. Mahanta	IIT Delhi	Professor	Control System Theory and Applications, Control of Nonlinear Uncertain Systems, Artificial Intelligence based Control, Identification and Control of Nonlinear Systems
20	S. Majhi	University of Sussex, Brighton, UK	Professor (on lien)	Relay Based Identification and Auto tuning, Control Systems, Control Theory Applications
21	S.K. Nayak	IISc Bangalore	Assistant Professor	Power flow analysis in AC and DC traction power system, Electromagnetics, Lightning interaction with an electrical and mechanical system, High Voltage Engineering
22	H.B. Nemade	IIT Bombay	Professor	Electronic Instrumentation, Systems Design, Ultrasonic Instrumentation, Non-destructive testing, Electronic product design, EMI/EMC issues, Acoustic sensors, Under-water acoustics, Surface acoustic wave devices, MEMS
23	R.P. Paily	IIT Madras	Professor	VLSI and MEMS
24	D. Pal	IIT Bombay	Assistant Professor	Algebraic analysis, multidimensional systems, computational commutative algebra, optimal control, dissipative systems
25	S.R.M. Prasanna	IIT Madras	Professor	Speech and Signal Processing
26	B.K. Rai	IIT Bombay	Assistant Professor	Communication Systems, Coding Theory
27	A. Rajesh	IIT Kanpur	Associate Professor	Coding and Modulation Techniques
28	J. S. Sahambi	IIT Delhi	Associate Professor, (on lien)	Digital Signal Processing, Wavelets, Microprocessors
29	P. R. Sahu	IIT Kanpur	Associate Professor, (on lien)	Mobile Communications: Diversity combining techniques over fading channels, UWB Communications: Pulse shaping
30	A. Sethi	Illinois, UIUC	Assistant Professor	Computer Vision, Image Processing, Pattern Recognition, Image Processing, Visual Perception

Sl. No.	Name	PhD	Designation	Areas of Interest
31	G.B. Shrestha	Virginia Polytechnic Institute & State University, USA	Visiting Professor	Power Markets and Economics, Renewable Energy Sources – Photovoltaic systems, Wind Generation Systems, Generation and Transmission Planning Power System Analysis, Operation and Planning, Optimization and Uncertainty Techniques
32	K.R. Singh	NTU Singapore	Associate Professor	Electromagnetic Band Gap, Filters, Metamaterials, Computational Electromagnetics and Periodic Structures
33	R. Sinha	IIT Kanpur	Associate Professor	Speech and Audio Processing, Speech Recognition, Signal Processing
34	R.K. Sonkar	IIT Kanpur	Assistant Professor	Optoelectronics Device Characterization and fabrication, Microelectronics and III-V Compound Semiconductors, Photonics Integrated Circuits, Integrated Optics Fiber Optics Communicatio
35	S. Sundaram	IISc Bangalore	Assistant Professor	Pattern Recognition, Image / Video Processing and Computer Vision
36	P. Tripathy	IIT Kanpur	Assistant Professor	Power system dynamics and stability studies, Wide Area Monitoring and Control of Power System, Optimal power dispatch and state estimation, Security analysis and control, Energy management system and distribution automation
37	G. Trivedi	IIT Bombay	Assistant Professor	Circuit Simulation (Analog & Digital) and VLSI CAD, High Performance Computing, Computational Biology and Solar Photovoltaics

# DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1998

**ACADEMIC PROGRAMMES OFFERED:**

**Master of Arts (MA)** in  
o Development Studies

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- MA: 25
- PhD: 15

**FACULTY STRENGTH:**

- Professor: 4
- Associate Professor: 12
- Assistant Professor: 6
- Visiting Professor: 1

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

**a) Phonetics and Phonology Lab:** Research on language and speech is an exciting area encompassing research in the fields of language technologies and human-computer interfaces in a way which can be employed to various ends ranging from language learning of intelligent systems to the learning capabilities of humans. To fulfill these ends this lab would like to start a modern academic research lab which is focused on the way speech is produced and comprehended. The lab will be involved with experimental investigations of speech processes and their acquisition. Topics include: articulatory movements, measurements of pressures and airflows in speech production, computer-aided waveform analysis and spectral analysis of speech, perception and discrimination of speechlike sounds, speech prosody, models for speech recognition, speech disorders,

and language acquisition. This laboratory will also play an important role in recording and archiving the languages of the North-East. Apart from that, the facilities in this laboratory will also promote advanced research on languages of the region.

**b) Language-Cognition lab:** Work on language-cognition interface in various areas of sensory perception, with focus on North East Indian languages.

**c) The Sleep & Cognition Lab** at present is involved in investigating the role of sleep on route learning in Humans. The present project is funded by the department of science and technology, GOI. This lab has 40 channel Nihon-Khodopolysomnography system, 2 High Speed Computing system, lomed Phosphor high precision low voltage direct current stimulator & E-prime 2.0 for designing experiment.

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

The department uses the facilities of the Institute Computer Center for its Language Laboratory. Software for facilitating the language skills of the students in the areas of Phonetics and Language learning has already been procured. Computers were also procured for the language laboratory. The Psychology Laboratory has procured hardware and software that are being utilized mostly by the Research Scholars. The department has also procured software NVIVO 10 (full License), IBM SPSS 21.0 & 22.0, Limdep 10.0 and procured equipment DC Stimulator, Complete: 1 Channel, Unipolar starter set/ 35 with all accessories during 2013-14.

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The faculties in the HSS department carry out research in several fields of humanities and social sciences. This includes English and Indian literature, Linguistics, Economics, Psychology, Philosophy, Political Science, Archeology, Sociology and History. Faculties and



doctoral students pursuing research within these disciplines have been engaged in teaching and research. Major areas of research include Dalit literature, Marathi literature, North-Eastern Archeology and Heritage Management, Common Wealth Literature, Aesthetics, Cultural Studies, Ecocriticism and Translations, Development Economics, Industrial Economics, Labour Economics, Phenomenology and Cognitive Science, Phenomenology and Religion, Ethical Issues related to Science and Technology, Organizational Behaviour, Human Resource Management, Social/Environmental Psychology, I-O Psychology, Literary and Cultural Theory, Microeconomics, Agricultural Economics, Environmental Economics, Econometrics, Philosophy of Technology, Applied Philosophy, Peace Studies, Critical Thinking, Applied Ethics, Philosophy of Education, Phonological theory with special interest in Optimality Theory, vowel harmony, Experimental approaches to Phonology and its acquisition, Social & Environmental History of Assam, Sociology of Science, Historical

Sociology, Cognitive linguistics, Endangered and lesser known languages, Language typology, Sociolinguistics, Sleep and Information Processing, Macroeconomics, Applied Game Theory, Sociology of Gender, Sociology of Law, Sociology of Communication, Socio-economic understanding of climate risk and resilience, Urban Living and Sustainable cities, Development Economics, Informal Sector, Issues in Food Security and Social Security, Economics of Education, Identity issues of ethnic minorities, local governance, development policies, social movements, ethnic violence and conflict prevention, Health and Clinical Psychology, Phonetics, Phonology, Acoustic Phonetics, Tibeto-Burman tones, Psychoacoustics, Perception, Public Economics, Dynamic Economic Theory, Christianity, conversion, ethnic violence, kinship and family, urban issues, Socio-economic history, Intellectual history of India – late 19th and 20th centuries, Focus on Ramakrishna, Aurobindo, Tagore and Gandhi.

## RESEARCH PROJECTS

### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Bidisha Som	A typological map of the language-cognition interface in the domain of conceptual metaphor	DST	13.55	None	3 years (2013-2016)
Bidisha Som	An Ethnolinguistic Account Of Sensory Perception Among The Bodos In North East India.	ICSSR-NWO (bilateral Indo-Dutch grant)	4.21	collaborator: Radboud University, the Netherlands	1 year (2013-2014)
Sukanya Sharma	Pottery Making and its Prospects for Rural Employment: Kumar and Hira Communities of Assam	ICSSR	7.00	None	2 years

### b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Sukanya Sharma	Megaliths in Changing times: A study in Cherrapunjee, Meghalaya	ICHR	1.00	None	2 years
Sukanya Sharma	Virtual Anthropology Laboratory	MHRD	65	S. Nandi and SRM Prasanna	4 years

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co- Investigator	Duration
S. Mallick	QIP CD Cell Project on Modernity: Sociological Perspectives (Preparation of Textbook)	AICTE (under QIP, IITG)	0.40	None	2 years
Sukanya Sharma	Source Book of the Archeology of Arunachal Pradesh	Ministry of Culture	2.96	None	1 year

**CONSULTANCY PROJECTS**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co- Investigator	Duration
Anamika Barua	Pre Campaign survey to assess the level of awareness among the local community in the fringe area of Manas National Park (MNS)	Wildlife Trust of India	3.5	None	Eight (8) months
Anamika Barua	Linnaeus Palme Travel Grant	Swedish International Development Agency (SIDA)	80000 SEK ( 8 Lakh)	Arupjyoti Saikia	One (1) Year
Ravi Mokashi Punekar	Creating Digital Learning Environment for Design in India	MHRD	750 (lakhs)	Rohini Mokashi-Punekar	2009-

**RESEARCH PUBLICATIONS**

**Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Debarshi Das and Deepnagar Basu	The Maoist Movement in India: Some Political Economic Considerations	Journal of Agrarian Change	13 (3)	365-381	2013
Debarshi Das and Deepankar Basu	Poverty-Hunger Divergence in India	Economic and Political Weekly	49 (2)	22-24	2014
Ira Das, Mrinal Kanti Dutta, and Saundaryya Borbora	Rural-urban Linkages for Development of Rural Economy in Assam: A Social Accounting Matrix Approach	International Journal of Rural Management	9	183-208	2013
Ashima Majumdar, Saundaryya Borbora	Social Security System and the Informal Sector in India: A Review	Economic & Political Weekly	48 (42)	69-72	2013
Rohini Mokashi-Punekar	Bollywood Travels: Culture, diaspora and border crossings in popular Hindi cinema	South Asian Diaspora	6 (1)	1-2	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
D. Hussain and K. Zhiman	Poverty, social exclusion and health: A case study on the Koutruk community of Manipur	Journal of Exclusion Studies	3 (1)	34-44	2013
V. Prabhu and Tanuja Kalita	Extending the Moral Standing: An Evaluation of Peter Singer's Position,	Pertanika: Journal of Social Sciences and Humanities,	22		2014
V. Prabhu and Dewartha Morang	Content, Context and Nature Care in Environmental Ethics	Cadernos do pet Filosofia	4 (7)		2013
V. Prabhu and Upendra Singh	Security through anonymity: Protective mechanism for RTI activists	Asia-Pacific Science and Culture Journal	1 (1)	1-6	2013
V. Prabhu and Dewartha Morang	Principles of Environmental Pragmatism and Sustainability Issue.	Lokayata	3 (2)	31-37	2013
Surya Prakash Upadhyay and Rowena Robinson	Religion and cultural pluralism	Identity, communication and culture in Indian society ICSSR Survey Report	3	339-376	2013
Ashok Kumar M and Rowena Robinson	Naraloka Prarthana: Prayer in the language of protest	Annual review of the sociology of religion	4	123-140	2013
Savio Abreu and Rowena Robinson	Social development of the Christian community in India	India: Social Development Report 2012 Oxford University Press	2012	263-274	2013
Sambit Mallick	The Realm of Commodified Technoscience	Seminar	654	32-42	2014
Sambit Mallick	Review of An Interdisciplinary Theory of Activity by Andy Blunden	Comparative Sociology	12 (2)	292-294	2013
Sambit Mallick	Review of Social Change and Development: Emerging Issues in the North-East India	Sociological Bulletin	62 (1)	160-162	2013
Sambit Mallick	Review of New Frontiers in Science and Technology Studies by Steve Fuller	International Sociology	29 (2)	117-119	2014
Pallavi Sharma and Archana Barua	Analytic Vs. Continental Philosophy: Space for the Lived Experiences	International Journal of Humanities and Social Science Invention	2 (6)	11-13	2013
Pallavi Sharma and Archana Barua	The Conflicting 'Other' in Jean Paul Sartre's Existentialism	Quest: International Multidisciplinary Research Journal	2 (1)	74-78	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Archana Barua	Ethical Dimension Of CSR: A Philosophical Perspective	Working Papers Series on Social Responsibility, Ethics & Sustainable Business	2	11-12	2013
Sukanya Sharma	Social Information from Lithic Tools: The Neolithic Tools of Garo Hills, Meghalaya	Pratna Samiksha: A Journal of Archaeology New Series	4	73-82	2013
Arupjyoti Saikia	Ecology, Flood and the Political Economy of Hydro-Power: The river Brahmaputra in the 20th century	Occasional Paper Series, Nehru Memorial Museum and Library	Occasional Paper		New Delhi, 2014.
Anamika Barua, Suparana Katyaini, Bhupen Mili and Pernille Gooch	Climate Change and Poverty-building resilience of rural mountain communities in South Sikkim, Eastern Himalaya, India	International Journal of Regional Environmental Change	14 (1)	267-280	2014

**Conference/Workshop/Seminar/Symposia**

Name of Author/s	Name of Paper	Name of Conf./Wor./ Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Minakshi Das and Archana Barua	Phenomenology, Psychotherapy, And The Quest For Inter-Subjectivity	Conference proceedings of Phenomenology And Its Future	3	5-6	2013
Archana Barua	Local and Non-local in Oral Discourse, Beliefs and Narratives: Assam and Manipur	Conference proceedings of Indian Folklore Congress 2014, Manipur	1	10-11	2014
Sambit Mallick	Inter-organizational Collaboration and Innovation in Agricultural Biotechnology in India	Proceedings of The Triple Helix in a Context of Global Change: Continuing, Mutating or Unravelling?			8-10 July 2013
A. Majudar and S Borbora	Productive Efficiency of the Urban Informal Manufacturing Sector in Assam'	Conference proceeding: SIBR-Thammasat 2013 Bangkok Conference on Interdisciplinary Business & Economic Research	2 (2)	1-16	2013

**Book, Chapter, etc.**

Name of Author/s	Name of Book/ Book Chapter	Publisher	Volume and Issue No.	Page No.	Year and Date of Publication
Arupjyoti Saikia	A Century of Protest: Peasant Politics in Assam since 1900	Routledge	-	-	2014

Name of Author/s	Name of Book/ Book Chapter	Publisher	Volume and Issue No.	Page No.	Year and Date of Publication
Krishna Barua	Space and Landscape: Deep Ecology in Raja Rao's The Serpent and the Rope and Gao Xingjian's Soul Mountain	Consciousness, Theatre, Literature and the Arts 2013 ed. Daniel Meyer-Dinkgräfe	Book Chapter	134-144	2014
Rosy Saikia & Krishna Barua	The Creative Process: A Study of Aesthetics in Rainer Maria Rilke's Selected Works	Consciousness, Theatre, Literature and the Arts 2013 ed. Daniel Meyer-Dinkgräfe	Book Chapter	124-133	2014
Krishna Barua	The Androgyne Factor: The Ambiguity of Existence in Patrick White's The Solid Mandala and The Twyborn Affair	Patrick White: Critical Issues. ed. Ishmeet Kaur	Book Chapter	79-89	2014
Krishna Barua	The Zany Fool? Representations in Raja Rao's The Cat and Shakespeare and Patrick White's The Solid Mandala	Patrick White: Critical Issues. ed. Ishmeet Kaur	Book Chapter	135-149	2014
Arupjyoti Saikia	Coal in Colonial Assam: the Dynamics of Exploration, Trade and Environmental Consequences	The Coal Nation: Histories, Cultures and Ecologies of Coal in India, ed. K. Lahiri Dutta	Book Chapter		2014
Kitriphar Tongper and Anamika Barua	Water Conflict, Law and Governance	Water Resources: An Integrated Approach, ed. Joseph Holden	Book Chapter		2014
S. Borbora	Livelihood Issues in the context of Inclusive Growth	Challenges of Inclusive Development: A Perspective from the Grassroots, eds. B. Saikia, D. Lahkar,	Book Chapter	61-66	2014
Rowena Robinson	The culture of small towns.	Small Cities And Towns In Global Era: Emerging Changes And Perspectives	Book Chapter	70-83	2013
Rowena Robinson	Planning and economic development	Invoking Ambedkar: Contributions, Receptions And Legacies	Book Chapter	59-71	2013
Rowena Robinson	Boundaries of Religion	Essays On Christianity, Ethnic Conflict And Violence	Book Chapter	-	2013

#### CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
S. Borbora	SIBR-Thammasat 2013 Bangkok Conference on Interdisciplinary Business & Economic Research	Bangkok	June 6-8, 2013	International

<b>Name of Faculty</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>National/International</b>
Debarshi Das	Development with Dignity	Shri Ram College of Commerce, Delhi University	28-30 March, 2014	International
Rohini Mokashi-Punekar and Rajashree Borgohain	Bakhtin In India: Exploring the Dialogic Potential in Self, Culture and History	Central Univ of Gujarat, Gandhinagar, India	August, 19-21, 2013	International
Rohini Mokashi-Punekar and Rajashree Borgohain	Envisioning a Modern Assamese Society: a study of Agarwalla's Khanikar	Gauhati University, Guwahati	Sept. 27-28, 2013	National
Rowena Robinson	International Workshop on Grounding the study of religion'	University of Leiden	26-28 August, 2013.	International
Rowena Robinson	Conference on Indigenous Christianities: Asian Centre for Cross-Cultural Studies.	Chennai	14 February 2014.	National
Rowena Robinson	Workshop on Christianity and Indian Culture'	Salesian College, Siliguri	1-3 August 2013	National
Bidisha Som	SALA Roundtable 30 Conference	Centre for Translation and Applied Linguistics University of Hyderabad	Feb.06-08, 2014	National
BidishaSom	National symposium on Advances in Language-Cognition Research	Centre for Neural and Cognitive Sciences. University of Hyderabad	30.10.2013	National
BidishaSom	The Fourth Conference of the Scandinavian Association for Language and Cognition. (SALC IV	University of Eastern Finland, Joensuu, Finland	June12-14, 2013	International
S. Mallick	11th Triple Helix Conference on The Triple Helix in a Context of Global Change: Continuing, Mutating or Unravelling?	University of London, United Kingdom	8-10 July 2013	International
M. Kumari and S. Mallick	Indraprastha International Conference on Biotechnology (IICB 2013)	Guru Gobind Singh Indraprastha University, New Delhi	22-25 October 2013	International
A. Kumar and S. Mallick	Indraprastha International Conference on Biotechnology (IICB 2013)	Guru Gobind Singh Indraprastha University, New Delhi	22-25 October 2013	International
S. Mallick	Indo-US International Congress-cum-Workshop on Intellectual Property Rights	Amity University Uttar Pradesh, Noida	29-31 January 2014	International
S. Mallick	Environment, Technology and Sustainable Development: Promises and Challenges in the 21st Century	ABV-Indian Institute of Information Technology and Management, Gwalior	2-4 March 2014	International
Bodhisattva Sengupta	Canadian Economic Association Conference	Montreal	1 June, 2013	International

<b>Name of Faculty</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>National/International</b>
Bodhisattva Sengupta	North Eastern Economic Association Conference	Aizwal, Mizoram	15 Nov 2014	National
Sukanya Sharma	Exterimental Lithic Knapping & Microwear Studies	Kohima	15th - 22nd March	National
Krishna Barua	Fifth International Conference Consciousness, Theatre, Literature and the Arts	The Lincoln School of Performing Arts, University of Lincoln, UK	June 15: 17 June 2013	International
Rajshree Bedamatta	Nominated as Economist from the National Systems by the International Rice Research Institute Philippines, to participate in the International Workshop on "Food Value Chain Analysis: Tools and Applications	Bangkok, Thailand	4-8 December 2014	International
Rajshree Bedamatta	State level consultation workshops on the Assam Human Development Report 2014, as a core team member of the HDR group, prepared by the Government of Assam in collaboration with Omeo Kumar Das Institute of Social Change and Development and Institute of Human Development, New Delhi	OKDISCD, Guwahati	July 12, 2013; October 3, 2013; March 28-29, 2013	National
Arupjyoti Saikia	Annual Conference of the American Society for Environmental History,	Toronto, Canada	April, 2013	International
Arupjyoti Saikia	State and Society in North East India	North East India Studies Programme, JNU	February 26-28, 2014.	International
Arupjyoti Saikia	The Eastern Himalaya: Gender, Poverty and Livelihoods	Jamia Milia Islamia, New Delhi	February 2013	International
Arupjyoti Saikia	Water Futures: A Dialogue for Young Scholars and Profession	Dhaka	November 2013	International
Anamika Barua	State level consultation workshops on the Assam Human Development Report 2014, as a core team member of the Wellbeing group, prepared by the Government of Assam in collaboration with Omeo Kumar Das Institute of Social Change, Flinders University, Australia and Development and Institute of Human Development, New Delhi	OKDISCD, Guwahati	28-29 March 2014	National
Anamika Barua	21st International Input-Output Conference.	University of Kitakyushu, Japan,	9-12 July 2013	International
Archana Barua	The 2nd International Conference on Social Responsibility, Ethics and Sustainable Business 2013	Bournemouth University, UK	September 5-6, 2013	International
Archana Barua	International colloquium on origins and destinies of culture	Assumption University, Bangkok, Thailand	4-5 June 2013	International
Archana Barua	Indian Folklore Congress, 2014, Manipur	IGNCA and Manipur University	February 5-7 2014	National

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

<b>Name of Faculty</b>	<b>Name of Lecture</b>	<b>Name of Inst./Org.</b>	<b>Place</b>	<b>Date</b>
S. Borbora	Governance and Institutional Reform	Central University of Bihar, Patna	Patna	22 Feb 2014
S. Borbora	Development Debate: Global and local	Academic Staff College, GU	Guwahati	1 Mar 2014
S. Borbora	Social Security Measures for Informal Sector in India	Academic Staff College, GU	Guwahati	1 Mar 2014
Debarshi Das	Can Game Theory Help Us Understand Social Identity	North Eastern Economic Association	Mizoram University, Aizawl	Dec 2013
Debarshi Das	Game Theory and Social Identity	Department of Business Administration, Gauhati University	Guwahati	8 Feb 2014
Rowena Robinson	Corruption: Retrieving the concept for Indian sociology and anthropology	4th G S Ghurye Memorial Lecture	Department of Sociology, Mumbai University	18 Mar 2014
Rowena Robinson	Emerging culture in the small towns of India	Fifth Ishwar Chandra Vidyasagar National Foundation Lecture	Women's College, Shillong,	4 Oct 2013
Rowena Robinson	Minority rights in the context of India	Talk delivered at Department of Political Science,	Cotton College, Guwahati	22 Aug 2013
V.Prabhu,	delivered lecture on 'Applied Ethics'	as a Resource person for UGC – Refresher course	Mizoram University,	18 Nov 2013
S. Mallick	Science and Technology Studies: A Historical-Sociological Survey	Tata Institute of Social Sciences, Guwahati	Guwahati	23 Jul 2013
S. Mallick	Twentieth Century Philosophy of Science and Technology	Tata Institute of Social Sciences, Guwahati	Guwahati	30 Jul 2013
S. Mallick	Social Construction of Technological Systems	Tata Institute of Social Sciences, Guwahati	Guwahati	6 Aug 2013
S. Mallick	Science, Technology and Ethics	Tata Institute of Social Sciences, Guwahati	Guwahati	13 Aug 2013
S. Mallick	Intellectual Property Rights Regime and Innovations in Scientific Research in India	Gauhati University	Guwahati	26 Dec 2013
S. Mallick	Information Technology in the Intellectual Property Rights Regime in India	National Institute of Electronics and Information Technology, Shillong	Shillong	30 Dec 2013
S. Mallick	Silver Jubilee Commemorative Lecture on Splitting and Splicing of Culture: Contingent Nature of Knowledge Production in the Era of Globalization	Jagiroad College, Jagiroad	Jagiroad	19 Feb 2014



Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Sukanya Sharma	Occasional Lecture Series of the Centre for Archeological Studies and Training Eastern India "Imagery of Northeast India: An Archaeological Perspective"	Centre for Archeological Studies and Training Eastern India	Kolkata	23 Jul 2013
Rajshree Bedamatta	From Famines to Food Security: How Far Has India Progressed?	National Law University of Judicial Academy Assam in collaboration with Save the Children Assam	NUJAA, Guwahati	3 Oct 2013
Rajshree Bedamatta	Undoing the Disengagements Surrounding the Food Security Bill as part of Human Vistas Lecture Series	Department of Sociology, Tezpur Central University	Tezpur	23 Sep 2013
Rajshree Bedamatta	The Food Security Bill, Current Account Deficit and the Falling Rupee: Are They Linked?	Entrepreneurial Development Cell, IIT Guwahati	Guwahati	12 Sep 2013
Arupjyoti Saikia	Plenary Lecture, Young Ecologist Meet and Interact 2013	YETI, 2013	Nagaland University, Mukok-sung	Dec 2013
Arupjyoti Saikia	India's Environmental History	ICHR, Guwahati	ICHR, NER, Guwahati	Apr 2013
Arupjyoti Saikia	Making of Landscapes and Livelihoods by the people living in the chars of the Brahmaputra.	TISS, Guwahati	TISS Guwahati	May 2013
Arupjyoti Saikia	A River Writes Its Own History: Few Ideas for a possible environmental history of the river Brahmaputra'	L. Devi Memorial Lecture, Cotton College, Assam	Guwahati,	Aug 2013
Arupjyoti Saikia	Hunger and Disaster: A History	Academic Staff College, Gauhati University	Guwahati	Feb 2014
Anamika Barua	Development Enablers for Mountain Communities : A capability approach	International Centre for Integrated Mountain Development (ICIMOD)	Kathmandu, Nepal	1-4 Dec 2013
Anamika Barua	Role of community in Improved Water Governance of Brahmaputra River	South Asian Consortium for Integrated Water Researches (SaciWATERS)	Dhaka, Bangladesh	20 Mar 2014
Anamika Barua	Women and Water : A case from Sikkim, India	Jamia Milia Islmia, New Delhi	New Delhi	11-13 Feb 2014
Archana Barua	Some feedback from an Indian author	Dr. Kramajit S Gill, Editor, AI & Society Journal (Springer)	University of Brighton	8-9 Sep 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./ Org.	Purpose/ Name of Lecture	Date	Remarks
Prof. Ashok Kumar Malhotra	State University of New York at Oneonta	Existentialism and Indian Philosophy	23 Jan 2014	Department Colloquium Series Lecture
Prof. Ramadhar Singh	Indian Institute of Management, Bangalore	Birds of a Feather Flock Together Because of Trust	10 Feb 2014	Department Colloquium Series Lecture
Prof. Harish Trivedi	Delhi University (retired)	Post-colonialism Now	6 Mar 2014	Department Colloquium Series Lecture
Prof. Probal Dasgupta	Indian Statistical Institute, Kolkata	I've never heard that word before	14 Mar 2014	Department Colloquium Series Lecture

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Name of Sem./Wor./Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of participants
Translation and Assamese Literature: History and Theory	Sahitya Akademi, Delhi and Jamia Millia Islamia	7-8 Mar 2014	National	Rohini Mokashi-Punekar and Arupjyoti Saikia	50
HSS Graduate Studies Workshop	ICHR	3-4 Jan 2014	International	Anamika Barua, Pahi Saikia, M. K. Dutta, Arupjyoti Saikia	30
Borders, Mobility and Identity in North East India and South East Asia	ICSSR	17-18 Oct 2013	International	Pahi Saikia	70
World Philosophy Day	ICPR	15 Nov 2013	National	V. Prabhu, Archana Barua	40

**SPECIAL MENTION**

Rohini Mokashi-Punekar  
Appointed External Senate Member, NIT Silchar, 2013-15

Rohini Mokashi-Punekar  
Appointed Member, Board of Studies, TISS Guwahati, 2013-15

Archana Barua, Nominated advisory Member for the "The Expert Committee for the Formulation of Course Structure and Syllabus – Department of Philosophy", Assam Don Bosco University, Guwahati; Member, Board of PG Studies in Philosophy, NEHU.

Arupjyoti Saikia, Member, Assam State Archive Advisory Committee

**FACULTY MEMBERS**

Sl. No.	Name	PhD	Designation	Areas of Interest
1	Anamika Barua	University of Leeds	Associate Professor	Socio-economic understanding of climate risk and resilience, urban living and sustainable cities

Sl. No.	Name	PhD	Designation	Areas of Interest
2	Archana Barua	North Eastern Hill University	Professor	Phenomenology, Existentialism, Feminist Epistemology, Applied Ethics, Philosophy of Religion, Indian Philosophy, Gandhian Philosophy
3	Krishna Barua	Gauhati University	Professor	Commonwealth Literature, Aesthetics, Cultural Studies, Ecocriticism and Translation
4	Saundarjya Borbora	Gauhati University	Professor	Development Economics, Industrial Economics, Labour Economics
5	Rajshree Bedamatta	University of Calcutta, through Indian Statistical Institute Kolkata	Assistant Professor	Development Economics, Informal Sector, Issues in Food Security and Social Security, Economics of Education
6	Basudev Chatterji	Cambridge University	Visiting Professor	Economic history, Intellectual history of India – late 19th and 20th centuries, Focus on Ramakrishna, Aurobindo, Tagore and Gandhi.
7	Debarshi Das	Jawaharlal Nehru University	Associate Professor	Development Economics, Macroeconomics, Applied Game Theory
8	Liza Das	Dibrugarh University	Associate Professor	Literary and Cultural Theory
9	Mrinal Kanti Dutta	Gauhati University	Associate Professor	Agricultural Economics, Environmental Economics, Development Economics
10	Dilwar Hussain	IIT Kanpur	Assistant Professor	Health and Clinical psychology
11	Naveen Kashyap	IIT Bombay	Assistant Professor	Sleep and Information Processing
12	Shakuntala Mahanta	Utrecht University, The Netherlands	Associate Professor	Phonological theory with special interest in Optimality Theory, vowel harmony, Experimental approaches to Phonology and its acquisition
13	Sambit Mallick	University of Hyderabad	Associate Professor	Sociology of Science, Historical Sociology
14	Rohini Mokashi-Punekar	Gujarat University	Professor	Research Interests: Culture and Translation Studies, Modern British Literature, Indian Writing in English
15	Sawmya Ray	University of Hyderabad	Assistant Professor	Sociology of Gender, Sociology of Law, Sociology of Communication
16	Rowena Robinson	Trinity College, Cambridge	Visiting Professor	Christianity, conversion, ethnic violence, kinship and family, urban issues.
17	Arupjyoti Saikia	University of Delhi	Associate Professor	Social & Environmental History of 19th and 20th century Assam.
18	Pahi Saikia	McGill University, Canada	Assistant Professor	Identity issues of ethnic minorities, local governance, development policies, social movements, ethnic violence and conflict prevention.

<b>Sl. No.</b>	<b>Name</b>	<b>PhD</b>	<b>Designation</b>	<b>Areas of Interest</b>
19	Priyankoo Sarmah	University of Florida, Gainesville	Assistant Professor	Phonetics, Phonology, Acoustic Phonetics, Tibeto-Burman tones, psychoacoustics, perception
20	Sukanya Sharma	Deccan College PG and Research Institute (deemed University), Pune	Associate Professor	Archaeology of Northeast India, Colonial history of Assam, Cultural Policy
21	Bodhisattva Sengupta	McGill University	Assistant Professor	Public Economics, Dynamic Economic Theory
22	Bidisha Som	Jawaharlal Nehru University	Associate Professor	Cognitive linguistics, Endangered and lesser known languages, Language typology, sociolinguistics.
23	Nachiketa Tripathi	IIT Kanpur	Associate Professor	Organizational Behaviour, Human Resource Management, Social/Environmental Psychology, I-O Psychology
24	Prabhu Venkataraman	Pondicherry University	Associate Professor	Philosophy of Technology, Applied Philosophy, Peace Studies, Critical Thinking, Applied Ethics, Philosophy of Education

# DEPARTMENT OF MATHEMATICS

## YEAR OF ESTABLISHMENT OF THE DEPARTMENT:

1995

## ACADEMIC PROGRAMMES OFFERED:

**Bachelor of Technology (BTech)** in  
o Mathematics and Computing

**Master of Science (MSc)** in  
o Mathematics and Computing

**Doctor of Philosophy (PhD)**

## STUDENTS ADMITTED IN THE YEAR 2013-2014:

- BTech: 43
- MSc: 43
- PhD: 15

## FACULTY STRENGTH:

- Professor: 8
- Associate Professor: 6
- Assistant Professor: 19

## NO. OF LABORATORIES WITH BRIEF INTRODUCTION:

The Department has three very good advanced computer laboratories with LCD projectors and remote operated screens for students of BTech and MSc programme. Besides, IIT Guwahati houses the Regional Mathematics Library funded by the National Board for Higher Mathematics (NBHM).

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

Analysis, Algebra and Number Theory, Theoretical Computer Science, Combinatorics, Numerical Analysis, Fluid Dynamics, Statistics & Probability, Finance.

## RESEARCH PROJECTS

### a) Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Shreemayee Bora and Prof. Christian Mehl (TU, Berlin)	Distance problems for structured matrix polynomials	DST and DAAD, Germany	4.28	R. Alam, P. Sharma (IITG, RS) Prof. Michael Karow (TU)	2011-2013
Shreemayee Bora and Christian Mehl (TU, Berlin)	Distance Problems For Structured Matrix Polynomials	DST and DAAD, Germany	4.28	Nil	2011-2013
Rajen K. Sinha	Web Course On Partial Differential Equations	IITG-NPTEL, MHRD	7.50	Nil	2010-2013
Anupam Saikia	Web Course on Number Theory	IITG NPTEL, MHRD	7.50	Nil	2009-2013

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Arabin Kumar Dey	Discrimination Among Higher Dimensional Distribution	IITG (Start-up Grant)	4.30	Nil	2011-2013
K.V. Krishna	Video Course On Formal Languages And Automata Theory	IITG – NPTEL, MHRD	7.50	D. Goswami, CSE, IITG	2009-2013
P.A.S. Sree Krishna	Simple Closed Geodesics in Hyperbolic 3-Manifolds	IITG (Start-up Grant)	4.10	Nil	2011-2013
	Video Course On Complex Analysis	IITG-NPTEL, MHRD	7.50	Nil	2009-2013

## RESEARCH PUBLICATIONS

### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
R. K. Sinha, M. Tripathy.	A Posteriori Error Estimates for H <sup>1</sup> -Galerkin Mixed Finite Element Method For Parabolic Problems.	Applicable Analysis	92 (4)	855-868	April, 2013
Tanvi Rai, Siddhartha P. Chakrabarty	Pricing Asian call option with average strike using a non-uniform grid, Issue 2-3.	Journal of Interdisciplinary Mathematics	16	191-201	April, 2013
P. Das, S. Natesan.	Richardson Extrapolation Method for Singularly Perturbed Convection-Diffusion Problems on Adaptively Generated Mesh.	CMES: Computer Modeling in Engineering & Sciences	96 (6)	463-485	May, 2013
S. Pati, M. Neumann	On Reciprocal Eigenvalue Property of Weighted Trees.	Linear Algebra Applications	438 (10)	3817-3828	May, 2013
Sunanda Saha, Swaroop Nandan Bora.	Trapped modes in a two-layer fluid of finite depth bounded above by a rigid lid.	Wave Motion	50	1050-1060	June, 2013
Shubh Narayan Singh, K. V. Krishna	A Sufficient Condition for the Hanna Neumann Property of Submonoids of a Free Monoid.	Semigroup Forum	86 (3)	537-554	June, 2013
N. Selvaraju, Cosmika Goswami.	Impatient customers in an M/M/1 queue with single and multiple working vacations.	Computers and Industrial Engineering	65	207-215	June, 2013
Gaurav Pachpute, Siddhartha P. Chakrabarty	Dynamics of hepatitis C under optimal therapy and sampling based analysis.	Communications in Nonlinear Science and Numerical Simulation,	18 (8)	2202-2212	August, 2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Shuvam Sen, Jiten C Kalita, M M Gupta.	A robust implicit compact scheme for two-dimensional unsteady flows with a biharmonic stream function formulation.	Computers and Fluids.	84	141-163	September, 2013
Jiten C Kalita, Shuvam Sen.	Unsteady separation leading to secondary and tertiary vortex dynamics: The sub- $\alpha$ and sub- $\beta$ phenomena.	Journal of Fluid Mechanics	730	19-51	September, 2013
Mohammad Hassan, Swaroop Nandan Bora.	Exciting forces for a wave energy device consisting of a pair of coaxial cylinders in water of finite depth.	Journal of Marine Science and Application.	12 (3)	315-324	September, 2013
Pratyooosh Kumar, Swagato K. Ray, Rudra P. Sarkar.	Characterization of almost $L_p$ -eigenfunctions of the Laplace-Beltrami Operator	Trans AMS (published online)			September, 2013
Bhupen Deka, T. Ahmed.	Convergence of Finite Element Method for Linear Second order Wave Equations with Discontinuous Coefficients.	Numer. Method for PDE	29	1522-1542	September, 2013
Balakrishnan, N., Mitra. D.	Likelihood inference based on left truncated and right censored data from a gamma distribution.	IEEE Transactions on Reliability	62 (3)	679-688	September, 2013
Bhupen Deka, R. K. Sinha, R. C. Deka, T. Ahmed.	Finite Element Method with Quadrature for Parabolic Interface Problems, Neural.	Neural Parallel and Sci. Comput.	21	477-496	October, 2013
S. Gowrisankar, S. Natesan	Parameter Uniform Numerical Method for Parabolic Reaction-Diffusion Problems on Equidistributed Grids.	Applied Mathematics Letters.	26 (11)	1053-1060	November, 2013
S. Natesan, P. Das.	Numerical Solution of a System of Singularly Perturbed Convection-Diffusion Boundary-Value Problems Using Mesh Equidistribution Technique.	Australian Journal of Mathematical Analysis and Applications, Article 14	10 (1)	1-17	November, 2013
Bhupen Deka, R. C. Deka.	Finite Element Method for a class of Parabolic Integro-Differential Equations with Interfaces.	Ind. J. Pure. and Appl. Math	44	823-847	December, 2013
S. Natesan, K. Mukherjee.	An Efficient Hybrid Numerical Scheme for Singularly Perturbed Problems of Mixed Parabolic-Elliptic type (DOI : 10.1007/978-3-642-41515-9-46)	Lecture Notes in Computer Science.	8236	411-419	2013
Balakrishnan, N., Mitra. D	Some further issues concerning likelihood inference for left truncated and right censored lognormal data.	Communications in Statistics - Simulation and Computation	43	400-416	January, 2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S. Saha, Swaroop Nandan Bora	Flexural gravity waves trapped in a two-layer fluid of finite depth.	Applied Ocean Research.	44	1-12	January, 2014
M. Hassan, Swaroop Nandan Bora	Rotational motion due to the interaction of water waves with a pair of coaxial cylinders in water, of finite depth (DOI : 10.5373/jaram.1)	Journal of Advanced Research in Applied Mathematics.	6 (1)	48-65	February, 2014
Jiten C Kalita, Bidyut B. Gogoi	Global two-dimensional stability of the staggered cavity flow with an HOC approach.	Computers and Mathematics with Applications.	67	569-590	February, 2014
D.C. Dalal, A. Kumar.	Analytical solution and analysis for solute transport in streams with diffusive transfer in the hyporheic zone	Journal of Hydro-environment Research	8 (1)	62-73	March, 2014
Rafikul Alam, B. Adhikari	Structured mapping problem for linearly structured matrices	Linear Algebra Applications	444	132-145	March, 2014
Shyamashree Upadhyay	Initial Ideals of Tangent Cones to the Richardson Varieties in the Orthogonal Grassmannian	International Journal of Combinatorics	DOI: 10.1155/ 2013/ 392437		March 2013

**CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED**

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
Rajen K. Sinha	International Conference on Mathematical Modelling & Computer Simulation with Application	IIT Kanpur	31 Dec 2013 – 2 Jan 2014	International
Rajen K. Sinha	National Workshop on Deployment and Use of NPTEL Courses	Royal Group of Institutions, Guwahati	29-30 Apr 2013	National
Swaroop Nandan Bora	National Seminar on Trends in Mathematical Achievements : The Importance of Basic Skills	Khaira College, Orissa	1 Apr 2013	National
Swaroop Nandan Bora	Recent Trends in Mathematics and its Applications (RTMA-2013)	Digboi College, Assam	7-8 Oct 2013	National
S. Natesan	National Conference on Pure and Applied Mathematics (NCPAM)	Royal School of Engg. & Technology, Guwahati	9-10 May 2013	National
S. Natesan	National Conference on Recent Trends in Analysis and Applied Mathematics	NIT, Trichy	9-10 May 2013	National
S. Natesan	Short Term Programme on Numerical Methods of its Applications in Science & Engineering (NMASE-2013)	NIT, Jamshedpur	19-23 Aug 2013	National



Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
S. Natesan	Recent Trends in Mathematics and its Applications (RTMA-2013)	Digboi College, Assam	7-8 Oct 2013	National
S Pati	India-Taiwan Conference on Discrete Mathematics	National Chiao Tung University, Taiwan	19-22 Nov 2013	International
S Pati	National Workshop and Conference on Discrete Mathematics and Applications	Jadavpur University	10-14 Mar 2014	National
Shreemayee Bora	ILAS Conference	Providence, Rhode Island, USA	3-7 Jun 2013	International
Shreemayee Bora	Workshop on Numerical Linear Algebra and Optimization	University of British Columbia, Vancouver, Canada	8-10 Aug 2013	International
Siddhartha P. Chakrabarty	Indo-Canadian Workshop on Mathematical Modelling of Infections Diseases	IIT Roorkee	20-22 Jan 2014	International
Siddhartha P. Chakrabarty	International Conference on Emerging Trends in Applied Mathematics	University of Calcutta	12-14 Feb 2014	International
Vinay Wagh	ATMW on Computational Algebraic Geometry	IIST, Trivendrum	9-14 Feb 2014	International
P.A.S. Sreekrishna	Advanced School & Discussion Meeting on knot theory and its applications	IISER, Mohali	16-20 Dec 2013	International
Arabin Kumar Dey	3rd IIMA International Conference on Advanced Data Analysis, Business Analysis and Intelligence	IIM, Ahmedabad	13-14 Apr 2013	International
Arabin Kumar Dey	Conference on Non-linear System of Summer School Nepal	Kathmandu	18-22 Jun 2013	International
K.V. Krishna	International Conference on Semigroups Algebras and Operator Theory	Cochin Univ. of Science and Technology, Cochin	26-28 Feb 2014	International
K.V. Krishna	General Algebra and its Applications (GAIA-2013)	La Trobe University Melbourne, Australia	15-19 Jul 2013	International
Rajesh Srivastava	XIII Discussion Meeting on Harmonic Analysis	Chennai Mathematical Institute	16-19 Dec 2014	National
Rajesh Shrivastava	Conference on Harmonic Analysis and Operator Theory	IISER, Bhopal	21-23 Mar 2014	National
Pratyooosh Kumar	Conference on Harmonic Analysis and Operator Theory	IISER, Bhopal	21-23 Mar 2014	National
Gautam K. Das	The 13th International Conference on Computational Science and its Applications (ICCSA 2013)	International University, Vietnam	24-27 Jun 2013	International

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
Bikash Bhat-tacharjya	RMMC Summer School 2013 on Algebraic Graph Theory	Univ. of Wyoming, Laramie, USA	17-28 Jun 2013	International
Partha Sarathi Mandal	11th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt 2013)	University of Tsukuba, Japan	13-17 May 2013	International

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Rajen K. Sinha	Mixed Finite Element Approximations of Parabolic Integro-Differential Equations with Nonsmooth Initial Data	IIT Kanpur	India	31 Dec 2013 – 2 Jan 2014
Rajen K. Sinha	Partial Differential Equations	Royal Group of Institutions, Guwahati	India	29-30 Apr 2013
Swaroop Nandan Bora	Interpolating Polynomials	IIT Guwahati	India	20-24 May 2013
Swaroop Nandan Bora	Differential Equations: How They Occur in Physical Problems	Department of Mathematics, Mizoram University, Aizawl	India	5 Jun 2013
Swaroop Nandan Bora	Mathematics: Journey through the ages: Motivation and applications	Chhaygaon College	India	22 Aug 2013
Swaroop Nandan Bora	Scattering and Trapping of Water Waves in Two-layer Fluids	Digboi College	India	7-8 Oct 2013
Swaroop Nandan Bora	Innovation in Science Pursuit for Inspired Research (INSPIRE)	MC College	India	21 Dec 2013
S Pati	Some observations on the algebraic connectivity of graphs	National Chiao Tung University (3rd ITCDM)	Taiwan	20 Nov 2013
S Pati	On reciprocal eigenvalue property of graphs	Department of Mathematics, Jadavpur University	India	13 Mar 2014
Siddhartha P. Chakrabarty	Investment strategy : The case of a two asset portfolio	The Doon School, Dehradun	India	10 Aug 2013
Siddhartha P. Chakrabarty	Dynamics of hepatitis C : Optimal therapeutic efficacy and sampling based analysis	Indian Institute of Technology Roorkee	India	20-22 Jan 2014
Siddhartha P. Chakrabarty	Dynamics of hepatitis C: Optimal therapeutic efficacy and sampling based analysis	University of Calcutta	India	12-14 Feb 2014

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. S. Pattanayak	Institute of Mathematics and Applications, Bhubaneswar, Orissa	Random Fourier Series	8 Apr 2013

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. A. K. Nandakumar	Indian Institute of Science, Bangalore	Homogenization of Optimal Control Problem in a Domain with Oscillating Boundary	31 May 2013
Prof. Barendra Purkait	Indian Statistical Institute, Kolkata	Velocity, bed roughness and grain size distribution of suspended sediments an experimental study	16 Jan 2014
Prof. T. E. S. Raghavan	Department of Mathematics, Statistics and Computer Science University of Illinois at Chicago, USA	A Legal dispute resolved by cooperative game theory	14 Feb 2014
Prof. T. Subba Rao	University of Manchester	Spectral and frequency domain methods for the analysis of spatio-temporal random processes- An application to Spatio-Temporal Kriging.	6 Mar 2014
Prof. G. D. Veerappa Gowda	TIFR Centre for Applicable Mathematics, Bangalore	Godunov-type finite volume approximation for formation of sandpile on a finite table	10 Mar 2014
Prof. Kamal Lodaya	Department of Theoretical Computer Science, Institute of Mathematical Sciences, Chennai	Programs, processes, phones	14 Mar 2014
Prof. Sandeep Juneja	Tata Institute of Fundamental, Mumbai	Rare Event Simulation of Heavy Tailed Random Walks - A New Approach	25 Mar 2014
Prof. N. Ramanujam	Bharathidasan University, Tiruchirappalli	Delay Differential Equations and Numerical Methods	27 Mar 2014

### SPECIAL MENTION

Dr. Vinay Wagh visited University of Kaiserslauteru, Germany from 24 May – 27 July 2013 for research work.

### FACULTY MEMBERS

Sl. No.	Name	PhD	Designation	Areas of Interest
1	R. Alam	IIT Bombay	Professor	Linear and Numerical Linear Algebra
2	S. Bandopadhyay	ISI Delhi	Assistant Professor	Operations Research
3	B. Bhattacharjya	IIT Kanpur	Assistant Professor	Graph Theory
4	S. Bora	IIT Guwahati	Associate Professor	Perturbation Theory, Numerical Linear Algebra
5	S. N. Bora	Dalhousie University, Canada	Professor	Water Wave Dynamics, Ocean Engineering, Flow through Porous Media
6	S. P. Chakrabarty	University of Illinois, Chicago USA	Assistant Professor	Mathematical Biology, Optimal Control Theory, Mathematical Finance
7	A. K. Chakraborty	IIT Kanpur	Assistant Professor	Functional Analysis

Sl. No.	Name	PhD	Designation	Areas of Interest
8	D. C. Dalal	IIT Kharagpur	Professor	Fluid Dynamics
9	G. K. Das	ISI, Kolkata	Assistant Professor	Computational Geometry, Approximation Algorithms, Wireless Networks
10	Bhupen Deka (Joined on 24.01.2014)	IIT Guwahati	Assistant Professor	Numerical Analysis, Finite Element Methods, Interface Problems, Numerical Solutions to Integro Differential Equations
11	A. K. Dey	IIT Kanpur	Assistant Professor	Distributions models and its applications, Survival Analysis
12	S. Dutta	IIT Kanpur	Assistant Professor	Quantum Computing, Complexity Theory
13	J. C. Kalita	IIT Guwahati	Professor	Computational Fluid Dynamics, Numerical methods for PDEs
14	S. Kamal	TIFR, Mumbai	Assistant Professor	Probability, Random graphs
15	K. Kapoor	London South Bank University, UK	Associate Professor	Programming Languages, Concurrency, Software Testing
16	P. A. S. Sree Krishna	SUNY, Buffalo	Assistant Professor	Hyperbolic 3-manifolds, Low-dimensional topology
17	K. V. Krishna	IIT Delhi	Assistant Professor	General Algebra, Theoretical Computer Science
18	P. Kumar	IIT Kanpur	Assistant Professor	Harmonic Analysis
19	P. S. Mandal	Jadavpur University	Assistant Professor	Wireless Sensor Networks, Distributed Computing
20	D. Mitra	McMaster University, Canada	Assistant Professor	Statistical inference, Censoring methodology, Reliability and Survival Analysis, Ordered data analysis
21	S. Natesan	Bharathidasan University, Thiruchirappalli	Professor	Differential Equations, Homogenization, Numerical Analysis
22	S. Pati	ISI Delhi	Associate Professor	Spectral Graph Theory
23	M. G. P. Prasad	IIT Kanpur	Professor	Complex Dynamics and Fractals
24	H. Ramesh	IIT Madras	Assistant Professor	Formal Languages and Automata Theory, Membrane Computing
25	A. Saikia	University of Cambridge, U.K.	Associate Professor	Algebraic Number Theory
26	B. K. Sarma	Delhi University	Professor & Head	Spectral Graph Theory, Combinatorial Matrix Theory
27	N. Selvaraju	IIT Madras	Associate Professor	Stochastic Modelling, Queueing Theory, Stochastic Modelling, Operations Research
28	R. K. Sinha	IIT Bombay	Professor	Numerical Analysis
29	K. V. Srikanth	SUNY, Buffalo	Assistant Professor	Low Dimensional Topology

<b>Sl. No.</b>	<b>Name</b>	<b>PhD</b>	<b>Designation</b>	<b>Areas of Interest</b>
30	R. Srivastava	IIT Kanpur	Assistant Professor	Harmonic Analysis
31	J. Swain	IIT Madras	Assistant Professor	Harmonic Analysis
32	S. Upadhyay	CMI, Chennai	Assistant Professor	Algebraic Combinatorics
33	V. V. Wagh	University of Pune	Assistant Professor	Algebraic Geometry

# DEPARTMENT OF MECHANICAL ENGINEERING

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1995

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech)** in  
o Mechanical Engineering

**Master of Technology (MTech)** in  
o Machine Design  
o Fluid & Thermal Engineering  
o Computer Assisted Manufacturing and  
o Computational Mechanics

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 80
- MTech: 90
- PhD: 35

**FACULTY STRENGTH:**

- Professor: 13
- Associate Professor: 5
- Assistant Professor: 25

**NUMBER OF FACULTY JOINED DURING 1 APRIL 2013  
– 31 MARCH 2014:**

Professor: 1  
Assistant Professor: 3

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

- **Advanced Manufacturing Laboratory:** Equipped with advanced equipments for manufacturing including micro-fabrication facility using CO<sub>2</sub> Laser cutting technology.
- **Strength of Materials Laboratory:** Basically

dedicated for doing all kinds of testing including tensile testing, fatigue testing, compressive testing, torsion testing, hardness testing, impact testing etc.

- **Materials Science Laboratory:** Dedicated for carrying out metallographic studies using highly precise microscope, XRD etc.

- **Fluid Mechanics Laboratory:** This lab has basic fluid mechanics set-up. The lab is equipped with different flow measuring set-ups such as venturimeter, orifice-plate, pitot tube, rotometer etc., where students can visualize the basic theory of working of the flow meter.

- **Thermal Science Laboratory:** This lab consists of heat exchangers, equipments for conducting experiments on conduction, convection and radiation, refrigeration systems etc. All these equipments facilitate learning of basic Thermodynamics and Thermal Engineering at undergraduate level.

- **Turbo-machinery Laboratory:** This lab has different table-top model of pumps and turbines where students can study the performance characteristics of those machines. Students can strengthen their basic understandings of working and applications of these machines.

- **IC Engine Laboratory:** This lab is for both undergraduates and graduate students. Some of the experiments which are performed by under-graduate students are performance studies of both C.I. and S.I. engines, etc. Moreover studeis on the glorific values, exhaust gas characteristics, extensive studies of bio-diesel with both engines are done by post-graduate students in their respective project works

- **Vibrations and Acoustics Laboratory:** This lab demonstrates basic vibrational instruments to students at undergraduate level. Also provides facilities for measurement of frequency signals, rpm etc, and facilities for data-acquisition which are very much beneficial for research activities in the domain of vibrational analysis.

• **Mechatronics and Robotics Laboratory:** The Mechatronics and Robotics lab is equipped with various facilities to educate the students at the undergraduate and postgraduate levels. Most of the robotics activities are facilitated to students by this lab.

• **Instrumentation Laboratory:** This lab performs calibration of pressure transducer/ gauge and other mechatronics apparatus, provides strain-gauge measurement facilities etc.

• **Theory of Machines Laboratory:** This lab consists of all basic equipments for understanding mechanisms, apparatus etc. at undergraduate level such as gyroscope, governor, jib-crane, screw jack, worm-wheel apparatus etc.

• **Tribology Laboratory:** Provides facilities for carrying out wear test of specimens of different materials under the condition of with lubrication/without lubrication.

• **CAD/CAM Laboratory:** Specialized in extending computer-assisted software tools needed for design and analysis such as ABAQUS, ANSYS, Master CAM, Pro/E, ADAMS etc.

• **Metrology Laboratory:** Provides facilities for carrying out dimensional measurements up to high degree of accuracy.

#### MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:

Equipment	Make and Model
Belt driven balancing machine	Make: ABRO, Model: B-30-BL (Type B)
CNC Turning Centre	Make: MTAB Engineers Pvt Ltd, Chennai Model: Maxturn Plus
Bench Top CNC Milling Machine	Model: XMILL Make: MTAB Engineers Pvt Ltd, Chennai
Die Sinking EDM	Make: Sparkonix (india) Pvt Ltd. Model: S50 ZNC
Submerged Arc welding machine	-
Electric High Temperature Furnace	Make- Meta Therm Furnace Pvt. Ltd. Model- MTF-Electric
High Temperature Microwave Sintering machine	Make- Enerzi Microwave System Pvt. Ltd. Model- MH0814-101-V5
X-Ray Diffractometer	Make: M/s PAnalytical, The Netherlands Model: X'pert Pro

Equipment	Make and Model
DSC cum TGA	M/s Perkin Elmer, Singapore Model: STA 8000
Thermal property analyzer	Make: M/s Hot Disk AB, Sweden, Model: TPS 2500S
Oil bath for controlled atmosphere with liquid sample holder	Make: M/s ThermoFisher, USA
Microplasma welding machine	Make: EWM, Germany Model: Microplasma 50
10 kJ EM Processing System for Shearing operation	GrowControls Hyderabad

#### MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

The thrust areas of research in the department are: Stress Analysis; Experimental and Computational Fracture Mechanics; Composite Materials and Structures; Smart Materials and Structures; Materials Characterization; Dynamics and Controls; Electro-Mechanical Systems; Robotics; Nonlinear Vibration; Bio-Mechanics; Noise; Tribology; Condition Monitoring; Experimental and Computational Fluid Dynamics; Bio-MEMS and Micro Fluidics, Heat Transfer; Low Speed and High Speed Aerodynamics; Multiphase Flow; Flow instabilities in nuclear reactors and miniature channels; Hydrogen Energy; Metal Hydride Based Thermal Machines; Energy Storage and Fluidization; Bio-fuels; Metal Cutting; Micro Machining and Micro Fabrication; Micro-machining using EDM and micro-bending with Laser; Unconventional Machining; Mechatronics; CAD/CAM/CAE; Materials Processing and Heat Treatment; Metal Forming; Welding; Plasma, GTA, and Submerged arc welding, Friction stir welding, Micro welding and joining; Bio-Nano Composites and Nanofluids. The faculty members are exploring new areas like micro-manufacturing, magnetic bearings, smart structures and nano-fluid mechanics. Development works are also undertaken in the following areas.

Processing of self lubricating cutting tool machine.

Development of injection moulded asymmetric gear.

Development of power absorption gear test  
CO2 Laser based fabrication facility

Micro-machining using EDM and micro-bending with CO2 Laser

Surface texture study using a high-precision

apparatus known as profilometer

Multi-disciplinary design optimization and operations research

under the sponsorship of MHRD, New Delhi

- Development of Remote triggered Virtual Robotics Lab under the sponsorship of MHRD, New Delhi

- Development of walking Apparatus (Concept validation, feasibility, prototyping and testing) under the sponsorship of Department of Electronics and Information Technology (DEITY) New Delhi

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:**

- Development of Virtual Vibration Lab (Pilot Phase)

**RESEARCH PROJECTS**

**a) New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. A. Chattopadhyay, Prof. P. Roy Paily, Dr. D. Bandyopadhyay	Centre for excellence in Research and Development of nanoelectronic theranostic devices	Department of Electronics and Information Technology	5775.00	Chemistry: Prof. P K Iyer, Dr. Anumita Paul, Dr.M Qureshi, Dr.C Mukherjee, Dr. A.S. Achalkumar, Dr. K Sahu, Biotechnology: Prof. S.S. Ghosh, Dr. Biplab Bose, Prof. L Sahoo, EEE: Dr. Harshal B. Nemade, Physics: Dr. P.K.Giri, Dr.DK Goswami, Chemical: Dr. Tapas K Mandal, Mechanical: Dr. S. Kanagaraj, Dr. M. Ravisankar, Health Centre: Dr.Anuj Kr Baruah	5 years (From February 2014)

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Pankaj Biswas	Numerical & Experimental Study on Residual Stress and Distortion control of Welded Structure	IIT Guwahati	5.0	Nil	02 years
Dr. Deepak Sharma	Parallel Computing Tool for Structural Optimization of Mechanical Components using Evolutionary Algorithm	Start-up grant, IIT Guwahati	5.0	-	2012-2014
Dr. Ujjwal K Saha	Utilization of Bio-waste for Generating Power in Diesel Engines	DRL (DRDO), Tezpur	9.91	N. Sahoo	03 years
Dr. Satyajit Panda	Active control of harmonically excited nonlinear vibrations of functionally graded cylindrical shells using PFRC constrained layer damping treatment	SERB, Department of Science and Technology, Govt. of India, New Delhi	10.32		03 years



Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. P. Muthukumar	Development of Thermal Energy Storage Systems for Solar Thermal Power Plant	DST	128.00	Nil	2012-2014
Dr. S. Kanagaraj	Development of Copper (Cu) – Carbon Nanomaterial (CN) based nanocomposite formulations for heat recovery in different processes in a steel plant	Steel Development Fund, Ministry of Steel, India, and M/s Tata Steel, Jamshedpur	336.00	Dr. S. Ramaprabhu, Physics, IIT Madras, Dr. Prathab Baskar and Dr. Sumitesh Das, Chief, R&D division, Tata Steel, Jamshedpur	36 months (Sept.'12 to August 2015)
Dr. S. Kanagaraj	Developing light weight, durable and user friendly artificial limbs through Nanotechnology-based modification of conventional materials and optimizing mechanical component design for enhancing their functional performance	Department of Biotechnology, India	56.87	Dr. Bhaskar Borgohain and Mr. Balaphrang Marbaning from NEIGRIHMS	36 months (May'12-April'15)
Dr. Manmohan Pandey	Development of a 1-D thermal hydraulic code for computation of unsteady steam-water flow and supercritical flow in horizontal and vertical channel type reactors	AERB	14 (approx.)	---	03 years
Dr. Sashindra K. Kakoty	Rural Technology Action Group – North-East	Principal Scientific Adviser to the Govt. of India	104.00	-	during 2006-2014
Dr. Karuna Kalita, Dr. Sashindra K. Kakoty	Active Vibration Control in Electrical Machines using Built-in Actuators	DST	35.00	-	03 years
Dr. Karuna Kalita, Dr. Sashindra K. Kakoty	Design and Development of a Controller for Bridge Configured Winding based Bearing-less Motor	DIT	90.00	-	03 years
Dr. Sachin D. Kore	Electromagnetic Shearing of Tubes and Sheets	SERB, DST	18.5	Nil	2013-2016
Dr. Dipankar Narayan Basu	Analysis of Supercritical Natural Circulation Loops with Water and Carbon Dioxide as Working Medium	DST	9.46	Nil	2013-2016
Dr. Vinayak Kulkarni	Design development and performance assessment of variable compression engine	DST	18.05		2013-2015

<b>Principal Investigator</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Amount Sanctioned (Rs. in Lakh)</b>	<b>Co-Investigator</b>	<b>Duration (years)</b>
Dr. Dipankar Narayan Basu	Development and Experimental Characterization of a Super-critical Natural Circulation Loop Considering Steady-state and Stability Aspects	IITG	5.00		2013-2015
Dr. Vinayak Kulkarni	Development of a conjugate heat transfer solver for hypersonic applications	ARDB	10.63	Dr. Niranjan Sahoo , Dr. Ganesh Natarajan	2013-2015
Dr. Amaresh Dalal	Development of a General Purpose CFD Solver over a Hybrid Unstructured Grid	BRNS	300.88	Dr. Ganesh Natarajan	2013-2018
Dr. Deepak Sharma	Development of High Performance Computing Tool For Structure Topology Optimization Using Multi-Objective Evolutionary Algorithm	SERB	12.12	-	2013-2016
Dr. Swarup Bag	Experimental investigation and numerical modeling of plasma micro welding for similar type materials	SERB	22.2	-	2013-2016
Dr. Vinayak Kulkarni	Feasibility Studies of Generating Electric Power using Helical Water Turbine	APGCL	27.2	Dr. U. K. Saha	2013-2015
Dr. Shrikrishna N. Joshi	Improving productivity and product quality in machining of thin-walled components	SERB-DST	37.9		2013-2015
Dr. Amaresh Dalal	Numerical Modeling of All-Vanadium Redox Flow Battery	DST	16.08	-	2013-2016
Dr. Pinakeswar Mahanta	Small-scale Anaerobic Digestion' under the Rural Hybrid Energy-Enterprise Systems	DST	82.684	Dr. P. S. Robi	2013-2016
Dr. Narayana Reddy	Application of topology optimization to compliant switches and inverse boundary value problem,	IITG	5.00	-	2012-2014
Dr. Pinakeswar Mahanta	Building Global engagements in research (energy)- EPSRC funded-2 years	EPSRC	4.326	-	2012-2014
Dr. Ravi M. Sankar	Design and Development of Micro Abrasive Flow Finishing Process	IITG	5.00	-	2012-2014
Dr. Atanu Banerjee	Design and Development of Shape Memory Alloy Actuated Flexible Endoscope for Diagnosis and Surgery	DBT	57.00	Dr. Karuna Kalita	2012-2015

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Pinakeswar Mahanta	Design of 25kWe circulating fluidized bed unit	CPRI	35.00	-	2012-2015
Dr. Hrishikesh P. Gadgil	Development of Experimental Facility for Flow Visualization of Fuel Sprays and Two-phase Flows	IITG	5.00	-	2012-2014
Dr. Sukhomay Pal	Development of Monitoring System for Friction Stir Welding	DST	9.24	-	2012-2015
Dr. Santosha K. Dwivedy	Development of Remote triggered Virtual Robotics Lab	MHRD	55.4	-	2012-2014
Dr. Pinakeswar Mahanta	FP7 Project iComFluid under Marie Curie Action 'International Research Staff Exchange Scheme', IRSES (FP7_PEOPLE-2012-IRSES, Project No. 212261)-	EU	0	-	2012-2016
Dr. Atanu Banerjee	Modeling and active control of SMA actuators	DST	17.00	-	2012-2015
Dr. Manas Das	Nano finishing of Freeform Surfaces using magneto rheological Fluid-based Finishing (MRFF) Process	DST	41.00	-	2012-2015
Dr. Manas Das	Nano finishing using Magneto rheological Finishing (MRF) Technique	IITG	5.00	-	2012-2014
Dr. Arnab Kumar De	Numerical investigation of turbulent rotating Rayleigh-Bernard convection in a cylindrical cell	DST	10.5	-	2012-2015
Dr. Sashindra K. Kakoty	Poverty Alleviation through Mechanization of spawn production of mushroom	North East Council, Shillong	36.96	-	2012-2014
Dr. Niranjana Sahoo	Shock Tube Development and Verification of Capabilities of Existing Correlation for Stagnation Point Heat Transfer rate	ARDB	16.043	Dr. Vinayak Kulkarni	2012-2014
Dr. Santosha K. Dwivedy	Walking Apparatus: Concept Validation, Feasibility, Prototyping & Testing	MEIT	95.00	Dr. P.S.Robi, Dr. H. B. Nemade (EEE Deptt.)	2012-2014
Dr. Rajiv Tiwari	Development & Deployment of a Virtual Mechanical Vibration Laboratory	MHRD	103.00	-	2009-2014
Dr. Uday S. Dixit	DST FIST	DST	276.00	Dr. R. Ganesh Narayanan	2009-2014

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Pinakeswar Mahanta	Design and Development of Digester for Utilization of Lignocellulosic Waste for Biogas Production	DRL Tezpur	9.5	-	2011-2014
Dr. R. Ganesh Narayanan	UKIERI travel grant under thematic partnership in low carbon materials technologies, innovations, and applications	UKIERI	2.2	Prof. M. Chakraborty, IIT Bhubaneswar, Prof. R. Dashwood, University of Warwick, UK	2011-2014

### CONSULTANCY PROJECTS

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. K. Kalita	Feasibility study for implementing HTS generator in place of conventional generator in a hydroelectric power plant	NEEPCO	28.00	Dr. S. Pal, Dr. S. K. Kakoty	2013-2015
Dr. K. S. R. K. Murthy	Testing of samples from Steel hollow tubular Sections	Power Grid, NERTS	0.63	-	02 months (2013)
Prof. N. R. Mandal	Fatigue Analysis of AK-630 Gun Mount	Goa Shipyard Ltd., India	8.15	Dr. Pankaj Biswas	06 Months
Dr. S. N. Joshi	Mechanization of FCI godown operations	Food Corporation of India, New Delhi	34.25	Dr. S. D. Kore	2012 – ongoing
Dr. S. Pal	Development of custom made remotely operable shot blasting system with robotic arms for use in steeply inclined long penstocks at NEEPCO Ltd.	NEEPCO	30.00	Dr. Karuna Kalita , Dr. S K Kakoty	1 yr

### RESEARCH PUBLICATIONS

#### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
H. K. Mohanty, M. M. Mahapatra, P. Kumar, Biswas P. and N. R. Mandal	Predicting the effects of tool geometries on friction stirred aluminum welds using artificial neural networks and fuzzy logic techniques	International Journal of Manufacturing Research (IJMR)	Vol. 8, No. 3	296-312	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Anil Kumar Deepati, Pankaj Biswas, M. M. Mahapatra & N. R. Mandal	A Study on Friction Stir Welding of 12mm Thick Aluminum Alloy Plates	Journal of Marine science and applications, J. Marine Sci. Appl	12	493-499	2013
Anil Kumar Deepati, Sujoy Tikader and Biswas Pankaj	Experimental Investigation of Mechanical Properties on Friction Stir Welding of Dissimilar Aluminum Alloys	International Journal of Current Engineering and Technology	Special Issue-2	242-246	2014
N R Mandal, Sharat Kumar and Biswas Pankaj	Distortion Measurement of Ship Blocks using Photogrammetry	Journal of Ship Production and Design	DOI: 10.5957/JSPD.29.4.13004	-	March 2014
H. K. Narang, M. M. Mahapatra, P. K. Jha and Pankaj Biswas	Optimization and prediction of angular distortion and weldment characteristics of TIG square butt joints	Journal of Materials Engineering and Performance	DOI: 10.1007/s11665-014-0905-z	-	2013
Jagannath Sardar, Dibakar Bando-padhya	Effect of Notches and Evaluation of Material Performance of a Cement Filled Composite Material for Fabrication of Non-metallic Parts	Advanced Mechanical Engineering	vol. 4, no. 5	481-486	2013
Deepak Sharma, Kalyanmoy Deb and N. N. Kishore	Customized Evolutionary Optimization Procedure for Generating Minimum Weight Compliant Mechanisms	Engineering Optimization	46 (1)	39-60	2014
Deepak Sharma, Anupam Trivedi, Dipti Srinivasan, Logenthiran Thillainathan	Multi-Agent Modeling for Solving Profit Based Unit Commitment Problem	Applied Soft Computing	Vol. 13, Issue 8	3751-3761	2013
Anupam Trivedi, Dipti Srinivasan, Deepak Sharma, Chanan Singh	Evolutionary Multi-objective Day-Ahead Thermal Generation Scheduling in Uncertain Environment	Power Systems	Vol. 28, Issue 2	1345 - 1354	2013
Debnath BK, Saha UK and Sahoo N	An Experimental Way of Assessing the Application Potential of Emulsified Palm Biodiesel towards Alternative to Diesel	ASME Journal of Engineering for Gas Turbines and Power	Vol. 136	021401-1-12	2014
Eswaran M, Virk AS, and Saha UK	Numerical Simulation of 2-D and 3-D Sloshing Waves in a Regularly and Randomly Excited Container	Journal of Marine Science and Application	Vol. 12	298 – 314	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Debnath BK, Saha UK, Sahoo N	Effect of Compression Ratio and Injection Timing on the Operating Characteristics of a Diesel Engine Run on Palm Oil Methyl Ester	Proc. of the IMechE, Part-A: Journal of Power and Energy	Vol. 227	368 – 382	2013
Roy S, and Saha UK	Computational Study to Assess the Influence of Overlap Ratio on Static Torque Characteristics of a Vertical Axis Wind Turbine	Procedia Engineering	Vol. 51	694 – 702	2013
Roy S, and Saha UK	Review of Experimental Investigations into the Design, Performance and Optimization of the Savonius Rotor	Proc. of the IMechE, Part-A: Journal of Power and Energy	Vol. 227	528 – 542	2013
Roy S, and Saha UK	Review on the Numerical Investigations into the Design and Development of Savonius Wind Rotors	Renewable and Sustainable Energy Reviews	Vol. 24	73 – 83	2013
S. Panda and G. G. Sopan	Nonlinear analysis of smart functionally graded annular sector plates using cylindrically orthotropic piezoelectric fiber reinforced composite	International Journal of Mechanics and Materials in Design	9 (1)	35-53	2013
Anbarasu S, Muthukumar P, Mishra SC	Thermal Modeling of Mg <sub>2</sub> Ni Based Solid State Hydrogen Storage Reactor	Heat Transfer Engineering	35(14–15)	1354–1362	2014
Anbarasu S, Muthukumar P, Mishra SC	Tests on LmNi <sub>4.91</sub> Sn <sub>0.15</sub> based Solid State Hydrogen Storage Device with Embedded Cooling Tubes – Part B: Desorption Process	International Journal of Hydrogen Energy	39	4966–4972	2014
Anbarasu S, Muthukumar P, Mishra SC	Tests on LmNi <sub>4.91</sub> Sn <sub>0.15</sub> based Solid State Hydrogen Storage Device with Embedded Cooling Tubes – Part A: Absorption Process	International Journal of Hydrogen Energy	39	3342–3351	2014
Hakeem Niyas, Muthukumar P	Performance Analysis of Latent Heat Storage System	International Journal of Scientific & Engineering Research	4 (12)	74-79	2013
Naik BK and Muthukumar P	Performance Investigations of a Cross-Flow Induced Draft Cooling Tower employed in a water cooled condenser of 900 TR A/C plant. Research	International Journal of Scientific & Engineering Research	4 (12)	68-73	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Likhendra Prasad, Muthukumar P	Design and Optimization of Lab-scale Sensible Heat Storage Prototype for Solar Thermal Power Plant Application	Solar Energy	97	217-229	2013
SatyaSekhar B, Muthukumar P	Performance Tests on a Double-Stage Metal Hydride based Heat Transformer	International Journal of Hydrogen Energy	38	15428 – 15437	2013
Muthukumar P, Satheesh A	Analysis of Crossed van't Hoff Metal Hydride Based Heat pump	International Journal of Hydrogen Energy	38	11415-11420	2013
Satya Sekhar B, Muthukumar P, Suresh P	Performance investigations of the metal hydride based hydrogen storage devices	International Journal of Hydrogen Energy	38	9570-9577	2013
SatyaSekhar B, Muthukumar P	Studies on Metal Hydride based single-stage Heat Transformer	International Journal of Hydrogen Energy	38	7178-7187	2013
Selvam K, Muthukumar P, Linder M, Mertz R, Kulenovic R	Measurement of thermochemical properties of some metal hydrides - titanium (Ti), misch metal (Mm) and lanthanum (La) based alloys	International Journal of Hydrogen Energy	38	5288-5301	2013
R. Kant and S. N. Joshi	Finite Element Simulation of Laser Assisted Bending with Moving Mechanical Load	Journal of Mechatronics and Manufacturing Systems, Inderscience	6 (4)	351-366	2013
P Manivel, S Kanagaraj, A Balamurugan, N Ponpandian, D Mangalaraj, C Viswanathan	Rheological behavior and electrical, thermal properties of polypyrrole/graphene oxide nanocomposites	Journal of Applied Polymer Science	DOI: 10.1002/app.40642	-	2014
S. Arun, P S Rama Sreekanth, S. Kanagaraj	Mechanical characterization of PMMA/SWNTs bone cement using Nanoindenter	Materials Technology: Advanced Biomaterials	29 (B1)	B4-B9	2014
P Manivel, S Kanagaraj, A Balamurugan, N Ponpandian, D Mangalaraj, C Viswanathan	Rheological behavior and electrical properties of polypyrrole/thermally reduced graphene oxide nanocomposite	Colloids and Surfaces A: Physicochemical and Engineering Aspects	441	614-622	2014
N.Shanmuga Priya, Chandra mohan Somayaji and S.Kanagaraj	Optimization of Ce <sub>0.6</sub> Zr <sub>0.4-x</sub> Al <sub>1.3x</sub> O <sub>2</sub> solid solution based on oxygen storage capacity	Journal of Nanoparticle Research	16 (2)	1-10	2014

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N. Shanmuga priya, Chandra mohan Somayaji, S. Kanagaraj	Optimization of Ceria-Zirconia solid solution based on OSC measurement by cyclic heating process	Procedia Engineering	64	1235-1241	2013
S. Arun, Mrutyunjay Maharana, and S. Kanagaraj	Optimizing the processing conditions for the reinforcement of epoxy resin by multi walled carbon nanotubes	Journal of Nanotechnology	-	Article number 634726	2013
S. Arun, S. Kanagaraj	Effect of reinforcement and processing methods in PP/MWCNTs nanocomposites	Advanced Materials Research	747	575-578	2013
N. Shanmuga Priya, Chandra mohan Somayaji and S. Kanagaraj	Oxygen storage capacity of $Ce_xZr_{1-x}O_2$ ( $0.4 \leq x \leq 0.8$ ) solid solution using thermo-gravimetric analysis	Advanced Materials Research	747	579-582	2013
PS Rama Sreekanth, S Kanagaraj	Restricting the ageing degradation of the mechanical properties of gamma irradiated UHMWPE using MWCNTs	Journal of the Mechanical Behavior of Biomedical Materials	21	57-66	2013
PS Rama Sreekanth, S Kanagaraj	Assessment of bulk and surface properties of medical grade UHMWPE based nanocomposites using Nanoindentation and microtensile testing	Journal of the Mechanical Behavior of Biomedical Materials	18	140-151	2013
PS Rama Sreekanth, N Ravindra Reddy, Mangala Lahkar, S Kanagaraj	Biocompatibility studies on MWCNTs reinforced UHMWPE nanocomposites	Trends in Biomaterials & Artificial Organs	21	1-9	2013
N. Naresh Kumar, P S Rama Sreekanth, S Kanagaraj	Effect of gamma-irradiation on thermal properties of MWCNTs reinforced high density polyethylene	Advanced Nanomaterials and Nano technology	143	408-418	2013
U. Barman, A.K. Sen and S.C. Mishra	Theoretical and numerical investigations of an electroosmotic flow micropump with interdigitated electrodes	Microsystem Technologies	20	157-168	2014
S.C. Mishra, H. Poonia, R. Vernekar, and A.K. Das	Lattice Boltzmann method applied to the analysis of radiative transport problems with and without conduction in a 1-D planar medium	Heat Transfer Engineering	35	1267 - 1278	March 2014
R.P. Chopade, S.C. Mishra, P. Mahanta and S. Maruyama	On Configuration of load in radiant furnace for uniform thermal conditions	Heat Transfer Engineering	35	94-109	January 2014



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A. Bhowmik, R. Repaka, S.C. Mishra and K. Mitra	Analysis of radiative signals from normal and malignant human skins subjected to a short-pulse laser	International Journal of Heat and Mass Transfer	68	278 – 294	Jan 2014
S.C. Mishra and H. Sahai	Analysis of non-Fourier conduction and volumetric radiation in a concentric spherical shell using the lattice Boltzmann method and the finite volume method	International Journal of Heat and Mass Transfer	68	51 – 66	January 2014
S.C. Mishra and H. Sahai	Analyses of non-Fourier conduction and radiation in a cylindrical medium using lattice Boltzmann method and finite volume method	International Journal of Heat and Mass Transfer	61	41-45	June 2013
K. Das and S.C. Mishra	Estimation of tumor characteristics in a breast tissue with known skin surface temperature	Journal of Thermal Biology	38	311-317	August 2013
A. Bhowmik, R. Singh, R. Repaka, S.C. Mishra	Conventional and newly developed bioheat transport models in vascularized tissues:A review	Journal of Thermal Biology	38	107-125	April 2013
S.C. Mishra, A. Akhtar and A. Garg	Numerical analysis of Rayleigh-Benard convection with and without volumetric radiation	Numerical Heat Transfer	Part A, 65	144 – 164	January 2014
Lintu Roy and S. K. Kakoty	Optimum Groove Location of Hydrodynamic Journal Bearing Using Genetic Algorithm	Advances in Tribology	vol. 2013, Article ID 580367	1-13	2013
A. Mishra and U.S.Dixit	Determination of thermal diffusivity of the material, absorptivity of the material and laser beam radius during laser forming by inverse heat transfer	JMFT	Vol. 5, number ¾	207-226	2013
D. N. Basu, S. Bhat-tacharyya and P. K. Das	Development of a unified model for the steady-state operation of single-phase natural circulation loops	International Journal of Heat and Mass Transfer	62	452-462	2013
H. Sarangi, K.S.R.K. Murthy and D. Chakraborty	Experimental verification of optimal strain gage locations for the accurate determination of mode I stress intensity factors	Engineering Fracture Mechanics	DOI: 10.1016/j.eng frac-mech. 2013. 07.014	-	2013

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Basu, D.N., Bhat-tacharyya, S. and Das, P.K	Dynamic Response of a Single-phase Rectangular Natural Circulation Loop to Different Excitations of Input Power	International Journal of Heat and Mass Transfer	65	131-142	2013
Basu, D.N., Patil, N.D., Bhattacharyya, S. and Das, P.K	Hydrodynamics of a Natural Circulation Loop in a Scaled-down Steam Drum-Riser-Downcomer Assembly	Nuclear Engineering and Design	265	411-423	2013
N. Yadaiah and S. Bag	Role of oxygen as surface active element in linear GTA welding process	Journal of Materials Engineering and Performance	22 (11)	3199-3209	2013
A. Ghosh, N. Barman, H. Chattopadhyay, and S. Bag	Modelling of heat transfer in submerged arc welding process	Proceedings of IMechE, Part B: Journal of Engineering Manufacture	227 (10)	14767-1473	2013
M. Baruah , S. Bag	Numerical modelling of heat transfer and fluid flow in laser microwelding	International Journal of Mechatronics and Manufacturing Systems	6 (13)	310 - 334	2013
R. S. Desai and S. Bag	Influence of displacement constraints in thermomechanical analysis of laser micro-spot welding process	Journal of Manufacturing Processes	16 (2)	264 -275	2014
S. Singh, N. Yadaiah, S. Bag and S. Pal	Numerical simulation of welding-induced residual stress in fusion welding process using adaptive volumetric heat source	Proceedings of IMechE, Part C: Journal of Mechanical Engineering Science	DOI: 10.1177/0954406214525601		2014
L. Roy , S. K. Kakoty	Optimum Groove Location of Hydrodynamic Journal Bearing Using Genetic Algorithm	Advances in Tribology	Volume 2013	1-13	2013
M. B. Patil, K Kalita, S. K. Kakoty	Performance Analysis of Gas Foil Bearing with Different Foil Pivot Configuration	Advances in Mechanical Engineerin	-	-	2013
Sarkar, S., Ganguly, S., Dalal, A., Saha, P., Chakraborty, S.	Mixed Convective Flow Stability of Nanofluids past a Square Cylinder by Dynamic Mode Decomposition	International Journal of Heat and Fluid Flow	Volume 44	624-634	2013
Randive, P., Dalal, A.	Capillarity-induced Resonance of Blobs in a 3-D Duct: Lattice Boltzmann Modelling	International Journal of Heat and Mass Transfer	Volume 65	635-648	2013
Bhardwaj, S., Dalal, A.	Analysis of Natural Convection Heat Transfer and Entropy Generation inside Porous Right-angled Triangular Enclosure	International Journal of Heat and Mass Transfer	Volume 65	500-513	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Sarkar, S., Ganguly, S., Dalal, A.	Buoyancy Driven Flow and Heat Transfer of Nanofluids Past a Square Cylinder in Vertically Upward Flow	International Journal of Heat and Mass Transfer	Volume 59	433-450	2013
Dillip Kumar Biswal, Dibakar Bandopadhyaya, and Santosha Kumar Dwivedy	Analysis and evaluation of dehydration loss on vibration response of silver electroded IPMC actuator under DC input voltage	Journal of Intelligent Material Systems and Structures	DOI: 10.1177 /1045389X12471867	-	2013
Bibin John, Sarath G. Vinayak Kulkarni, Ganesh Natarajan	Performance comparison of flux schemes for numerical simulation of high speed inviscid flows	Progress in Computational Fluid Dynamics	Vol 14, No. 2	83-96	2014
Ravi Peetala, Niranjan Sahoo and Vinayak Kulkarni	Prediction of short duration transient surface heat flux using various analytical techniques	Heat transfer – Asian Research	Vol 42, No. 6	530-543	2013
Bibin John and Vinayak Kulkarni	Investigation for energy deposition technique for drag reduction at hypersonic speeds	Applied Mechanics and Materials	Vol. 367	222-227	2013
Bibin John, Vinayak Kulkarni and Ganesh Natarajan	Investigation of Ramp-induced Shock Wave Boundary Layer interactions in laminar hypersonic flows	International Journal of Heat and Mass Transfer	Vol. 70	81-90	2014
Bibin John and Vinayak Kulkarni	Numerical Assessment of Correlations for Shock Wave Boundary Layer Interaction	Computers and Fluids	Vol. 90	42-50	2014
Pallekonda Ramesh, Divakar Bommana, Vinayak Kulkarni, Niranjan Sahoo and Dwivedy S.K	Experimental Assessment of Non-Contact Type Laser Based Force Measurement Technique for Impulsive Loading	International Journal of Structural Stability and Dynamics	Vol. 14, No.4	-	2014
Bibin John and Vinayak Kulkarni	Effect of leading edge bluntness on the interaction of ramp induced shock wave with laminar boundary layer at hypersonic speed	Computers and Fluids	Vol. 96	177-190	2014
Ghatule P., Kore S. D	Coupled 3D Finite Element Modeling of Electromagnetic Free Expansion of Al Tube	International Journal of Advanced Materials Manufacturing and Characterisation	3 (1)	95-99	2013
S. Kirtania and D. Chakraborty	Fracture behavior of carbon nanotube-based composites with a broken fiber using multi-scale finite element modeling	Journal of Computational and Theoretical Nanoscience	11(3)	676-684	2014

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S. Kirtania and D. Chakraborty	Analysis of carbon nanotube-reinforced alumina matrix nanocomposites with a broken fiber	Journal of Reinf. Plastics and Composites	33(3)	389-398	2014
A.Hens, G. Biswas and S. De	Analysis of interfacial instability and multimode bubble formation in saturated pool boiling using Coupled Level Set and Volume- of- Fluid approach	Physics of Fluids.	Vol. 26	1-14	2014
A.Hens, R. Agarwal and G. Biswas	Nanoscale study of boiling and evaporation in a liquid Ar film on a Pt heater using molecular dynamics simulation	International Journal of Heat and Mass Transfer,	Vol. 71	303-312	2014
S. Sarkar, S. Ganguly and G. Biswas	Buoyancy driven convection of nanofluids in an infinitely long channel under the effect of a magnetic field,	International Journal of Heat and Mass Transfer,	Vol. 71	328-340	2014
B. Ray, G. Biswas, A. Sharma, and S.W.J. Welch	CLSVOF method to study consecutive drop impact on liquid pool	International Journal of Numerical Methods for Heat & Fluid Flow	Vol.23	141-158	2013
A. Sinha, K. A. Raman, H. Chattopadhyay and G. Biswas	Effects of different orientations of winglet arrays on the performance of plate-fin heat exchangers	International Journal of Heat and Mass Transfer	Vol. 57	202-214	2013
A Sahai, B John and G. Natarajan	The role of fineness ratio in the design of minimum-drag axisymmetric forebodies in hypersonic flows	Journal of Spacecraft and Rockets	-	-	2013
A. Mishra and U.S. Dixit	Determination of thermal diffusivity of the material, absorptivity of the material and laser beam radius during laser forming by inverse heat transfer	Journal of Machining and Forming Technologies	Vol. 5, Issue . ¾	207-226	2013
B. Nayak, S.K. Dwivedy and K.S.R.K. Murthy	Dynamic stability of magnetorheological elastomer based adaptive sandwich beam with conductive skins using FEM and the harmonic balance method	International Journal of Mechanical Sciences	Vol. 77	205-216	2013
C. Patel, Sumitesh Das, R. Ganesh Narayanan	CAFE modeling, neural network modeling, and experimental investigation of friction stir welding, Proc. of the IMechE	Part C: Journal of Mechanical Engineering Science	Vol. 227, Issue.6	1164-1176	2013

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D. Bandopadhyaya	A Lambert W Function Approach for Solution of Delay Response of an Active Actuator via Pseudo-Rigid Body Modeling Technique	International Journal of Research in Mathematics	Vol.1, Issue.1	1-7	2013
D. J. Bordoloi and R. Tiwari	Optimization of Controller Parameters of Active Magnetic Bearings in Rotor-Bearing Systems.	Advances in Vibration Engineering	12 (4)	319-327	2013
D. J. Bordoloi and R. Tiwari	Optimization of Support Vector Machine based Multi-Fault Classification with Evolutionary Algorithms from the Time Domain Vibration Data of Gears.	Journal of Mechanical Engineering Science	227 (11)	2428-2439	2013
Konwar R. S., Kalita K., Banerjee A., and Khoo W. K. S.	Electromagnetic Analysis of a bridge con-figured winding cage induction machine using finite element method	Progress in Electromagnetics Research B	48	347-373	2013
<b>National</b>					
S. Bag	Recent advances in laser microwelding	KIRAN: A Bulletin of Indian Laser Association	24 (2)	23-31	2013

#### Conference/Workshop/Seminar/Symposia

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Anil Kumar Deepati, Pankaj Biswas, Arun Kadian, and Leena Nemade	3D-Finite Element modeling and the effect of backing plate on thermal history of FSW AA5083	National Conference on Advances in Welding Technology, NERIST, Itanagar	-	49-56	2013
Leena Nemade and Pankaj Biswas	Friction Stir Welding of Dissimilar Metals: A Review	National Conference on Emerging Global Trends in Engineering & Technology (EGTET), Don Bosco College of Engineering and Technology, Guwahati, Assam	-	-	7-8 Mar 2014
Arpan Kumar Mondal, Swarup Bag & Pankaj Biswas	3-D Finite Element Analysis of Effect of Process Parameters on Residual Stresses of SAW Butt Joint	7th Asia Pacific IIW International Congress, Singapore	-	-	8 - 10, July 2013

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Arpan Kumar Mondal, Pankaj Biswas & Swarup Bag	Influence of process parameters on microstructure and mechanical properties of submerged arc welded square butt joint	IIW International Congress 2014 on Advancement In Welding, Cutting And Surfacing Technologies For Improved Economy And Sustainable Environment, New Delhi	-	-	April 9-11, 2014
Anil Kumar Deepati, Leena Nemade & Pankaj Biswas	3-D FE transient thermal analysis of dissimilar Al and Cu Alloys by FSW process	IIW International Congress 2014 on Advancement In Welding, Cutting And Surfacing Technologies For Improved Economy And Sustainable Environment, New Delhi	-	-	April 9-11, 2014
Bora BJ, and Saha UK	Energy and Exergy Analysis of a Dual Fuelled Diesel Engine Run on Biogas	4th International Conference on Advances in Energy Research, ICAER-2013, IIT Bombay	-	-	December 10-12, 2013
Roy S, and Saha UK	Investigations on the Effect of Aspect Ratio into the Performance of Savonius Rotors	ASME Gas Turbine India Conference, Bangalore	-	Paper No. GTIN DIA 2013-3729	December 5 – 6, 2013
Roy S, and Saha UK	Numerical Investigation to Assess an Optimal Blade Profile for the Drag Based Vertical Axis Wind Turbine	ASME International Mechanical Engineering Congress and Exposition, San Diego, USA	-	Paper No. IMECE 2013-64001	November 15 – 21, 2013
Anbarasu S., P. Muthukumar and Subhash C Mishra	Thermal Modeling of Mg <sub>2</sub> Ni based Solid State Hydrogen Storage Reactor during Desorption of Hydrogen	22th National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	Paper ID: HMTC 13 00 109	December 28-31, 2013
Likhendra Prasad and P. Muthukumar	Performance Investigation of Lab-Scale Sensible Heat Storage System	22th National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	Paper ID: HMTC 1300 054	December 28-31, 2013
Mishra, NK, Muthukumar P, Mishra SC	Temperature Measurement in Double Layer Porous Burner For Medium - Scale LPG Cooking Applications	22th National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	Paper ID: HMTC 130 0100	December 28-31, 2013

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Naik B K and P. Muthukumar	Performance Investigations of a Cross-Flow Induced Draft Cooling Tower employed in a water cooled condenser of 900 TR A/C plant	International Conference on Emerging Trends in Renewable Energy (ICETRE-2013), Bhubaneswar, India	-	-	27-28th December 2013
Hakeem Niyas and P. Muthukumar	Performance Analysis of Latent Heat Storage System	International Conference on Emerging Trends in Renewable Energy (ICETRE-2013), Bhubaneswar, India	-	-	27-28th December 2013
Patel PK., B. SatyaSekhar, P. Muthukumar	Feasibility Study On Compressor-Driven Metal Hydride Based Cooling System	3rd National Conference on Refrigeration and Air Conditioning (NCRAC-2013) IIT Madras, Chennai	-	-	12-14th December 2013
Likhendra Prasad, Hakeem Niyas, P. Muthukumar	Performance Analysis of High Temperature Sensible Heat Storage System during Charging and Discharging Cycles	IVth International Conference on Advances in Energy Research, Indian Institute of Technology Bombay, Mumbai (ICAER 2013)	-	-	10 - 12th December, 2013
Borad M. Barkachary and S. N. Joshi	Comparison of Johnson-Cook and Drucker-Prager material models during finite element simulation of single point diamond turning (SPDT) of silicon carbide	Proc. International Conference on Micro-Manufacturing held at Nanyang Technological University Singapore		-	2014
R. Kant and S. N. Joshi	Finite Element Simulation of Multi-pass Laser Bending Process with Forced Cooling	Proc.8th International Conference COPEN 2013, NIT Calicut	978-93-82880-91-2, Excel New Delhi	772-777	2013
R. Kant and S. N. Joshi	Numerical Simulation of Multi-pass Laser Bending Process using Finite Element Method	Proc.2nd International Conference on Intelligent Robotics, Automation and Manufacturing, IIT Indore, Emerald India	9780 9926 80015	208-213	2013
Borad M. Barkachary and S. N. Joshi	Finite Element Simulation of Single Point Diamond Turning of Silicon	Proc.8th International Conference COPEN 2013, NIT Calicut,	978- 93-8 2880 -91-2, Excel New Delhi	1022-1026	2013

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K.Singh, A.K.Ray, S. N. Joshi and U. S. Dixit	Effect of Lime and Graphite Grease Coatings on the Absorptive of Mild Steel Sheet in Line Heating by CO2 Laser	Proc.Recent Advancements in Mechanical Engineering, NERIST Itanagar, Arunachal Pradesh, India	978- 93- 82880 -71-4, Excel New Delhi	44-49	2013
R. Kant, S. N. Joshi and U.S. Dixit	State of the art and Experimental Investigation on Edge Effect in Laser Bending Process	Proc.Recent Advancements in Mechanical Engineering, NERIST Itanagar, Arunachal Pradesh, India	978-93- 82880-71-4, Excel New Delhi	189-197	2013
R. Kant, S. N. Joshi and U.S. Dixit	Experimental Studies on Laser Bending of Magnesium M1A Alloy Sheet	Proc. National Conference Manufacturing Vision for Future 2013		189-197	2013
A. Bhowmik, R. Repaka, S.C Mishra and K. Mitra	Thermal assessment of ablation limit of subsurface tumor during focused ultrasound and laser heating	22nd National and 11th ISHMT - ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	-	28 - 31 December 2013
R. Singh, K. Das, S.C. Mishra, J. Okajima and S. Maruyama	Minimizing skin thermal damage using surface cooling during laser induced thermal therapy : a numerical study	22nd National and 11th ISHMT - ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	-	28 - 31 December 2013
A. Bhowmik, R. Repaka, R. Mula-veesala and S.C Mishra	Thermal characterization of varying subcutaneous fat thickness using thermal wave imaging technique	22nd National and 11th ISHMT - ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	-	28 - 31 December 2013
V.K. Mishra, S.C. Mishra and D.N. Basu	Heat transfer analysis combined with estimation of optical properties of a porous radiant burner	22nd National and 11th ISHMT - ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	-	28 - 31 December 2013
K. Das and S. C. Mishra	A comparative study of heat transfer in a biological tissue with Pennes bioheat equation and Wulff continuum model	22nd National and 11th ISHMT - ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	-	-	28 - 31 December 2013



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A Bhowmik, R. Repaka, S.C. Mishra	Thermal imaging and screening of subsurface cancer during thermal recovery after cold stress	10th International Conference on Flow Dynamics, Sendai, Japan	-	-	25 - 27 November 2013
S.C. Mishra and P. Muthukumar	Porous Media Combustion - Its Potential Applications in Wide Range of Liquid and Gas Fuelled Cooking Stoves	10th International Conference on Flow Dynamics, Sendai, Japan	-	-	25 - 27 November 2013
K. Das and S.C. Mishra	Non-Invasive Detection of breast tumor using curve fitting technique	10th International Conference on Flow Dynamics, Sendai, Japan	-	-	25 - 27 November 2013
A. Bhowmik, R. Repaka, S. C. Mishra and R. Mulaveesala	Detection of subsurface skin lesion using frequency modulated thermal wave imaging: a numerical study	International Mechanical Engineering Congress & Exposition, San Diego, CA, USA	-	-	November 15-21, 2013
NitinKholia and Manmohan Pandey	Numerical Computation of One-Dimensional Unsteady Two-Phase Flow using HEM Model and IAPWS IF-97 Equations of State	Proc. 21st Int. Conf. Nuclear Eng. (ASME)	Paper No. ICONE21 - 16611	---	2013
Bharat Mangukiya and Manmohan Pandey	Numerical Investigations on Instabilities in Supercritical Water Flowing through Heated Parallel Channels	Proc. 21st Int. Conf. Nuclear Eng. (ASME)	Paper No. ICONE21 - 16628	---	2013
S.P. Lakshmanan and Manmohan Pandey	Review of the State of the Art on Startup Transients in Natural Circulation Boiling Water Systems	Proc. 21st Int. Conf. Nuclear Eng. (ASME)	Paper No. ICONE21 - 16778	---	2013
Daya Shankar, Dipankar, N. Basu and Manmohan Pandey	Study on Design of Scaled Down Test Facilities for Investigation of Instabilities in Supercritical Water Reactor	Proc. 21st Int. Conf. Nuclear Eng. (ASME)	Paper No. ICONE21 - 16638	---	2013

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U.S. Tejaswini, Dipankar N. Basu and Manmohan Pandey	CFD Investigation of Heat Transfer Deterioration in Supercritical Water Flowing through Vertical Annular Channels	Proc. 21st Int. Conf. Nuclear Eng. (ASME)	Paper No. ICONE21 - 16720	---	2013
Ashif Iqbal and Manmohan Pandey	Modeling of Pressure Drop in Microchannel Flow Boiling	Proc. 22thNat. 11th Int. ISHMT-ASME Heat Mass Trans. Conf.	HMTC 1300 773	---	2013
Bharat Mangukiya and Manmohan Pandey	Lumped Parameter Modeling and Stability Analysis of Supercritical Water Flow through Parallel Pipes	Proc. 22thNat. 11th Int. ISHMT-ASME Heat Mass Trans. Conf.	HMTC 1300 454	---	2013
Saurabh Singh, Jayanta Kumar Basak and Manmohan Pandey	CFD Simulation of Hydrodynamics and Heat Transfer Characteristics in the Riser of Circulating Fluidized Bed	Proc. 22thNat. 11th Int. ISHMT-ASME Heat Mass Trans. Conf.	HMTC 1300 472	---	2013
L. Roy and S . K. Kakoty	Stability and flow optimized bearing configuration of two groove bearing	58th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), BESU, SIBPUR	-	-	18-21 December, 2013
T M Jamir, S K Kakoty	Load Capacity Analysis of Gas Foil Bearing (GFB) for Different Foil Materials	International Conference on Advances in Tribology and Engineering Systems, Gujrat Technological University, Ahmedabad	-	-	15-17 October, 2014
T S Reddy Ganji, S K Kakoty	Analysis on Micro-elliptical Textured Journal Bearing	International Conference on Advances in Mechanical Sciences, Hyderabad	-	-	14-15 January, 2014
Bhardwaj, S., and Dalal, A.	Numerical Simulations of Natural Convection Flow in a Porous Right-angled Triangular Enclosure with Nanofluid	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTC 1300 281	-	December 28-31, 2013
Sathisha, H. M., and Dalal, A.	2D Transient Numerical Simulation of All-Vanadium Redox Flow Battery	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTC 1300 282	-	December 28-31, 2013

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Rana, B. K., Dalal, A., and Biswas, G.	Effects of Different Configurations on Heat Transfer From the Annular Fin-tube Heat Exchanger Using Vortex Generators	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 284	-	December 28-31, 2013
Manik, J., Parmananda, M., Dalal, A., and Natarajan, G.	Development of 3-D Navier-Stokes Solver Over a Hybrid Unstructured Grid	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 353	-	December 28-31, 2013
Randive, P., and Dalal, A.	Effect of Viscosity Ratio on Droplet Dynamics	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 574	-	December 28-31, 2013
Varma, N., Dulhani, J. P., Dalal, A., Sarkar, S., and Ganguly, S.	Effect of Channel Confinement of Mixed Convective Flow Past an Equilateral Triangular Cylinder	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 583	-	December 28-31, 2013
Das, G., Sarkar, S., and Dalal, A.	Mixed Convective Flow and Heat Transfer Around a Semi-Circular Cylinder	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 586	-	December 28-31, 2013
Das, S., Sarkar, S., and Dalal, A.	Effect of Prandtl Number on Mixed Convective Flow and Heat Transfer Past a Circular Cylinder in Cross Flow at Low Reynolds Numbers	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 587	-	December 28-31, 2013
Dulhani, J. P., and Dalal, A.	Effect of Orientation and Buoyancy on Fluid Flow and Heat Transfer Characteristics Past a Square Cylinder	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, India	Paper No: HMTc 1300 887	-	December 28-31, 2013
Sathisha, H. M., and Dalal, A.	Simplified Mathematical Model to Evaluate the Performance of the All-Vanadium Redox Flow Battery	ASME Summer Heat Transfer Conference, Minneapolis, MN, USA	Paper No: HT 2013 - 17366	-	July 14-19, 2013

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Randive, P., Dalal, A., and Mukherjee, P. P.	Simulation of Blob Dynamics Inside a Channel Under Acoustic Excitation	ASME Summer Heat Transfer Conference, Minneapolis, MN, USA	Paper No: HT 2013 - 17372	-	July 14-19, 2013
Rana, B. K., Dalal, A., and Biswas, G.	Flow and Heat Transfer from the Annular Fin Heat Exchanger Using Winglet Type Vortex Generators	ASME Summer Heat Transfer Conference, Minneapolis, MN, USA	Paper No: HT 2013 - 17706	-	July 14-19, 2013
Purnendu Kumar Mandal and P.S. Robi	Effect Of Trace Addition of Sn on Micro Structure and Mechanical Properties of Al-Cu-Mg Alloys in Cast and Annealed Conditions	Proceeding of the 22nd International Symposium on Processing and Fabrication of Advanced Materials (PFAM -22), Singapore	-	112-119	December 10-13, 2013
Amitava Ghatak and P.S.Robi	Effect of Temperature on the Tensile Properties of HP40Nb Microalloyed Reformer Steel	Proceeding of the 22nd International Symposium on Processing and Fabrication of Advanced Materials (PFAM -22), Singapore	-	534-543	December 10-13, 2013
P.S. Robi and Prafulla Verma	Fabrication of Al-SiC Functionally Graded Material by powder metallurgy technique	Proceeding of the 22nd International Symposium on Processing and Fabrication of Advanced Materials (PFAM -22)	-	454-461	December 10-13, 2013
D. Yaduwanshi, S. Bag and S. Pal	Thermal analysis on plasma assisted friction stir welding of aluminum alloy	7th Asia Pacific IIW International Congress, 8th - 10th July, 2013, Singapore.			2013
N. Yadaiah, S. Bag, C. P. Paul and L. M. Kukreja	Fiber laser welding of austenitic stainless steel in protective atmosphere of argon	7th Asia Pacific IIW International Congress, 8th - 10th July, 2013, Singapore.			2013
S. Bag and P. K. Sahu	Influence of pulse shaping in thermal analysis of ultra-shot pulse laser welding using non-Fourier heat conduction	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, 28th – 31st December, 2013, IIT Kharagpur, India			2013
N. Yadaiah, S. Bag, C. P. Paul and L. M. Kukreja	Efficient Finite Element Modeling of Fiber Laser Welding Process under Conduction Regime on 316 Stainless Steel Plate	International Conference on Advances in Mechanical Sciences (ICAMS2014), 9th -11th January, 2014, Vardhaman College of Engineering, Hyderabad			2014
M. Baruah and S. Bag	Investigation on micro plasma welding of titanium alloy	IIW International Congress 2014, 9th - 11th April, 2014, New Delhi.			2014

Name of Author/s	Name of Paper	Name of Conf./Wor./ Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
D. Yaduwanshi, S. Pal and S. Bag	Dissimilar hybrid friction stir welding of pure copper and AA1100	IIW International Congress 2014, 9th - 11th April, 2014, New Delhi.			2014
S. Bag	Optimization of penetration depth by pulse shaping in laser microwelding of stainless steel	IIW International Congress 2014, 9th - 11th April, 2014, New Delhi.			2014
M. J.Borah, S. N. Joshi, S. D. Kore	Effect of CO2 Laser Welding Process Parameters on Temperature Distribution of SS 304 sheets	Proceedings of the 7th Asia Pacific IIW International Congress 2013, Singapore	-	517-522	2013
Murthy KSRK, Sarangi H, Chakraborty D.;	Experimental verification of optimal strain gage locations for the accurate determination of location for the accurate stress intensity factors	Proc. Of 13th International Conference on Fracture, June 16-21,2013, (ICF-2013), , Beijing China	Paper No. S51 -003	-	June, 2013
Murthy KSRK, Sarangi H, Chakraborty D	Strain gage radial locations for the accurate determination of mode I stress intensity factors;	Proc. Of 13th International Conference on Fracture, June 16-21,2013, (ICF-2013), , Beijing China	Paper No. S51 -009	-	June, 2013
A. Aghyad and U.S. Dixit	A robust and efficient inverse method for determining the thermal parameters during laser forming	National Conference of Recent Advancements in Mechanical Engineering, NERIST, Nirjuli, A.P.	-	-	November 8-9, 2013
B. Bharat, A. Rahatgaonkar and S. K. Dwivedy	Trajectory Follower for Humanoid Arm – Planning and Control	National Conference on Recent Advancements in Mechanical Engineering, (NCRAME-2013, NERIST, Itanagar, Arunachal Pradesh	-	-	8 – 9th November 2013
Biswajit Parida and Sukhomay Pal	Effect of Friction Stir Welding Parameters and Tool Geometry on Shoulder-Workpiece Interface Temperature	2nd International Conference on Intelligent Robotics, Automation and Manufacturing (IRAM), IIT Indore	-	-	14-15 December 2013
Biswajit Parida, Prakash Kumar Sahu and Sukhomay Pal	Effect of Process Parameters and Tool Geometry on Microhardness of Friction Stir Welded joints	International Conference on Precision, Meso, Micro and Nano Engineering (COPEN-8), Calicut, Kerala, India	-	-	8-10 July 2013

<b>Name of Author/s</b>	<b>Name of Paper</b>	<b>Name of Conf./Wor./ Sem./Sym.</b>	<b>Volume and Issue No.</b>	<b>Page No.</b>	<b>Year and Date of Publication</b>
C. Shravan and R. Tiwari	Model-Based Crack Identification Using Full-Spectrum	ASME 2013 Gar Turbine India Conference, NAL Bangalore, India	-	-	5-6 Dec. 2013
D. Doley, V. Sath-eeshkumar, R. Ganesh Narayanan	Influence of wire reinforcement on the forming behavior of adhesive bonded steel sheets	16th International Conference on Advances in Materials and Processing Technologies (AMPT 2013), Taipei, Taiwan	-	-	September 22-26, 2013
DJ Bordoloi and R. Tiwari	Health Monitoring of Gear Elements Based on Time-Frequency Vibration by Support Vector Machine Algorithms	ASME 2013 Gar Turbine India Conference, NAL Bangalore, India	-	-	5-6 Dec. 2013
M. Maharana and S. K. Dwivedy	Design and Development of Automated Domestic Batter Mixture	National Conference on Recent Advancements in Mechanical Engineering, (NCRAME-2013), NERIST, Itanagar, Arunachal Pradesh	-	-	October 12-13th, 2013
S. Jain, S. P. Rajagopal, B. V. Johnson, S. N. Ramasubramanian and S. K. Dwivedy	Development of an Underactuated 2-DOF Wrist Joint using McKibben Pneumatic Artificial Muscles	National Conference on Recent Advancements in Mechanical Engineering, (NCRAME-2013), NERIST, Itanagar, Arunachal Pradesh	-	-	8 – 9th November 2013
S. P. Rajagopal, V. Ganesh, A.V. Lanjewar, M. Ravi Sankar, P. Gupta, D. Soren	Past and Current Status of Hybrid Electric Discharge Machining (H-EDM) Processes	International Conference on Materials Processing Characterization (ICMPC-2013), Hyderabad	-	-	Dec 01-03, 2013
S. Sarma, S. Kar and N. Sahoo	Thin film temperature sensors for measurement	Proceedings of 22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, (HMTTC1300218), IIT Kharagpur, India	-	-	December 28-31, 2013
Saurabh Singh and S. K. Dwivedy	Development of Porous Scaffold with Fractal curves by using 3RRR Parallel Manipulator	2nd International Conference on Tissue Engineering and Regenerative Medicine (ICTERM-2013), NIT Rourkela, India			December 18-20 2013
U.S. Dixit	Modeling of friction stir welding: a review	National Conference on Advances in Welding Technology, NERIST, Nirjuli, Arunachal Pradesh	-	-	18-19 April 2013

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
U.S. Dixit	Research directions in microforming	National Conference of Recent Advancements in Mechanical Engineering, NERIST, Nirjuli, India	-	-	October 12-13, 2013
V. Satheeshkumar, R. Ganesh Narayanan	Forming behavior of adhesive bonded steel sheets: Influence of finite defects in the adhesive layer	16th International Conference on Advances in Materials and Processing Technologies (AMPT 2013), Taipei, Taiwan	-	-	Jul 18, 2013 - Jul 20, 2013
V. Satheeshkumar, R. Ganesh Narayanan	Influence of pre-generated infinite adhesive defects on the forming behavior of adhesive bonded steel sheets	16th International Conference on Advances in Materials and Processing Technologies (AMPT 2013), Taipei, Taiwan	-	-	September 22-26, 2013
V.K. Jain, V. Raghuram, K. K. Saren, M. Ravi Sankar	Experimental Study on CO <sub>2</sub> Laser Beam Micromachining of Silicon Carbide (SiC) Cylindrical Tube	International Conference on Precision Meso, Micro and Nano Engineering, (COPEN-2013), NIT Calicut	-	-	2013
V.K. Jain, V. Raghuram, K. K. Saren, M. Ravi Sankar	Force Analysis of Magnetic Abrasive Nano-Finishing of Non-Magnetic Materials	International Conference on Magnetic Materials and Applications (MagMA-2013), IIT Guwahati	-	-	Dec 13-15, 2013

**Book, Chapter, etc.**

Name of Author/s	Name of Book/ Book Chapter	Publisher	Volume and Issue No.	Page No.	Year and Date of Publication
S. Bag and A. De	Computational models for GTA and laser welding processes (Book)	LAP LAMBERT Academic Publishing, Germany	ISBN 978-3-659-42994-1	-	2013
U. S. Dixit (editor) and R. Ganesh Narayanan (editor)	Metal Forming: Technology and Process Modelling (Book)	McGraw-Hill Education, Noida	-	-	2013
S Arun, P S Rama Sreekanth, S Kanagaraj	Polymer composites for cemented total hip replacements (Book Chapter)	Biomedical Composites: Materials Manufacturing and Engineering, Edited by J Paulo Davim, De Gruyter	-	53-68	2013

Name of Author/s	Name of Book/ Book Chapter	Publisher	Volume and Issue No.	Page No.	Year and Date of Publication
P. S. Rama Sreekanth, S. Kanagaraj	Wear of biomedical implants (Book Chapter)	Tribology for Scientists and Engineers: From Basics to Advanced Concepts, Edited by Pradeep Menezes, Sudeep Ingole, Michael Nosonovsky, Satish Kailas and Michael Lovell, Springer	-	657-674	2013
R. Ganesh Narayanan and U. S. Dixit	Metal Forming Processes (Book Chapter)	Metal Forming: Technology and Process Modelling, McGraw-Hill Education, Noida	-	-	2013
U. S. Dixit and R. Ganesh Narayanan	Modelling of Metal Forming Processes (Book Chapter)	Metal Forming: Technology and Process Modelling, McGraw-Hill Education, Noida	-	-	2013
U. S. Dixit	Epilogue in Metal Forming: Technology and Process Modelling (Book Chapter)	McGraw-Hill Education, Noida; ed. U. S. Dixit. R. Ganesh Narayanan	-	-	2013

**CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED**

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
Dr. Pankaj Biswas	Workshop on Recent Advances in Welding Process	NIT Agartala	30-31 Jan 2014	National
Dr. Pankaj Biswas	QIP short term course in IIT Guwahati	IIT Guwahati	24-28 Jun 2013	National
Dr. Pankaj Biswas	National Conference on Emerging Global Trends in Engineering & Technology (EGTET)	Don Bosco College of Engineering and Technology, Guwahati	7-8 Mar 2014	National
Dr. Deepak Sharma	IEEE Congress on Evolutionary Computation	Cancun, Mexico	Jun 20-23, 2013	International
Dr. Deepak Sharma	National Conference on Manufacturing: Vision for Future (MVF)	IIT GUWAHATI	Oct 12-13, 2013	National
Dr. P. Muthukumar	Advances in Energy Storage for Energy Management and Broader Energy Storage of Renewable Sources	Anna University, Chennai	27-03-2014	National
Dr. P. Muthukumar	22th National and 11th International ISHMT-ASME Heat and Mass Transfer Conference	IIT Kharagpur	Dec 28-31, 2013	International
Dr. P. Muthukumar	International Conference on Emerging Trends in Renewable Energy (ICETRE-2013),	Bhubaneswar	27-28 Dec 2013	International



<b>Name of Faculty</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>National/International</b>
Dr. P. Muthukumar	3rd National Conference on Refrigeration and Air Conditioning (NC-RAC-2013)	IIT Madras, Chennai,	12-14 Dec 2013	National
Dr. P. Muthukumar	IVth International Conference on Advances in Energy Research	IIT Bombay, Mumbai	10-12 Dec 2013	International
Dr. S. N. Joshi	International Conference on Micro-Manufacturing held	Nanyang Technological University, Singapore	Mar 25-28, 2014	International
Dr. S. N. Joshi	8th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN)	NIT Calicut	Dec 13-15, 2013	International
Dr. S. N. Joshi	2nd International Conference on Intelligent Robotics, Automation and Manufacturing (IRAM)	IIT Indore	Dec 16-18, 2013	International
Dr. S. N. Joshi	Recent Advancements in Mechanical Engineering	NERIST Itanagar	Nov 8-9, 2013	National
Dr. S. N. Joshi	National Conference on Manufacturing Vision for Future (MVF)	IIT Guwahati	Oct 12-13, 2013	National
S. Arun and Dr. S. Kanagaraj	21st National conference of Orthotics and Prosthesis Association of India	Chennai	Feb 14-16, 2014	National
N. Shanmuga priya, M. Balasubramaniam, Dr. Chandramohan Somayaji and Dr. S. Kanagaraj	22nd National and 11th ISHMT-ASME Heat and Mass Transfer Conference	IIT Kharagpur, India	Dec 28-31, 2013	International
S. Arun, Mrutyunjay Maharana, Dr. S. Kanagaraj	22nd National and 11th ISHMT-ASME Heat and Mass Transfer Conference	IIT Kharagpur, India	Dec 28-31, 2013	International
N. Shanmuga priya, and Dr. S. Kanagaraj	National conference on Challenges in Biomaterials Research	Vellore	Dec 23-24, 2013	National
P. S. Rama Sreekanth, N. Naresh Kumar, S. Arun, Dr. S. Kanagaraj	National Conference on Challenges in Biomaterials Research	Vellore	Dec 23-24, 2013	National
N. Shanmuga priya, Dr. C. Somayaji and Dr. S. Kanagaraj	International conference on Design and Manufacturing, IConDM-2013	IIITDM, Kancheepura m Chennai	Jul 18-20, 2013	International
Dr. S. Kanagaraj	Fourth International Conference on Multi-Functional Materials and Structures	Bangkok, Thailand	Jul 14-17, 2013	International

<b>Name of Faculty</b>	<b>Name of Conf./Workshop</b>	<b>Place</b>	<b>Date</b>	<b>National/International</b>
N. Shanmuga Priya, Dr. Chandramohan Somayaji and Dr. S. Kanagaraj	Fourth International Conference on Multi-Functional Materials and Structures	Bangkok, Thailand	Jul 14-17, 2013	International
S. Arun, Dr.S. Kanagaraj	Fourth International Conference on Multi-Functional Materials and Structures	Bangkok, Thailand	Jul 14-17, 2013	International
Padmanabh Baruah, Rabindra Pator and Dr. S. Kanagaraj	5th National Symposium for Materials Research Scholars, MR-13	IIT Bombay	May 08-10, 2013	National
Dr. Manmohan Pandey	21st International Conference on Nuclear Engineering (ASME)	Chengdu, China	29.07.2013 to 02.08.2013	International
Dr. Manmohan Pandey	22th National and 11th International ISHMT-ASME Heat and Mass Transfer Conference	Kharagpur	28.12.2013 to 31.12.2013	National and International
T M Jamir, Dr. S K Kakoty	International Conference on Advances in Tribology and Engineering Systems	Gujrat Technological University, Ahmedabad	15-17 Oct 2014	International
T S Reddy Ganji, Dr. S K Kakoty	1st International Conference on Advances in Mechanical Sciences 2014	Hyderabad	14-15 Jan 2014	International
Dr. Amaresh Dalal	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference	IIT Kharagpur, India	Dec 28-31, 2013	National & International both
Dr. Amaresh Dalal	ASME Summer Heat Transfer Conference	Minneapolis, USA	Jul 14-19, 2013	International
Dr. P. S. Robi	International Symposium on Processing and Fabrication of Advanced Materials (PFAM -22)	Singapore	10-13 Dec 2014	International
Dr. S. Bag	7th Asia Pacific IIW International Congress,	Singapore	8-10 Jul 2013	International
Dr. S. Bag	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference	IIT Kharagpur, India	28-31 Dec 2013	International
Dr. S. Bag	IIW International Congress 2014	New Delhi	9-11 Apr 2014	International
Dr D Chakraborty	13th International Conference on Fracture	Beijing, China	16-21 Jun 2013	International
Dr K S R K Murthy	13th International Conference on Fracture	Beijing, China	16-21 Jun 2013	International

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

<b>Name of Faculty</b>	<b>Name of Lecture</b>	<b>Name of Inst./Org.</b>	<b>Place</b>	<b>Date</b>
Dr. Amaresh Dalal	Introduction to Computational Fluid Dynamics	Jalpaiguri Government Engineering College,	Jalpaiguri, West Bengal	July 27, 2013
Dr. Amaresh Dalal	Introduction to Computational Fluid Dynamics	Govt College of Engg. & Textile Technology	Berhampore, West Bengal	March 15, 2014
Dr. Deepak Sharma	Multi-Objective Evolutionary Algorithm on GPGPU	Karlsruhe Institute of Technology	Karlsruhe, Germany	7 June, 2013
Dr. Pankaj Biswas	Plate forming by laser line heating	QIP short term course in IIT Guwahati	IIT Guwahati	24-28 June 2013
Dr. Pankaj Biswas	4-lectures on advanced welding science and technology	Workshop on Recent Advances in Welding Process	NIT Agartala	30/01/2014-31/01/2014
Dr. P. Muthukumar	Introduction to Green Energy Technology	Christ the King Engineering College, Coimbatore	Coimbatore, Tamil Nadu	25-3-2014
Dr. P. Muthukumar	Future energy options for India	Erode Builder Educational Trusts Group of Institutions	Erode	11-02-2014
Dr. P. Muthukumar	Solar Thermal Systems	RVS Engineering College, Coimbatore	Coimbatore, Tamil Nadu	19-12-2013
Dr. P. Muthukumar	Micro Heat Transfer- Principle and Applications	TKM Engineering College	Kollam, Kerala	17-12-2013
Dr. P. Muthukumar	Solid state Hydrogen storage system : Design and Testing	The Automotive Research Association of India (ARAI)	Pune	5-09- 2013
Dr. S. C. Mishra	Thermodynamics of Life	Dept. of Mechanical Engineering, IIT Bhubaneswar	Bhubaneswar	24 March 2014
Dr. S. C. Mishra	Topic:Thermodynamics of Life	School of Management Sciences, Varanasi	Varanasi	3 February 2014
Dr. S. C. Mishra	Thermodynamics of Life	Faculty of Management Studies, BHU Varanasi	Varanasi	3 February 2014
Dr. S. C. Mishra	Characterization of a Medium Using Thermal Signals	Department of Mechanical Engineering, IIT (BHU) Varanasi	Varanasi	30 January 2014
Dr. S. C. Mishra	Characterization of a Medium Using Thermal Signals	Department of Mechanical Engineering, BIT Sindri, Dhanbad	Dhanbad	17 January 2014
Dr. S. C. Mishra	Porous Media Combustion – Its Potential Applications in a Wide Range of Liquid and Gas Fuelled Cooking Stoves	Sendai, Japan	Sendai, Japan	25 November 2013
Dr. S. C. Mishra	Thermal Characterization of a Medium Using Radiative Signals	Department of Technology, University of Naples, Parthenope, Italy	Italy	2 July 2013
Dr. S. Bag	A perspective on laser microjoining	QIP short term course at IIT Guwahati	IIT Guwahati	June 24 -28, 2013

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Dr. S. Bag	Recent advances in welding/joining technology	Jalpaiguri Govt. Engg. College	West Bengal	July 27, 2013
Dr. S. Bag	Recent advances in laser microjoining	Government College of Engineering & Textile, Berhampore	West Bengal	October 28-29, 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Dr. Bikramjit Basu	Associate Professor, Materials Research Centre, IISc Bangalore	1. Engineering ceramics and their composites - tailoring material variables for tribological application; 2. External field stimulation for enhanced cell proliferation and bactericidal property on engineered biomaterials: Analytical modeling and experimental approaches	July 23, 2013
Dr. Kirti Chandra Sahu	Associate Professor, Chemical Engineering, IIT Hyderabad	Instabilities in viscosity-stratified flows	March 12, 2014

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Sl. No.	Name of Sem./Wor./ Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of participants
1	8th All India Students' Conference on Science and Spiritual Quest, Theme: Serving the Self and the Society - the Role of Science and Spiritually	IIT (BHU) Varanasi, UP, India	1-2 February 2014	National	Dr. S. C. Mishra (Role: Chairman of the Conference)	-
2	12th Indo-European Winter Academy	IIT Guwahati	9-15 December 2013	International Winter Workshop	Dr. S. C. Mishra (Role: Associate Director, Coordinating Professor and Chairman, Organizing Committee) Dr. D. N. Basu	66 nos. (51 nos. of students + 15 nos. of participating professors)
3	National Conference on Manufacturing: Vision for Future (MVF)	IIT Guwahati	October 12-13, 2013	National Conference	Dr. U. S. Dixit, Dr. R. Ganesh Narayanan, Dr. M. Ravi Sankar	-

**PATENTS**

- S. Arun and S. Kanagaraj, Injection mouldable polymeric composite based passive polycentric knee joint. (Filed for Indian patent 2014)
- P. Mahanta, Removal of toxin from Jatropha seed cakes for probable applications (Filed)

## AWARDS AND HONOURS

- Amaresh Dalal : Visiting Faculty in the Department of Mechanical Engineering at Texas A&M University, College Station, Texas, USA; June 28 - July 21, 2013
- Deepak Sharma : Received DAAD's "Research Stays fellowship" for the period starting from 15 May 2013 to 15 July 2013 to carry out research at Karlsruhe Institute of Technology, Germany
- Gautam Biswas: Distinguished Alumnus Award, Bengal Engineering and Science University, Shibpur in 2013.
- Gautam Biswas : Assumed duties as the Director of IIT Guwahati in September 2013.
- K. S. R. K. Murthy: Outstanding reviewer in 2012/2013, Engineering Fracture Mechanics Journal editorial board award, Elsevier Publishers
- Pankaj Biswas: IEI Young Engineers Award 2013- 2014' in Mechanical Engg. Discipline
- P. Muthukumar : Received "Bhaskara Advanced Solar Energy Fellowship (BASE Fellowship)", from Indo - U.S. Science and Technology Forum for visiting Univesity of South Florida from 1st June – 27th November 2014
- S. C. Mishra: Adjunct Faculty, Department of Mechanical Engineering, IIT Bhubaneswar
- S. C. Mishra: Plenary Speaker at the 10th International Conference on Flow Dynamics, 25 - 27 November 2013, Sendai, Japan
- S. C. Mishra : One of the four Vice Presidents of the Indian Society for Heat and Mass Transfer , 2013
- S. C. Mishra: Chaired the session at the 10th International Conference on Flow Dynamics, 25 - 27 November 2013, Sendai, Japan
- Sachin D. Kore, Young Engineer Award 2013 from Senior Engineers' Forum, Greater Guwahati

## STUDENTS' ACHIEVEMENTS

- Dr. S. Kanagaraj: His BTP students, Mr.Padmanabh Baruah and Mr. Rabindra Pator, were awarded "Best oral presentation award" in 5th National Symposium for Materials Research Scholars, MR-13, held at IIT Bombay during 8-10 May 2013
- Dr. S. Bag: His PhD student, Mr. N. Yadaiah was awarded "First best paper" in International Conference on Advances in Mechanical Sciences held at Hyderabad, 9 -11 January 2014.

## SPECIAL MENTION

- Dr. Pankaj Biswas: ASME MEMBERSHIP, March 2014

## FACULTY MEMBERS

Sl. No.	Name	PhD	Designation	Areas of Interest
1	Swarup Bag	IIT Bombay	Assistant Professor	Fusion welding processes, Finite element method, Laser microjoining, Heat transfer and fluid flow in fusion welding, Residual stress and distortion, Recrystallization in hot metal forming process, Optimization in manufacturing process
2	Dibakar Bandopadhyaya	IIT Kanpur	Assistant Professor	Active materials, Artificial muscle materials, Smart structures, Robotics and mechanism, Composites, MEMS, Bio inspired design
3	Atanu Banerjee	IIT Kanpur	Assistant Professor	Complaint Mechanism, Shape memory alloy, Bio-memetic devices

Sl. No.	Name	PhD	Designation	Areas of Interest
4	Dipankar Narayan Basu	IIT Kharagpur	Assistant Professor	Nuclear Thermalhydraulics, Supercritical Natural Circulation Loops, Domestic Air-conditioning, Computational Fluid Dynamics and Heat Transfer
5	Pankaj Biswas	IIT Kharagpur	Assistant Professor	Manufacturing and Design: Computational weld mechanics, Solid state welding, Soft computing modeling of welding processes, FEM, Line heating
6	Gautam Biswas (Joined on 06.09.2013)	IIT Kharagpur	Professor and Director	Computational Fluid Dynamics, Convective Heat Transfer, Turbulence, Boiling Heat Transfer, Heat Transfer Augmentation, Turbomachinery
7	Debabrata Chakraborty	IIT Kharagpur	Professor and Dean, R&D	FRP, Composites, FEM, Fracture Mechanics and Design
8	Amaresh Dalal	IIT Kanpur	Assistant Professor	Computational Fluid Mechanics and Heat Transfer, Finite Volume Methods and Unstructured Grid Techniques, Natural and Mixed Convection Flows
9	Manas Das	IIT Kanpur	Assistant Professor	Advanced Finishing and Nano-finishing Processes, Magnetorheological Finishing (MRF) Process, Advanced / Non-traditional Machining Processes, Machining of Advanced Engineering Materials, Micromanufacturing
10	Anoop K. Dass	IISc Bangalore	Professor	Computational Fluid Dynamics and Turbomachines
11	Arnab Kumar De	IIT Kanpur	Assistant Professor	Numerical Methods in Fluid Flow and Heat Transfer, Convection, Turbulence
12	Uday S. Dixit	IIT Kanpur	Professor	Design and Manufacturing : FEM, Neural Network and Fuzzy Set Application; Mechatronics
13	Santosh K. Dwivedy	IIT Kharagpur	Professor	Non-linear Dynamics, Design and Robotics, vibrations
14	Hrishikesh P. Gadgil	IISc Bangalore	Assistant Professor	Liquid atomization and fuel sprays, combustion, propulsion
15	Sachin S. Gautam (Joined on 27.06.2013)	IIT Kanpur	Assistant Professor	Design and Manufacturing : Nonlinear Finite Element Analysis, Computational Contact Impact Analysis, Adhesion, Rough Surfaces, Time Integration Schemes, Mixed Time Integration Schemes, Plasticity, Ductile Fracture, Continuum Damage Mechanics
16	Shrikrishna N. Joshi	IIT Bombay	Assistant Professor	Micro fabrication: Laser micro forming, Micro machining: Micro electric discharge machining (EDM), Web based manufacturing, Process modeling and optimization of advanced manufacturing processes, Application of soft computing techniques in manufacturing
17	Sashindra K. Kakoty	IIT Kharagpur	Professor	Tribology, Duct Acoustics, Mechanical System Design, Rural Technology
18	Karuna Kalita	University of Nottingham	Assistant Professor	Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration

Sl. No.	Name	PhD	Designation	Areas of Interest
19	S. Kanagaraj	IIT Kharagpur	Associate Professor	Biomaterials, Carbon nanotubes based nanocomposites, Nanofluids, Materials characterization
20	Sachin D. Kore	IIT Bombay	Assistant Professor	Experimental and numerical study of electromagnetic pulse processing, Solid state welding, Joining of similar, dissimilar and lightweight metals like Al, Steel, Al-Li, and Mg
21	Vinayak Kulkarni	IISc Bangalore	Assistant Professor	High enthalpy flows, scramjet engine, experimental, aerodynamics, measurement science, CFD simulations
22	Poonam Kumari (Joined on 01.07.2013)	IIT Delhi	Assistant Professor	Theory of plates and shells, Computational mechanics, Smart structures
23	Gavara Madhusudhana	IISc Bangalore	Assistant Professor	Computational Fluid Dynamics, Heat Transfer, Cooling of Electronics, Multi-phase flows, Cooling at Micro/Mini scales, Turbulent Fluid Flow and Heat transfer
24	Pinakeswar Mahanta	IIT Guwahati	Professor and HOD	Thermal Radiation with Participating Media, Fluidization, Energy Conservation and Renewable Energy
25	Subhash C. Mishra	IIT Kanpur	Professor and Dean, AA&ER	Analysis of Heat Transfer Problems involving Thermal Radiation
26	K. S. R. Krishna Murthy	IIT Kharagpur	Associate Professor	Finite Element Methods, Error Estimation and Fracture Mechanics
27	P. Muthukumar	IIT Madras	Associate Professor	Coupled heat and mass transfer analysis; Metal hydride based thermal machines, Conventional and Non-conventional refrigeration systems
28	Ganesh R. Narayanan	IIT Bombay	Assistant Professor	Metal Forming: Sheet forming & Cold forging, Computer applications in Metal Forming
29	Ganesh Natarajan	IISc Bangalore	Assistant Professor	Computational Fluid dynamics, Grid Adaptation, Error Estimation, Immersed Boundary methods, Parallel computing, Biofluid dynamics
30	Sukhomay Pal	IIT Kharagpur	Assistant Professor	Welding Process Monitoring and Control, Tool Condition Monitoring, Non-Conventional Machining Process Application of Artificial Neural Network, Genetic Algorithms and Fuzzy logic in manufacturing
31	Satyajit Panda	IIT Kharagpur	Assistant Professor	Composite materials, Nonlinear vibrations, Smart materials and structures, FEM, Functionally Graded materials and structures, Micromechanics.
32	Manmohan Pandey	IIT Kanpur	Professor	Two-phase flow instabilities, Nuclear reactor thermal hydraulics, Heat transfer in microchannels, Heat transfer in fluidized beds

Sl. No.	Name	PhD	Designation	Areas of Interest
33	Sangamesh Deepak R (Joined on 17.04.2013)	IISc Bangalore	Assistant Professor	Kinematics and Dynamics of rigid multi-body systems, Compliant Mechanisms, Topology Optimization, Static Balancing
34	Narayana Reddy	IISc Bangalore	Assistant Professor	Inverse Problems, Biomechanics, Compliant Mechanisms, Topology Optimization, Nonlinear FEM, MEMS and Design of Materials
35	P. S. Robi	IIT Bombay	Professor	Coating, Fracture Mechanics, Materials Processing, Metal Matrix composite, Metal Casting, P/M Processing
36	Ujjwal K. Saha	IIT Bombay	Professor	Propulsion, Turbomachinery, Wind Energy Conversion, Internal Combustion Engines
37	Anil D. Sahasrabudhe	IISc Bangalore	Professor (on deputation as Director, College of Engg , Pune)	Vibration and Noise, Condition Monitoring, CAD/CAM
38	Niranjan Sahoo	IISc Bangalore	Associate Professor	Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid
39	Ravi M. Sankar	IIT Kanpur	Assistant Professor	Machining & Advanced Machining Processes, MEMS & NEMS, Sustainable Machining, Micromanufacturing, Composite Materials, Online monitoring of Manufacturing Processes, Tribology, Precision Engineering
40	S. Senthilvelan	IIT Madras	Associate Professor	Composites, Fatigue, Wear and Failure Analysis
41	Deepak Sharma	IIT Kanpur	Assistant Professor	Optimal Design: Modeling and Computation, Engineering Design and Optimization, Genetic Algorithms, Multi-objective Optimization
42	Chandramohan Somayaji	Mississippi State University	Assistant Professor	Renewable Energy, Non-Conventional Energy Sources, Engine After treatment Systems, Design of Heat Transfer Equipments, Chemical Reaction Engineering
43	Rajiv Tiwari	IIT Kanpur	Professor	Rotor Dynamics, Vibrations, Identification in Mechanical Systems, Rolling Element Bearing Design and Analysis, Application of Active Magnetic Bearings in Rotors, Vibrations based Condition Monitoring of Industrial Rotating Machines



# DEPARTMENT OF PHYSICS

**YEAR OF ESTABLISHMENT OF THE DEPARTMENT:**  
1995

**ACADEMIC PROGRAMMES OFFERED:**

**Bachelor of Technology (BTech)** in  
o Engineering Physics

**Master of Science (MSc)** in  
o Physics

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

- BTech: 44
- MSc: 41
- PhD: 29

**FACULTY STRENGTH:**

- Professor: 7
- Associate Professor: 13
- Assistant Professor: 15

**NUMBER OF FACULTY JOINED DURING 1 APRIL 2013  
– 31 MARCH 2014:**

Assistant Professor: 5

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

The Department of Physics at IIT Guwahati has 22 laboratories, with the following break up for teaching and research labs:

- (a) Teaching Labs : (5 teaching laboratories)
- i) B. Tech 1st year lab-01
  - ii) M. Sc lab-01
  - iii) Numerical lab-01
  - iv) Electronics lab-01
  - v) Advanced Physics lab-01

- (b) Research labs: (17 research labs)
- i) Fiber optics lab
  - ii) Non linear optics lab
  - iii) Laser and Photonics lab
  - iv) XRD labs (02)
  - v) Magnetism lab
  - vi) Computational lab
  - vii) Furnace lab
  - viii) Material Science lab
  - ix) Solid State lab, Spectroscopy lab
  - x) Semiconductor labs (02)
  - xi) Holography and Optical imaging lab
  - xii) Thin film lab
  - xiii) Low temperature lab
  - xiv) Electro-ceramics lab
  - xv) High Energy Physics lab

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED  
DURING 1 APRIL 2013 – 31 MARCH 2014:**

- i) Newport Spectra Physics DPSS Laser Model EXLSR-532-200-CDRH
- ii) Olympus IX51 inverted microscope
- iii) Hamamatsu ORCA Flash 4.0 area scan camera
- iv) Piezoelectric nano scan stage, Nano-Z100
- v) 30 KVA online UPS (Make: Eaton) ~ 5L for teaching lab
- vi) Laser Raman Spectrometer ~ 6L for teaching lab
- vii) XR 4.0 X-ray expert unit (table top XRD) ~10L for teaching lab
- viii) LCR meter, 20Hz-1MHz, Model: 4300, Make: Wayne ker UK ~ 4.5L for research lab
- ix) High Performance Computing Cluster for the HEP Lab, IBM Blade Chasis H and Servers HS23
- x) SiPM Evaluation Kit, Make: CAEN, Italy; Model: SP 5600 KIT B
- xi) High Temperature Furnace

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The major research focus of the department is evenly poised between different branches of theoretical and experimental Physics. The thrust areas are:

- (i) Laser and Photonics (Theory & Experiment)
- (ii) Condensed Matter Physics (Theory and Experiment)
- (iii) High Energy Physics (Theory and Experiment)
- (iv) Theoretical Physics
- (v) Laser and Photonics

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:**

A number of sponsored projects have received funding and a significant number of research papers got published.

**RESEARCH PROJECTS****a) New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. D. Pamu	Deposition and characterization of Ba <sub>5</sub> Nb <sub>4</sub> O <sub>15</sub> -BaWO <sub>4</sub> films for complementary metal oxide semiconductor applications	DST-Fast Track (Young Scientist in Physical Sciences)	15.00	None	3 years
Dr. D. Pamu	Dielectric and thermal characterization of Mg(Zr <sub>0.05</sub> Ti <sub>0.95</sub> )O <sub>3</sub> ceramics for microwave window applications	BRFST	36.00	Dr. S. Thota	2 years
Dr. A. Perumal	Magnetic and magnetoresistance properties of multilayer structured CoFeB alloy films for spintronic applications	SERB, DST	39.46	None	3 years
Dr. Amarendra Kumar Sarma	Parity-time symmetry in Non-linear Optics	DST-SERB (Fast-Track)	14.47	None	3 years
Prof. S. Ravi	Neutron powder diffraction studies in transition element doped LaCrO <sub>3</sub>	UGC-DAE-CSR	05.40	None	2 years

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. P. Agarwal	Development of amorphous silicon based solar cells on plastic and other flexible substrates	DRDO	34.00	None	Extended upto 31-3-2015

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. P. Agarwal	Development of facilities for fabrication of amorphous silicon-crystalline silicon Hetero junction Solar cells	DST	50.00	None	Extended upto Aug, 2014
Prof. S. Basu	Phases of the interacting Bose gas – simulating quantum phenomena at large length scales	CSIR	14.20	None	2012-2015
Dr. B. R. Boruah	Design and implementation of confocal microscopes with spatial light modulator based beam scanning and programmable beam manipulation mechanism	DST-SERB	89.66	Dr. U. Bora	2012-2015
Dr. B. R. Boruah	Design and implementation of a high speed wavefront sensor of light beams	Department of Electronics & Information Technology	61.44	Prof. A. Khare	2011-2014
Dr. B. Bhuyan	Collaboration by Indian Physicists on Neutrino Projects at Fermi Lab (USA)	DST	131.48	None	2012-2015
Dr. B. Bhuyan	Search for new physics beyond Standard Model using data from Belle experiment and detector R & D for the superKEKB experiment	DST	38.00	None	April, 2014
Dr. Tarak Nath Dey	Diffraction-less multidimensional light propagation in coherently controlled media	DST	18.81	None	2012-2015
Dr. Subhrdip Ghosh	Theory of phonon excitations in substitutionally disordered alloys	Swedish Research Link, Sweden	51.44	Dr. B. Sanyal, Uppsala University, Sweden	3 Years
Prof. P. K. Giri	Controlled Growth and Studies on Semiconductor Nanowire Heterostructures for Solar Photovoltaic Applications	BRNS, DAE	25.00	Dr. D. K. Goswami	2012-2015
Prof. P. K. Giri	Development of Semiconductor Nanowire Based Advanced Bio-Sensors for Biomedical Applications	DBT, Govt. of India	25.00	None	2013-2016
Dr. P. K. Padmanabhan	Factors Influencing Fast Ion Conduction In Solids: Atomistic Modeling And Computer Simulation Studies On NASICON-type Solids	DST	30.25	None	2012-2015

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. D. Pamu	Preparation and characterization of Mg <sub>2</sub> TiO <sub>4</sub> ceramics by mechanical alloying	DRDO	16.71	Dr. A. Perumal	3 years
Dr. D. Pamu	Fabrication of K <sub>0.5</sub> Na <sub>0.5</sub> NbO <sub>3</sub> Ferroelectric Thin Film Capacitors by RF Magnetron Sputtering	DAE-BRNS	18.00	None	3 years
Prof. S. B. Santra	Theoretical Physics Seminar Circuit	DST through S.N. Bose National Center for Basic Sciences, Kolkata	Rs. 50,000 per year	None	Unlimited
Prof. S. Ravi	Fe Doped In <sub>2</sub> O <sub>3</sub> Thin Films: Growth Optimization and Investigation of Electrical Transport, Magnetic and Optical Properties for Spintronics Applications	CSIR	14.36	None	2012-2015
Prof. S. Ravi	Critical Behavior Studies in SnO <sub>2</sub> based Diluted Magnetic Semiconductors	DST	38.92	None	2011-2014
Dr. Amarendra Kumar Sarma	Optical force in a two and three level atomic system superimposed to an intense ultrashort pulsed laser field beyond the rotating wave approximation	CSIR	11.72	None	2013-2016
Dr. Ashwini K Sharma	Studies on laser-induced breakdown in liquid and solid-liquid interface	DST	31.80	Prof. A. Khare	Extended till June, 2014
Prof. A. Srinivasan	Development of Heusler alloys based thin films for magnetocaloric and spintronic application	DRDO	34.92	None	2012-2015
Prof. A. Srinivasan	Development of Ni-Mn Based alloys exhibiting high magnetocaloric effect near room temperature	CSIR	18.60	None	2012-2015
Head, Dept. of Physics (coordinator)	DST-FIST Project (Infrastructure project to the department)	DST (FIST)	229.00	Dept. project	2010-2015

**c) Completed Sponsored Projects:**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co- Investigator	Duration
Prof. Pratima Agarwal	Development of high quality SiC and diamond and thin films using Hot wire Chemical Vapour deposition techniques for plasma diagnostics applications	BRFST	35.00	Prof. A. Khare	2010-2013
Dr. B. Bhuyan	Development of Event reconstruction and simulation codes and active detector elements for the INO project	DST	14.99	Dr. P. Poulouse	2010-2013
Dr. A. Perumal	Development of domain wall free Fe-Ta-C based soft magnetic thin films	CSIR	21.76	None	2010-2013
Dr. P. Poulouse	Study of CP Properties of MSSM Higgs Sector in the context of LHC	DST	17.60	None	2010-2014
Dr. P. Poulouse	Higgs self coupling and Higgs-Gauge boson coupling in Little Higgs Models	BRNS, DAE	16.78	None	2010-2014
Prof. S. Ravi	Magnetic properties in nanocrystalline diluted magnetic semiconductors	BRNS	32.00	Dr. A. Perumal	2010-2013
Prof. S. Ravi	Magnetic Properties of SnO <sub>2</sub> based Nanocrystalline Diluted Magnetic Semiconductors	BRNS, Mumbai	-	None	2010-2013
Prof. S.B. Santra	Study of Self-organizing dynamics on complex and evolving networks	DST	18.80	None	2010-2013

**RESEARCH PUBLICATIONS****Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
A. Barman and Saurabh Basu	Phase diagram of bosons in a tripartite lattice- emergence of exotic density ordered phases	J. Phys. B At. Mol. Opt. Phys.	Vol. 46	125303	2013
A. Khan, Saurabh Basu and B. Tanatar	Investigating dirty crossover through Fidelity Susceptibility and density of states	Int. J. Mod. Phys. B	DOI: 1142/S0217979214500830	2014	
A. Barman and Saurabh Basu	Phase diagram of trapped bosons in a Kagome lattice – application of inhomogeneous mean field theory	J. Phys. B At. Mol. Opt. Phys.	Vol. 47	025302-025310	2014
Abhijit Das and B. R. Boruah	Dynamic control of illumination beam phase profile in a scanning optical microscope	Proceedings of SPIE	Vol. 8797	87970K	June, 2013
Onkar N. Verma and Tarak N. Dey	Enhancement of image beyond the diffraction-limit by double dark resonances	Phys. Rev. A	Vol. 89	033830	2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Onkar N. Verma, Lida Zhang, Jorg Evers and Tarak N. Dey	Optical cloning of arbitrary images beyond the diffraction limits	Phys. Rev. A	Vol. 88	013810	July, 2013
Lida Zhang, Tarak N. Dey and Jorg Evers	Control of beam propagation in optically written waveguides beyond the paraxial approximation	Phys. Rev. A	Vol. 87	043842	April, 2013
S. Paul, B. Sanyal and S. Ghosh	Magnetic properties of Mn <sub>2</sub> NiSn shape memory alloys	J. Phys. Condens. Mat.	Vol. 25	236005	2013
Ravi K. Biroju, P. K. Giri, Soumen Dhara, Kenji Imakita and Minoru Fujii	Graphene Assisted Controlled Growth of Highly Aligned ZnO Nanorods and Nanoribbons: Growth Mechanism and Photoluminescence Properties	ACS Appl. Mater. Interf.	Vol. 6	377	2014
Ravi K. Biroju and P. K. Giri	Controlled Fabrication of Graphene--ZnO Nanorod, Nanowire and Nanoribbon Hybrid Nanostructures	J. Nanosci. Lett.	Vol. 4	34	2014
Ramesh Ghosh, P. K. Giri, Kenji Imakita and Minoru Fujii	Origin of Visible and Near Infrared Photoluminescence from Chemically Etched Si Nanowires Decorated with Arbitrary Shaped Si Nanocrystals	Nanotechnology	Vol. 25	045703	2014
Batakrushna Santara and P. K. Giri, K Imakita and M Fujii	Evidence of oxygen vacancy induced room temperature ferromagnetism in solvothermally synthesized undoped TiO <sub>2</sub> nanoribbons	Nanoscale	Vol. 5	5476	2013
Soumen Dhara and P. K. Giri	ZnO Nanowire Heterostructures: Intriguing Photophysics and Emerging Applications	Rev. Nanosci. Nanotech.	Vol. 2	1-24	2013
Soumen Dhara, Kenji Imakita, P. K. Giri, Minoru Mizuhata and Minoru Fujii	Aluminum Doped Core-shell ZnO/ZnS Nanowires: Doping and Shell Layer Induced Modification on Structural and Photoluminescence Properties	J. Appl. Phys.	Vol. 114	134307	2013
Batakrushna Santara, P. K. Giri, Kenji Imakita and Minoru Fujii	Evidence for Ti Interstitial Induced Extended Visible Absorption and Near Infrared Photoluminescence from Undoped TiO <sub>2</sub> Nanoribbons: An In-Situ Photoluminescence Study	J. Phys. Chem. C	Vol. 117	23402	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Batakrushna Santara and P. K. Giri	Impact of reaction temperature, stirring and cosolvent on the Solvothermal Synthesis of Anatase TiO <sub>2</sub> and TiO <sub>2</sub> / Titanate Hybrid Nanostructures: Elucidating the Growth Mechanism	Mater. Chem. Phys.	Vol. 137	928	2013
Arindam Pal, J. C. Mahato, B. N. Dev and D. K. Goswami	Roughening in Electronic Growth of Ag on Si(111)-(7×7) Surfaces	ACS: Applied Materials and Interfaces	Vol. 5	9517 – 9521	2013
Murali Gedda, Nimmakayala V. V. Subbarao, Sk. Md. Obaidulla and Dipak K. Goswami	High carrier mobility of CoPc wires based field-effect transistors using bilayer gate dielectric	AIP Advances	Vol. 3	112123-3	2013
A. T. T. Mostako, Alika Khare, C. V. S. Rao, Sudhirsinh Vala, R. J. Makwana and T. K. Basu	Deuterium ion beam irradiation onto the pulsed laser deposited Tungsten thin films	Journal: J. Vac. Sci. Technol. A	Vol. 36 (6)	061510-1	2013
A. T. T. Mostako, Alika Khare, C. V. S. Rao, Sudhirsinh Vala, T. K. Basu, Prakash M. Raole and Rajinikant Makwana	Post irradiation effect of Deuterium ion beam onto Rh/W/Cu multilayer thin film	Journal of Nuclear Materials	Vol. 446	63-67	2013
John Thomas, Rodney Bernard, John T. Thomas, Kamlesh Alti, C. Santhosh, Satchi Kumari and Alika Khare and Deepak Mathur	Femtosecond Laser Induced Forward Transfer of Indium thin films	Laser and Particle Beam	Vol. 32	55-61	2013
R. Aneesh and Sunil Khijwania	Zinc Oxide Nanoparticle Doped Nanoporous Sol-Gel Fiber as a Humidity Sensor with Enhanced Sensitivity and Large Dynamic Range	Applied Optics	Vol. 52	5493	2013
R. Aneesh and Sunil Khijwania	A comprehensive experimental investigation of sensitivity enhancement for optical fiber humidity sensor employing localized surface plasmon resonance spectroscopy	SPIE	Vol. 8794	87941M1-5	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Andrea Alberti, Paolo Gambino and Soumitra Nandi	Perturbative corrections to power suppressed effects in semileptonic B decays	JHEP	147	1-16	2014
S. Roy and P. Padma Kumar	Influence of Cationic Ordering on Ion Transport in NASICONs: Molecular Dynamics Study	Solid State Ionics	Vol. 253	217-222	2013
T. Santhosh Kumar, Pallabi Gogoi, A. Perumal, P. Sharma and D. Pamu	Effect of Cobalt Doping on the Structural, Microstructural, and Dielectric Properties of MgTiO <sub>3</sub> Ceramics Prepared by Semi Alkoxide Precursor method	Journal of American Ceramic Society	DOI: 10.1111 / jace. 12851	-	2014
T. Santhosh Kumar, Pallabi Gogoi, Bhagban Kisan, A. Perumal, P. Sharma and D. Pamu	Magnetic Properties of Co Doped MgTiO <sub>3</sub> ceramics	Physica B	DOI: 10.1016/ j.physb. 2014. 02.054	-	2014
T. Santhosh Kumar, D. Goswami and D. Pamu	Effect of CeO <sub>2</sub> nanoparticles and annealing temperature on the microwave dielectric properties of MgTiO <sub>3</sub> ceramics	Ceramics International	Vol. 40	1125	2014
P. Mahesh and D. Pamu	Structural, mechanical and optical properties of nanocrystalline (K <sub>0.34</sub> Na <sub>0.65</sub> )NbO <sub>3.01</sub> thin films deposited by RF sputtering	Journal of Ceramic Science and Technology	Vol. 5, No.1	23-30	2014
R. K. Bhuyan, T. Santhosh Kumar, D.Goswami, A. R. James and D. Pamu	Liquid Phase Effect of La <sub>2</sub> O <sub>3</sub> and V <sub>2</sub> O <sub>5</sub> on microwave dielectric properties of Mg <sub>2</sub> TiO <sub>4</sub> Ceramics	Journal of Electroceramics	Vol. 31	48	2013
T. Santhosh Kumar, D. Goswami and D. Pamu	Liquid Phase Effect of Bi <sub>2</sub> O <sub>3</sub> and La <sub>2</sub> O <sub>3</sub> on Densification, Microstructure and Microwave Dielectric Properties of MgTiO <sub>3</sub> Ceramics	Journal of Ceramic Science and Technology	Vol. 4	145-150	2013
T. Santhosh Kumar, D. Goswami and D. Pamu	Influence of Bi <sub>2</sub> O <sub>3</sub> and La <sub>2</sub> O <sub>3</sub> on densification, microstructure and microwave dielectric properties of MgTiO <sub>3</sub> ceramics	Journal of Ceramic Science and Technology	Vol. 4	145	2013
Akhilesh Kr. Singh, Srijani Mallik, Subhankar Bedanta and A. Perumal	Spacer layer and temperature driven magnetic properties in multilayer structured FeTaC thin films	Journal of Physics D: Applied Physics	Vol. 46	445005	2013



Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Bhagaban Kisan, P. C. Shyni, Samar Layek, H. C. Verma, David Hesp, Vinod Dhanak, Satheesh Krishnamurthy and A. Perumal	Finite size effects in magnetic and optical properties of antiferromagnetic NiO nanoparticles	IEEE Transaction on Magnetics	Vol. 50	2300704	2013
P. C. Shyni and A. Perumal	Structural and magnetic properties of Fe <sub>100-x</sub> Si <sub>x</sub> (0 = x = 40) nanocrystalline alloy powders	IEEE Transaction on Magnetics	Vol. 50	2101904	2013
Akhilesh Kr. Singh, Srijani Mallik, Subhankar Bedanta and A. Perumal	Effect of Postannealing and Multilayer Structure on Soft Magnetic Properties of FeTaC Thin Film	IEEE Transaction on Magnetics	Vol. 50	2000804	2013
A. Gayen, B. Biswas, A.K. Singh, P. Saravanan and A. Perumal	High temperature magnetic properties of indirect exchange spring FePt/M(Cu,C)/Fe trilayer thin films	J. Nanomaterials	Vol. 2013	718365	2013
P Saravanan, Jen-Hwa Hsu, Anabil Gayen, Akhilesh K Singh, A Perumal, G L N Reddy, Sanjiv Kumar and S V Kamat	Effect of Fe layer thickness and Fe/Co intermixing on magnetic properties of Sm-Co/Fe bilayer exchange spring magnets	Journal of Physics D: Applied Physics	Vol. 46	155002	2013
Rahul Das, S. Sarma, B. Deka, A. Perumal and A. Srinivasan	Variations in structural and magnetic phase transitions of Ni-Mn-In-Si alloy with change in Ni/Mn ratio	Physics Express	Vol. 4	7	2014
Rahul Das, A. Perumal and A. Srinivasan	Tailoring the magnetocaloric properties of Ni <sub>51</sub> Mn <sub>34</sub> In <sub>15</sub> alloy by Ge and Si substitution for In	Physics Express	Vol. 3	13	2013
R. K. Bhuyan, T. S. Kumar, D. Goswami, A. R James, A. Perumal and D. Pamu	Enhanced densification and microwave dielectric properties of Mg <sub>2</sub> TiO <sub>4</sub> ceramics added with CeO <sub>2</sub> nanoparticles	Materials Science and Engineering : B	Vol. 178	471 - 476	2013
R. K. Bhuyan, T. Santhosh Kumar, A. Perumal, P. Saravanan and D. Pamu	Effect of annealing and atmosphere on the structure and optical properties of Mg <sub>2</sub> TiO <sub>4</sub> thin films obtained by the radio frequency magnetron sputtering method	Journal of Experimental Nanoscience	Vol. 8	371 - 381	2013
S. Moretti, S. Munir and P. Poulouse	The 125 GeV Higgs Boson signal within the Complex NMSSM	Phys. Rev. D	Vol. 89	015022	2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
B. Ananthanarayan, Sumit K. Garg, Jayita Lahiri and P. Poulose	Probing the indefinite CP nature of the Higgs Boson through decay distributions in the process $e+e\rightarrow t\bar{t}$	Phys. Rev. D	Vol. 87	114002	2013
U. Raha, F. Myhrer and K. Kubodera	Ordinary Muon Capture in Hydrogen Reexamined	Phys. Rev. C	Vol. 87	055501	2013
Tribedi Bora and S. Ravi	Study of Magnetization Reversal in $\text{LaCr}_{1-x}\text{Fe}_x\text{O}_3$ Compounds	Journal of Applied Physics	Vol. 114	033906 - 033906-8	July, 2013
Tribedi Bora and S. Ravi	Effect of Ce doping on the magnetic properties of $\text{LaCrO}_3$	Physica B: Condense Matter	-	-	2014
Bipul Deka, S. Ravi, A Perumal and D. Pamu	Ferromagnetism and ferroelectricity in Fe doped $\text{BaTiO}_3$	Physica B: Condense Matter	-	-	2014
R. Padam, S. Ravi and D. Pal	Entanglement of lock-in transition and exchange bias in $\text{Co}(\text{Cr}_{0.9}\text{Co}_{0.1})_2\text{O}_4$	Physica B: Condense Matter	-	-	2014
Tribedi Bora and S. Ravi	Negative magnetization and the tunable exchange bias field in $\text{LaCr}_{0.8}\text{Mn}_{0.2}\text{O}_3$	Journal of Magnetism and Magnetic Materials	Vol. 358	208	2014
Tribedi Bora and S. Ravi	Sign reversal of magnetization of magnetization and exchange bias field in $\text{LaCr}_{0.85}\text{Mn}_{0.15}\text{O}_3$	Journal of Applied Physics	Vol. 114	183902	2013
R. Padam, S. Pandey, S. Ravi, A. K. Nigam, S. Ramakrishnan, A. K. Grover and D. Pal	Magnetic compensation effect and phase reversal of exchange bias field across compensation temperature in multiferroic $\text{Co}(\text{Cr}_{0.95}\text{Fe}_{0.05})_2\text{O}_4$	Applied Physics Letters	Vol. 102	112412	2013
R. K. Bhuyan, T. Santhosh Kumar, A. Perumal, S. Ravi, and D. Pamu	Optical Properties of Ambient Temperature Grown Nanocrystalline $\text{Mg}_2\text{TiO}_4$ Thin films Deposited by RF Magnetron Sputtering	Surface and Coatings Technology	Vol. 221	196	2013
Samit Kumar Gupta and Amarendra K. Sarma	Solitary waves in Parity-time (PT) symmetric Bragg-grating structure and the existence of Optical Rogue Waves	Europhysics Letters	Vol. 105	44001	2014
Pawan Kumar, Parvendra Kumar and Amarendra K. Sarma	Simultaneous control of optical dipole force and coherence creation by Super-Gaussian femtosecond pulses in $\lambda$ -like atomic systems	Phys. Rev. A	Vol. 89	033422	2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Samit Kumar Gupta and Amarendra K. Sarma	Parity-time-symmetric closed form optical quadrimer waveguides	Journal of Modern Optics	DOI: 10.1080/09500340.2013.879934	2014	
Parvendra Kumar and Amarendra K. Sarma	Ultrafast and selective coherent population transfer in four-level atoms by a single nonlinearly chirped femtosecond pulse	Phys. Rev. A	Vol. 88	033823	2013
Poulami Ghosh and A. K. Sharma	Optical characterization and growth mechanism of combination of zinc oxide nanowires and nanorods at various substrate temperatures	Journal of Nanomaterials	2013	Article ID 480164	2013
Poulami Ghosh and A. K. Sharma	Deposition of zinc oxide nanopores by pulsed laser ablation	Journal of Physics and Applications	Vol. 1 (1)	10	2013
Nisha Shankhwar, R. K. Singh, G. P. Kothiyal, A. Perumal and A. Srinivasan	Evolution of magnetic properties of CaO-P2O5-Na2O-Fe2O3-SiO2 glass upon heat treatment	IEEE Transactions in Magnetism	Vol. 50	4003504	2014
Bhargab Deka, Rahul Das and A. Srinivasan	Magnetic properties of Ru2Fe(Si1-xGex) alloys	Journal of Magnetism and Magnetic Materials	Vol. 347	101	2013
Rahul Das, A. Perumal and A. Srinivasan	Effect of particle size on the magneto-caloric effect in Ni51Mn34In14Si1 alloy	Journal of Alloys and Compounds	Vol. 572	192-198	2013
Rahul Das, P. Saravanan, D. Arvindha Babu, A. Perumal and A. Srinivasan	Influence of solidification rate and heat treatment on magnetic refrigerant properties of melt spun Ni51Mn34In14Si1 ribbons	Journal of Magnetism and Magnetic Materials	Vol. 344	152-157	2013
Anirban Biswas, Debasish Majumdar, Arunansu Sil and Pijushpani Bhattacharjee	Two Component Dark Matter: A Possible Explanation of 130 Ge gamma-ray Line from the Galactic Centre	Journal of Cosmology and Astroparticle Physics	DOI: 10.1088/1475-7516/2013/12/049	23rd Dec, 2013	
SK Singh, MS Seehra and S. Thota	Effect of Cu doping on the magnetism of MnCo(1-x)CuxO4 cubic spinels	Bulletin of the American Physical Society			2014
A Kumar, S Thota, S Sivakumar, S Priya and J Kumar	Sol-gel synthesis and optical behavior of Mg-Ce-O nanocrystallites	Journal of sol-gel science and technology	Vol. 68 (1)	46-53	2013
S. Thota, K Pisane, S Singh and MS Seehra	On the Cubic Phase Stability and Magnetic Properties of Cu-doped ZrO2	Bulletin of the American Physical Society			2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S. Thota and M. S. Seehra	Co-existence of ferrimagnetism and spin-glass state in the spinel Co <sub>2</sub> SnO <sub>4</sub>	Journal of Applied Physics	Vol. 113	203905	2013
S. Thota, J. H. Shim, and M.S. Seehra	Size-dependent shifts of Néel temperature and Optical Band-Gap in NiO nanoparticles	Journal of Applied Physics	Vol. 114	214307	2013
S. Thota, S. K. Das, A. Kumar, S. Sangaraju, and B. C. Choi	Memory effects and relaxation dynamics of MnCo <sub>2</sub> O <sub>4</sub> nanocrystallites	IEEE Transactions on Magnetics	Vol. 49	1020	2013
B. Bhuyan, et al. (Belle Collaboration)	Observation of D <sub>0</sub> –D <sub>0</sub> bar Mixing in e <sup>+</sup> e <sup>-</sup> Collisions.	Physical Review Letters	Vol. 112	111801	2014
B. Bhuyan et al. (BaBar Collaboration)	Measurement of the e <sup>+</sup> e <sup>-</sup> → p anti-p cross section in the energy range from 3.0 to 6.5 GeV	Phys. Rev. D.	Vol. 88	072009	2013
B. Bhuyan, et al. (Belle Collaboration)	Search for Bottomonium States in Exclusive Radiative Y(2S) Decays.	Physical Review Letters	Vol. 111	112001	2013
B. Bhuyan et al. (BaBar Collaboration)	Measurement of an excess of B → D* tau nu and implications for charged Higgs Bosons.	Phys. Rev. D.	Vol. 88	072012	2013

#### Conference/Workshop/Seminar/Symposia

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Saurabh Basu and A. Barman	Phase diagram of correlated bosons in a tripartite lattice with harmonic confinement	Strongly correlated Electron systems (SCES) 2013			5-9 Aug 2013
Santabrata Das, Anuj Nandi and I. Chattopadhyay	Proceedings of conference	Recent Trends in the Study of Compact Objects: Theory and Observations. Astronomical Society of India Conference Series	Vol. 8		2013
Santabrata Das and Biplob Sarkar	Dissipative standing shocks in accretion flows around black holes: a self-consistent analytical study	Proceedings of a conference 'Recent Trends in the Study of Compact Objects: Theory and Observations'. Astronomical Society of India Conference Series	Vol. 8	143-146	2013

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Santabrata Das, Anuj Nandi and I. Chattopadhyay, Diego Molteni	Formation of non-steady outflows and QPOs around black hole	Proceedings of a conference 'Recent Trends in the Study of Compact Objects: Theory and Observations'. Astronomical Society of India Conference Series	Vol. 8	31-36	2013
Samit Kumar Gupta and Amarendra K. Sarma	Coherent population transfer in a Parity-time (PT) symmetric two-level atomic system with sinc pulses	OPTICS'14: International Conference on Light held at NIT, Calicut			19-21st March, 2014
Samit Kumar Gupta and Amarendra K. Sarma	Periodic Optical Rogue Waves in a Parity-time (PT) symmetric Bragg grating structure	OPTICS'14: International Conference on Light held at NIT, Calicut			19-21st March, 2014
Subhadeep Chakraborty and Amarendra K. Sarma	Coherent Population Transfer and Optical Dipole Force by Chirped Gaussian Femtosecond Pulses in Four Level 87Rb	OPTICS'14: International Conference on Light held at NIT, Calicut			19-21st March, 2014
Samit Kumar Gupta and Amarendra K. Sarma	Coherent population transfer in a Parity-time (PT) symmetric two-level atomic system with Gaussian pulses	International Conference on Optics & Optoelectronics held at IRDE, Dehradun			05-08th March, 2014
Poulami Ghosh and A. K. Sharma	Effect of Deposition Time on Pulsed Laser Deposited ZnO Nanopores	International Conference on Nanotechnology (ICNT 13), Haldia			25-26th Oct, 2013
S. K. Singh, Prahlad. K. Boruah, and A. K. Sharma	Spectroscopic studies on laser produced copper plasma in presence of magnetic field	Proc. National Laser Symposium, Manipal University, Manipal			8-11th Jan, 2014
S. K. Singh and A. K. Sharma	Measurement of stark width in laser produced copper plasma in the presence of magnetic field	28th National Symposium on Plasma Science & Technology (PLASMA 2013), KITT University, Bhubaneswar			3-6th Dec, 2013
Rahul Kesarwani, G. P. Bharti, Partha P. Dey, Indrajeet Kumar and A.T.T. Mostako and Alika Khare	NLO behavior of Semi-transparent Cu Thin Film Deposited by PLD	International Conference on Optics and Optoelectronics (XXXVIII Symposium of Optical Society of India), Instruments Research and Development Establishment (IRDE), Dehradun, Uttarakhand, India			5-8th March, 2014

Name of Author/s	Name of Paper	Name of Conf./Wor./Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
G. P. Bharti, Satchi Kumari, Archana Kushwaha and Alike Khare	Nonlinear Absorption of PLD Deposited ZnO Thin Films Under CW Laser Irradiation	International Conference on Optics and Optoelectronics (XXXVIII Symposium of Optical Society of India), Instruments Research and Development Establishment (IRDE), Dehradun, Uttarakhand, India			5-8th March, 2014
Partha P Dey, G. P. Bharti and Alike Khare	Third order Nonlinear Optical properties of PLD deposited Nanostructured SiC Thin Films	International Conference on Optics and Optoelectronics (XXXVIII Symposium of Optical Society of India), Instruments Research and Development Establishment (IRDE), Dehradun, Uttarakhand, India			5-8th March, 2014
Indrajeet Kumar and Alike Khare	Nonlinear absorption and refraction measurement of PLD deposited carbon thin film	DAE-BRNS National Laser Symposium-22			8-11th Jan, 2014
Indrajeet Kumar, P. K. Baruah, A. K. Sharma and Alike Khare	Laser Induced Graphite Plasma In Liquid By CCD Imaging	28th National Symposium on Plasma Science & Technology (PLASMA 2013), KIIT University, Bhubaneswar, Odisha, India			3-6th Dec, 2013
Indrajeet Kumar and Alike Khare	Raman Spectra of PLD Deposited DLC Thin Films on Si Substrate	58th DAE-Solid State Physics Symposium			17-21st Dec, 2013
Indrajeet Kumar and Alike Khare	Diamond Like Carbon Films Deposited by Pulsed Laser Ablation of Graphite Target	DAE-BRNS 7th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials			14-16th Nov, 2013
Partha P. Dey and Alike Khare	Fabrication of SiO <sub>x</sub> thin films by Pulsed Laser Deposition at different O <sub>2</sub> ambient pressure	DAE-BRNS 7th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials			14-16th Nov, 2013
G. P. Bharti, Raja Bonia, Partha P Dey, A. T. T. Mostako, Satchi Kumari and Alike Khare	SPR and NLO Behavior of PLD Deposited Cu Thin Films	DAE-BRNS 7th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials			14-16th Nov, 2013

Name of Author/s	Name of Paper	Name of Conf./Wor./ Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Indrajeet Kumar and Alika Khare	Optical Nonlinearity of Nanostructured Carbon Thin Films Deposited via Pulsed Laser Ablation Technique	International Conference on Nanotechnology (ICNT-2013), Haldia Institute of Technology, India			25-26th Oct, 2013
Partha P. Dey and Alika Khare	Structural and Optical properties of Nanostructured a-SiC Thin Films by Pulsed Laser Deposition at different Substrate Temperatures	International Conference on Nanotechnology (ICNT-2013), Haldia Institute of Technology, India			25-26th Oct, 2013
P. Munendhar and Sunil Khijwania	Fiber Bragg Grating Based Humidity Sensor	International Conference on Optics & Optoelectronics, ICOL 14, Dehradun, India			5- 8th March, 2014
Sunil Khijwania	Optical Fiber Sensors: A Viable Solution for All-optical Structural Health Monitoring	International Conference on Optics & Optoelectronics, ICOL 14, Dehradun, India			5- 8th March, 2014
Pallabi Gogoi, T Santhosh Kumar and D. Pamu	Microstructural Studies and Optical Properties of Zr Doped MgTiO <sub>3</sub> Thin Films	International conference on Nano Science and Technology (ICONSAT-2014), Chandigarh, India.			3rd -5th March, 2014
Nisha Shankhwar and A. Srinivasan	Electrospun poly(vinyl pyrrolidone)-polyvinyl alcohol nanofibers for biomedical applications	First Symposium on Advanced Sustainable Polymers (ASP-14), IIT Guwahati			10-11th Jan, 2014
Arnab Kumar Das and A. Srinivasan	Structural and optical properties of Mg doped ZnO nanowires prepared by electrospinning route	International Conference on Nanoscience and Technology (ICONSAT-2014), INST, Chandigarh			3-5th March, 2014
Durgaharish Davapule, P Mahesh, T S kumar, D. Pamu and Subhas Thota	Broadband Dielectric Studies of Zn <sub>1-x</sub> Ni <sub>x</sub> O/ NiO Ceramics for Varistor Device Applications	International conference on Nano Science and Technology (ICONSAT-2014), Chandigarh, India			3rd -5th March, 2014
Santhosh Kumar Thatikonda , Pallabi Gogoi , Bhagban Kisan , A. Perumal, Pramod Sharma and D. Pamu	Magnetic Properties of Co Doped MgTiO <sub>3</sub> ceramics	International Conference on Magnetic Materials & Applications (MAGMA 2013), IIT Guwahati, Assam, India			5-7th Dec, 2013

Name of Author/s	Name of Paper	Name of Conf./Wor./ Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Pallabi Gogoi, T Santhosh Kumar and D. Pamu	Effect of Ar/O <sub>2</sub> mixing on Crystallinity Dielectric and Electrical Properties of (Mg <sub>0.95</sub> Co <sub>0.05</sub> )TiO <sub>3</sub> Thin films Prepared by RF magnetron sputtering	3rd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN 2013), IIT Guwahati, Assam, India			1-3rd Dec, 2013
P. Mahesh and D. Pamu	Dielectric properties of Nanocrystalline Dy <sub>2</sub> O <sub>3</sub> doped K <sub>0.5</sub> Na <sub>0.5</sub> NbO <sub>3</sub> lead free piezoelectric ceramics	International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013) at the Indian Institute of Technology Guwahati (IITG), India.			1-3rd Dec, 2013
P. Mahesh, T. Subhash and D. Pamu	Dielectric Spectroscopy of Dy <sub>2</sub> O <sub>3</sub> Doped (K <sub>0.5</sub> Na <sub>0.5</sub> )NbO <sub>3</sub> Piezoelectric Ceramics.	58th DAE Solid State Physics Symposium (DAE-SSPS-2013) at Thapar University, Patiala. Punjab, India			17-21st Dec, 2013
Anil Kumar and D. Pamu	Deposition and characterization of RF sputtered nanocrystalline Ba <sub>5</sub> Nb <sub>4</sub> O <sub>15</sub> thin films for wide band gap application.	International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013) at the Indian Institute of Technology Guwahati (IITG), India.			1-3rd Dec, 2013
Bipul Deka, S. Ravi, A Perumal and D. Pamu	Ferromagnetism, Ferroelectricity in Fe doped BaTiO <sub>3</sub> .	International Conference on Magnetic Materials & Applications (MagMA 2013), IIT Guwahati, Assam, India			5-7th Dec, 2013
Ranganadha Gopalarou, T. Bora, S Ravi and D. Pamu	Structural, optical and magnetic properties of Nd <sub>0.7</sub> Sr <sub>0.3</sub> MnO <sub>3</sub> thin films	International Conference on Magnetic Materials & Applications (MagMA 2013), IIT Guwahati, Assam, India			5-7th Dec, 2013
R. Padam, S. Pandey, S. Ravi, A. K. Grover and D. Pal	Exchange bias effect in Co(Cr <sub>0.925</sub> Fe <sub>0.075</sub> ) <sub>2</sub> O <sub>4</sub>	AIP Conference Proceeding	Vol. 1512	1112	2013
Batakrushna Santara and P. K. Giri	Native Defect Induced Strong Room Temperature Ferromagnetism in Chemically Synthesized Undoped and Reduced TiO <sub>2</sub> Nanoribbons	International Conference on Magnetic Materials and Applications (Magma 2013), IIT Guwahati, India.			5-7th Dec, 2013



Name of Author/s	Name of Paper	Name of Conf./Wor./ Sem./Sym.	Volume and Issue No.	Page No.	Year and Date of Publication
Rahul Das, A. Perumal and A. Srinivasan	Tailoring the magneto-caloric properties of Ni-Mn-In-Si alloy by shape and size variations	International Symposium on Advanced Magnetic Materials and Applications (ISAMMA 2013), Taichung, Taiwan			21- 25 July, 2013
Akhilesh Kr. Singh and A. Perumal	Enhanced soft magnetic properties in stress free amorphous FeTaC/Ta multilayer thin films	AIP Conf. Proc.	Vol. 1512	630	2013
Sumit K. Garg, Deepanjali Goswami and P. Poulouse	Probing the type-III seesaw model through $e+e-\rightarrow\Sigma+\Sigma-$ at ILC	J. Phys. Conf. Ser.	Vol. 481	012018	5 March, 2014
S. Thota, A Ansari, S.K Singh, A. Mallick and J. Kumar	Phase evaluation and optical studies of cubic $Mn_xZr_{1-x}O_2$ and $Co_yZr_{1-y}O_2$ nanocrystals	Proceeding Of International Conference On Recent Trends In Applied Physics And Material Science: Ram 2013. AIP Conference Proceedings	Vol. 1536	113-114	June, 2013
S. Thota, A. Mallick and S.K. Singh	The role of surface effects on the optical behavior of nanocrystalline NiO	Proceeding of International Conference On Recent Trends In Applied Physics And Material Science: Ram 2013	Vol. 1536	521-522	3rd June, 2013

#### Book, Chapter, etc.

Micro and Nanoscale Technologies- Avenues and applications in certain directions, P. K. Choudhury, K. K. Dey and Saurabh Basu, Invited Review article in Nanoscale Spectroscopy with application (CRC press Taylor and Francis group, LLC; Ed. Sarhan M. Musa) pp 229-266 (2013).

#### CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
Dr. S. B. Das	International Conference on 'Accretion onto Black Holes'	Goa	5-7 Sep 2013	International
Prof. Alika Khare	International Conference on Optics and Optoelectronics (ICOL), Instruments Research and Development Establishment (IRDE)	Dehradun, Uttarakhand	5-8 Mar 2014	International
Dr. Sunil Khijwania	International Conference on optics & Optoelectronics, ICOL 14, Dehradun, India	Dehradun	5-8 Mar 2014	International
Dr. A. Perumal	The 3rd International Symposium on Advanced Magnetic Materials and Applications (ISAMMA 2013)	Taichung, Taiwan	21-25 Jul 2013	International
Prof. S. Ravi	MagMA-2013	IIT Guwahati	5-7 Dec 2013	International

Name of Faculty	Name of Conf./Workshop	Place	Date	National/International
Dr. Ashwini K. Sharma	7th International Conference on Materials for Advanced Technologies (ICMAT13)	Singapore	30 Jun - 5 Jul 2013	International
Dr. Bipul Bhuyan	Belle and Belle II Collaboration Meeting	Virginia Tech	1-7 Jul 2013	International
Dr. Bipul Bhuyan	Nova Collaboration Meeting	Argonne National Laboratory	8-12 Jul 2013	International
Dr. Bipul Bhuyan	India Fermi Lab Neutrino Collaboration Meeting	BARC, Mumbai	12-13 Nov 2013	International
Dr. Bipul Bhuyan	Workshop on Neutrino Physics and the potential of a Inter-Institutional Center in Physical Sciences	Punjab University	23-24 Jan 2014	National

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Dr. Bosanta R Boruah	SPIE visiting lecture, titled "Breaking the diffraction barrier using optical microscopy"	IIST, Trivandrum	Trivandrum	Nov, 2013
Dr. Bosanta R Boruah	Invited talk at DST-INSPIRE Science Camp, titled "Optical microscopy: An introduction"	MC College Barpeta	Barpeta, Assam	Dec, 2013
Dr. Bosanta R Boruah	Keynote speech at short term training program on Advances in "Laser and Spectroscopy"	NIT Silchar	Silchar, Assam	Dec, 2013
Dr. T. N. Dey	Invited talk on "Diffraction-less Multi-dimensional Light Propagation in Coherently Controlled Media"	Vidyasagar-Satyendranath Bose National Workshop 2014 "Physics of Advanced Optical Materials and Photonics" held at Siksha 'O' Anusandhan University	Bhubaneswar, Odisha	26-28th March, 2014
Dr. T. N. Dey	Invited talk on "Novel atomic coherence and interference effects in Quantum Optics"	Refresher course in Physics 2013, held at Department of Physics, North Eastern Hill University, Shillong	Meghalaya	10 -29th June, 2013
Prof. P. K. Giri	Nanotechnology and Its Applications in Renewable Energy (Inaugural Plenary Talk)	UNISA's BRICS International symposium on Energy, Materials and Innovations	Johannesburg, South Africa	5-7th March, 2014
Prof. P. K. Giri	Graphene based hybrid nanostructures for Optoelectronic Applications (Plenary Talk)	UNISA's BRICS International symposium on Energy, Materials and Innovations	Johannesburg, South Africa	5-7th March, 2014

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Prof. P. K. Giri	Graphene- ZnO Nanowire Hybrid Nanostructures: Controlled Growth and Optoelectronic Applications (Plenary Talk)	National Conference on Nanomaterials and Devices	NIT Srinagar	3-5th Oct, 2013
Prof. P. K. Giri	Graphene as a 2-D Platform for the Fabrication of 0-D Metal and 1-D Semiconductor Nanostructures (Invited Talk)	International Conference on Green Energy and Smart Materials through Science, Technology & Management	Guwahati University	21-23rd Jan, 2014
Prof. P. K. Giri	Ultrafast UV Photodetection and Efficient Second Harmonic Generation from Metal Nanoparticle Decorated ZnO Nanowires (Invited Talk)	International Conference on Nanotechnology (ICNT-2013)	Haldia Institute of Technology (HIT), India.	24-25th Oct, 2013.
Prof. Alika Khare	Two lectures based on 'Laser Technology, 'Application of Laser for manipulation of materials'	Department of Physics and Department of Electrical Engineering, NERIST	Nirjuli, Itanagar, Arunachal Pradesh	29th Oct, 2013
Prof. Alika Khare	Two lectures based on 'Advanced application of Laser Spectroscopy'	Department of Physics, NIT Silchar	Silchar	29th Dec, 2013
Prof. Alika Khare	Optical Thin Films via Pulsed Laser Deposition Technique	International Conference on Optics and Optoelectronics (ICOL), Instruments Research and Development Establishment (IRDE)	Dehradun, Uttarakhand, India	08th March, 2014
Dr. Amarendra Kumar Sarma	Parity-time symmetry in optics	Department of Physics, Panjab University	Chandigarh	20th Sept, 2013
Dr. Sunil Khijwania	Optical Fiber Sensors: A Viable Solution for All-optical Structural Health Monitoring	International Conference on Optics & Optoelectronics, ICOL 14	Dehradun, India	7th March, 2014.
Dr. Sunil Khijwania	Localized Surface Plasmon Resonance Based Optical Fiber Sensor for Structural Health Monitoring	University of Petroleum & Energy Studies (UPES)	Dehradun, India	5th March, 2014.
Dr. A. Perumal	Structural analysis using Microscopy techniques	NEHU Shillong	Shillong	6th March, 2014
Dr. Ashwini K. Sharma	Laser based sensors (TE-QIP)	Department of Physics, NERIST	Arunachal Pradesh	29th Oct, 2013
Dr. Ashwini K. Sharma	Basic laser theory & applications (QIP-STC)	Department of Electronics & Electrical Engineering, IIT Guwahati	IIT Guwahati	16th Sept, 2013

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Dr. Ashwini K. Sharma	Basic laser theory & applications (QIP-STC)	Department of Mechanical Engineering, IIT Guwahati	IIT Guwahati	24th June, 2013
Dr. S. Thota	On the Anisotropic Magneto-Thermodynamics and Magneto-structural Quantum Phases of Complex-Oxides	Max Planck Institute for Microstructure Physics	Halle, Germany	3 Sept 2013
Dr. Bipul Bhuyan	Physics Goal of the Long Baseline Neutrino Experiment	University of Western Australia	Perth, Australia	2 Oct 2013
Dr. Bipul Bhuyan	Direct and Indirect CP violation: Matter anti-matter asymmetry in the Universe	School of Physical Sciences, JNU, New Delhi	New Delhi	7 Mar 2014
Dr. Debaprasad Maity	Quantum Field Theory	Preparatory School, SERC HEP Tezpur University	Tezpur	17 Jun - 13 Jul 2013

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Roderich Moessner	Max Planck Institute, Dresden	Magnetic monopoles on spin ice	Jan, 2014
Prof. Per Nordblad	Uppsala University, Sweden	MagMA Visitor	Dec, 2013
Dr. Christopher M. Moug-er	Los Alamos National Laboratory, USA	LBNE Collaborator.	Nov, 2013

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Sl. No.	Name of Sem./ Wor./Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of participants
1.	Belle Analysis Workshop (BAW 2014)	DAE, DST-SERB and TIFR	24 Feb - 4 Mar 2014	International	Dr. B. Bhuyan (Co-Convener)	28
2.	Discussion Meeting on EWSB and Flavours in the light of LHC	IIT Guwahati, RECAPP and HRI, Allahabad	20-22 Feb 2014	National	Dr. P. Poulose	76
3.	Asia Sweden Meeting on Understanding Functional Materials from Lattice Dynamics (ASMFLD 2014)	Swedish Research Link, Sweden, DAE, DRDO and DST	9-11 Jan 2014	International	Dr. Subhradip Ghosh, and Dr. Biplab Sanyal, Department of Physics and Astronomy, Uppsala University, Sweden	55

4.	International conference on Magnetic Materials and Application (MagMA-2013)	DST, DRDO, CSIR, DAE, Indian National Science Academy, DBT, Ministry of Science and Technology and Tezpur University	5-7 Dec 2013	International	Prof. A. Srinivasan and Dr. A. Perumal	400
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### AWARDS AND HONOURS

(a) Dr. Amarendra Kumar Sarma was awarded Dr. Biraj Mohan Das Memorial Science Award in 2014 for his work in the area of Physics on 'Theory and application of 'Solitons' and non-linear optics'.

### STUDENTS' ACHIEVEMENTS

(a) Mr. Samit Kumar Gupta, a Ph.D. student working under the supervision of Dr. Amarendra Kumar Sarma, got gold medal for his poster presentation in the OPTICS'14: International Conference on Light held at NIT, Calicut.

(b) Mr. Biswajit Pathak, project JRF and PhD student working with Dr Bosanta R Boruah, has won the best paper award under the category of Optical Instrumentation & Techniques in OPTICS14: International Conference on Light held at NIT Calicut during March 2014.

### FACULTY MEMBERS

Sl. No.	Name	PhD	Designation	Areas of Interest
1	Pratima Agarwal	IIT Kanpur	Professor	Condensed Matter Physics (Experimental); Amorphous Semiconductor Materials and Devices, thin film solar cells, II-VI, IV-VI compound semiconductors, Nanocrystalline semiconductors, photonic materials and structures, carbon and graphene based materials and devices
2	Saurabh Basu	IIT Kanpur	Professor & HoD	Condensed Matter Physics (Theory); High T C superconductors, Optical lattices, Transport in Magnetic semiconductors
3	Bosanta R Boruah	Imperial College London	Associate Professor	Lasers and Optics (Experiment & Theory); Programmable Diffractive Optics, Confocal Microscopy, Phase Stepping Interferometry, Vectorial Diffraction Theory
4	Bipul Bhuyan	Delhi University	Associate Professor	High Energy Physics (Experiment); CP violation, Rare K and B meson decays, ILC R & D
5	Swati Bhattacharya	MPIP, Mainz, Germany	Assistant Professor	Soft Condensed Matter Theory and Simulation, Computational Biophysics, Bio-Nano Interface
6	Subhaditya Bhattacharya (Joined on 15.10.2013)	HRI, Allahabad	Assistant Professor	High Energy Physics (Theory), Phenomenology of Standard Model and Beyond, Supersymmetry, Dark Matter, LHC
7	Sayan Chakrabarti (Joined on 16.09.2013)	SINP, Kolkata	Assistant Professor	High Energy Physics (Theory), General relativity, Black hole perturbations, Gravitational waves, Cosmology

Sl. No.	Name	PhD	Designation	Areas of Interest
8	Santabrata Das	SNBNCBS, Kolkata	Assistant Professor	Astrophysics (Theory); Astrophysical flows around compact objects, Ultra high energy cosmic rays
9	Tarak Nath Dey	PRL, Ahmedabad	Assistant Professor	Quantum Optics (Theory); Coherent control of pulse propagation, Nonlinear optics, Optical solitons, Negative index media, Bose-Einstein condensates
10	Subhradip Ghosh	SNBNCBS, Kolkata	Associate Professor	Condensed Matter Physics (Theory); Electronic Structure theory, Ordering and Phase stability of disordered alloys, Vibrational properties of metallic alloys
11	Pravat Kumar Giri	IIT Kanpur	Professor	Condensed Matter Physics (Experimental); Semiconductor nanostructures, Ion-solid interactions, Optoelectronic materials & devices, Nanotechnology
12	Dipak Kumar Goswami (on lien)	IOP, Bhubneswar	Associate Professor	Condensed Matter (Experiment); Organic thin films, heterostructures and nanostructures, surfaces and interfaces
13	Charudatt Y Kadolkar	IIT Bombay	Associate Professor	Condensed Matter Physics (Theory); Magnetism, Defects in Ionic Materials, Group Theoretical approaches to Molecular Problems
14	Alika Khare	IIT Kanpur	Professor	Lasers and Photonics (Experiment & Theory); Laser Physics and Spectroscopy, Laser Matter Interaction, Plasma Diagnostics, Interferometry
15	Sunil K Khijwania	IIT Delhi	Associate Professor	Fiber Optics (Experiment & Theory); Fiber & Integrated Optics, Photonic Crystal Fiber and Applications, Surface Plasmon Resonance based Sensors, Fiber Bragg Gratings and based Devices, Fiber Optic Sensor, Bio/Nano-Photonics
16	Gagan Kumar (Joined on 08.10.2013)	IIT Delhi	Assistant Professor	Terahertz Plasmonics and metamaterials, Guided Wave Devices, Ultrafast Spectroscopy
17	Jayeeta Lahiri (Joined on 12.11.2013)	University of South Florida	Assistant Professor	Experimental Condensed matter physics, Surface and interface science, low dimensional materials and their heterostructures, carbon materials
18	Debaprasad Maity	IACS, Kolkata	Assistant Professor	High Energy (Theory); Cosmology, Ads/CMT
19	Saurabh Mani Tripathi (Joined on 24.10.2013)	IIT Delhi	Assistant Professor	Fiber Optic Sensors; Bio-photonics, FBG, LPG and PCF based IR and THz sensors, Multimodal interferometer, Plasmonics and Metamaterials
20	Malay Kumar Nandy	IIT Kanpur	Associate Professor	Theoretical Physics; Statistical Physics, Condensed Matter Physics, Turbulence Field Theory, Plasma Physics, Quantum Computation
21	Soumitra Nandi	University of Calcutta	Assistant Professor	High Energy Physics (Theory); Quark and Lepton Flavour Physics, Flavour Symmetries, CP violation, precision calculations in the SM, Special interest in QCD, Heavy Quark Effective Theory and Soft Collinear Effective Theory

Sl. No.	Name	PhD	Designation	Areas of Interest
22	Padma Kumar Padmanabhan	IISc, Bangalore	Associate Professor	Condensed matter (Theory); Atomistic Modeling and Simulation of Condensed States of Matter
23	Dilip Pal	TIFR, Mumbai	Associate Professor	Low Temperature Physics and Material Science (Experimental); Strongly Correlated Electron Systems, Vortex states in superconductors, Superconductivity and Magnetism
24	D. Pamu	Univ. of Hyderabad	Assistant Professor	Condensed Matter Physics; High-k and low loss materials, Ferroelectrics Ceramics, Oxide thin films Nanomaterials
25	Perumal Alagarsamy	IIT Kharagpur	Associate Professor	Condensed Matter Physics (Experimental); Magnetism, Nanostructured Materials, Nanocrystalline Materials, Magnetic Thin Films, Metallic Glasses
26	Poulose Poulose	PRL, Ahmedabad	Associate Professor	Theoretical Physics; High energy physics phenomenology, CP violation, Mass Generation mechanism, Low energy Gravity
27	Udit Raha	University of Bonn, Germany	Assistant Professor	Quantum Chromodynamics and Nuclear Effective Field Theories
28	Seenipandian Ravi	University of Hyderabad	Professor	Condensed Matter Physics (Experimental); Magnetism, Superconductivity, Low temperature Physics
29	Sitangshu Bikas Santra	Bose Institute, Kolkata	Professor	Condensed Matter Physics (Theory); Condensed Matter Physics, Statistical Physics
30	Amarendra Kumar Sarma	IIT Delhi	Associate Professor	Photonics (Theory) and Theoretical Physics; Solitons, Metamaterials and Plasmonics, Ultrafast optics, Nonlinear Fiber Optics, Nonlinear Optics
31	Ashwini Kumar Sharma	IIT Kanpur	Assistant Professor	Lasers and Optics (Experimental); Laser produced plasmas, laser ablation deposition of thin films, laser-based sensors
32	Girish Sampath Setlur	University of Illinois	Associate Professor	Theoretical Physics; Optoelectronic properties of graphene, Nonchiral bosonization of fermions in one and higher dimensions
33	Arunansu Sil	University of Calcutta	Assistant Professor	High Energy Physics & Cosmology (Theory); Phenomenology of Physics beyond the Standard Model, Supersymmetry and its breaking, Neutrino Physics, Matter-antimatter asymmetry of the Universe, Inflation
34	Ananthkrishnan Srinivasan	IISc, Bangalore	Professor	Condensed Matter Physics (Experimental); Glasses and Disordered Materials, Thin Films, Metallic Alloys, Nanophase materials, Shape Memory Alloys
35	Subhash Thota	IIT Kanpur	Assistant Professor	Material Science and Engineering; Magnetic Nanostructures, Oxide Heterostructures, superlattices, Magnetocaloric effects Semimagnetic semiconductors Bandgap Engineering

# CENTRE FOR ENERGY

**YEAR OF ESTABLISHMENT OF THE CENTRE:** 2004

**ACADEMIC PROGRAMMES OFFERED:**

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

• PhD: 7

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

There are eight (8) laboratories in the Centre. The facilities available in each laboratory is briefly provided below-

**[i] Energy Efficiency Laboratory:** Fuel testing facility (calorific value, viscosity, flash point, fire point, cloud & pour point, cetane index), proximate analysis facility, anemometer, pump testing setup, biomass gasification unit, flue gas analyzer, GC for biogas analysis, natural convection grain drier, fuel cell demonstration unit, fibre analysis system etc. A portion of the energy efficiency laboratory is based in the technology complex (TC) to house the noisy, rugged and robust facilities like biomass gasifier units, IC engine set up, pump testing set-up etc.

**[ii] Bio-energy Laboratory:** Micro propagation facility for energy and bio-fuel crops, autoradiogram development facility, genetic engineering facility, biotransformation and cloning

**[iii] Solar Energy Laboratory:** Demonstration unit for efficient use of solar energy, characterization and study of the photovoltaic module, energy spectrum measuring facility, spectral response/ photoconductivity/ quantum efficiency and other transport measurements in the presence of light of photovoltaic modules, materials and devices. A facility for preparation of thin films by physical vapor deposition method is also available.

**[iv] Fuel Cells Laboratory:** Fabrication and

characterization of bioelectrodes for biofuelcell and biosensors applications, etc. Facility for development and characterization of composite proton exchange membranes for fuel cell applications.

**[v] X-ray Crystallography Laboratory:** Sample preparation for studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices and other applications.

**[vi] Biofuel Laboratory:** Facility for production and analysis of biofuels, Fischer tropesch process.

**[vii] Analytical Laboratory:** Houses facility for analysis of gas, oil, volatile materials, gravimetric analysis, thermo gravimetric analysis of samples, microbial incubation, sterilization.

**[viii] Biogas Development and Training Centre (BDTC):** The biogas development and training centre (BDTC), funded by Ministry of New and Renewable Energy (MNRE), New Delhi has been functioning from the Centre for Energy at the technology complex for promotion of biogas technology in the NE states since 2006. It is involved with activities such as-

- Providing training programme for turnkey workers
- Providing construction cum maintenance training
- Organization of users training and awareness programme
- Survey of and technical support to biogas digesters installed in different states of the NE India.

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

- [i] X-ray Crystallography
- [ii] Thermo Gravimetric Analyzer
- [iii] Bomb Calorimeter for Liquid and Solid Samples
- [iv] Vacuum Rotary Evaporator
- [v] High Speed Centrifuge



**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The faculty members, associated with the centre, are carrying out research based projects, funded by various government departments like Department of Science and Technology (DST), Ministry of New and Renewable Energy (MNRE), Defense Research & Development Organization (DRDO), Department of Biotechnology (DBT), Assam Science and Technology Environment Council (ASTEC), Council of Scientific and Industrial Research (CSIR) etc as well as foreign funding agencies namely, ADnENERGY. In the last seven years the centre has received 31 (thirty one) research projects and as many as 17 (seventeen) consultancies in the areas of biomass gasification, biogas technology, wind energy, solar energy, biological fuel cells, engine testing with alternate fuels, biodiesel, energy efficient machines, multi-fuel variable compression engine, CO<sub>2</sub> capture, lubricant formulation, bioelectronics devices etc. MNRE has identified the centre as the hub for promotion of biogas development and training in the NE states of India and has been funding yearly since 2006. The major areas of research and development of the centre is given below-

- Biogas technology (production, storage, value addition, lignocellulose waste utilization)
- Fluidized bed gasification (pressurized gasification)
- Savonius wind turbines for power generation
- Carbon capture by using pressure swing adsorption technique
- Biofuel (biodiesel, biobutanol, bioethanol)
- Utilization of bio-waste for generating power in diesel engine
- Tissue culture technology for bioenergy crops
- Porous medium for energy storage
- CO<sub>2</sub> capture and storage
- Latent heat storage
- RU-BUS
- Improvement of IC engines
- Clean coal technology
- Waste heat recovery
- Improved cooking stove
- Small wind mills
- Development of organic/inorganic and thin film solar cells
- Solar Energy Materials and Solar Cells
- Polymer Electrolyte Membrane Fuel Cell (PEMFC) (membrane modification, catalyst modification, development of component)
- Circulating Fluidized Bed (Boiler)
- DNA fingerprinting and biochemical characterization of biofuel plants

- ABE fermentation process for biobutanol production
- Microbial conversion of glycerol to value added products
- Catalysis, Fischer-Tropsch synthesis
- Hydrodynamics and heat transfer characteristics with biomass blends in pressurized CFB
- Enzymatic and microbial fuel cell
- Bioelectronics
- Hydrogen storage in metal nano structure
- Cyanobacteria based bioelectrode for biofuelcell applications
- Bioprocessing, DNA bar coding
- Genetic materials in microalgae for biodiesel production
- Bio hydrogen production
- Fluid and Thermal Engineering
- Drying Technology and solar energy
- Bioremediation of Petroleum hydrocarbons
- Solar photovoltaics
- Wind energy
- Smart grid
- Algae Cultivation
- Metabolic Regulation of Microalgae for Biofuels
- Urban traffic pollution

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:**

[i] The Centre has received a sponsored research project under Indo – UK Collaborative Research Initiative on 'Bridging the Urban and Rural Divide'.

[ii] Enzyme based biofuel cell for generating power from methanol substrate using alcohol oxidase bioanode and air-breathed laccase biocathode has been conceptualized. The bioelectrodes were fabricated by using nanocomposite based 3D microporous matrix that support enhanced enzyme loading and highly electroactive surface for facile diffusion less electron exchange between electrode and substrates. The findings of the investigation have established the use of alcohol oxidase as anodic catalyst in methanol substrate based enzymatic biofuelcell by adapting the direct electron transfer (DET) as the governing principle for generating power. Overall findings have demonstrated the feasibility of developing enzymatic biofuel cell using alcohol oxidase based bioanode and laccase based air-breathed biocathode without applying any toxic free mediator and metal electrode supports for generating power.

**RESEARCH PROJECTS**
**a) New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Mahuya De	Development of supported noble metal catalysts using surfactant assisted electroless plating process for the dehydrogenation of light alkanes	DST	39.4	Dr. Ramagopal Uppaluri, Dr. M. Qureshi	3 year
Prof. P. Mahanta	Sub Project Title – ‘Small-scale Anaerobic Digestion’ under the “Rural Hybrid Energy-Enterprise Systems (RHEES)”, Indo – UK Collaborative Research Initiative on ‘Bridging the Urban and Rural Divide’	DST	82.68	Prof. P. S. Robi, Prof. A. K. Das, Dr. K. Kalita, Dr. L. Barbora	3 years
Prof. P. Goswami	Development of Bioelectrodes for Biofuel Cell Applications	MNRE, GoI	33.73	Prof. P. Mahanta	3 years
Prof. P. Agarwal	Optoelectronic and Transport studies on Thin silicon films (nc-Si and nc-Si/a-Si: H superlattice) and solar cells	CSIR	30.00	-	2 years
Dr. V. V. Goud	Investigating the effect of co-digestion and advanced sludge pre-treatment methods on the anaerobic conversion potential of the organic wastes	DBT	8.36	-	3 Years

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. P. Goswami	Studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices & other applications	DBT	437.53	Prof. Vikash Kr. Dubey, Prof. P. Mahanta	3 yrs
Dr. V. V. Goud	A novel synthetic approach for chemical modification of vegetable oils for lubricant formulation	National Oilseed And Vegetable Oils Development Board	68.16	-	3 yrs
Prof. A. K. Ghoshal	Algal route to CO <sub>2</sub> capture	CSIR	20.86	Dr. K. Mohanty	3 yrs
Dr. V. V. Goud	A novel energy efficient Hydrodynamic cavitation technique for bio-diesel.	CSIR	19.80	Prof. L. Sahoo	3 yrs

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. V. N. Kulkarni	Design, development and performance assessment of multi-fuel variable compression engine	DST Fast Track	18.05	-	3 yrs
Dr. A. Verma	Development of polymer electrolyte membrane fuel cell using indigenously prepared low cost composite bipolar plate	CSIR	13.00	Prof. P Goswami and Prof. P Mahanta	3 years
Dr. V. S. Moholkar	Design and optimization of 1, 3-Propanediol and n-butanol from biodiesel derived crude glycerol using immobilized Clostridial strains	CSIR	15.00	-	3 years
Prof. U. K. Saha	Utilization of Bio-waste for Generating Power in Diesel Engines	DRL (DRDO), Tezpur	9.91	Dr. N. Sahoo	3 years
Dr. V. S. Moholkar	Synthesis of green transportation fuels (biomass gasification integrated fischer tropesch)	MNRE, Gol	25.00	Prof. P. Mahanta	2 years
Dr. V. S. Moholkar	Design, development and commercialization of a circulating fluidized bed biomass gasifier	MNRE, Gol	53.00	Prof. P. Mahanta, Mr. P. Kalita	3 years
Prof. P. Mahanta	Biogas Development and Training Centre	MNRE, Gol	26.00		Continuing project

## RESEARCH PUBLICATIONS

### Journals (International / National)

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
<b>International</b>					
Madhuri Das, Lepakshi Barbora, Priyanki Das, Pranab Goswami	Biofuel cell for generating power from methanol substrate using alcohol oxidase bioanode and air-breathed laccase biocathode	Biosensors and Bioelectronics,	DOI: 10.1016/j.bios.2014.03.016		2014
Sushovan Chatterjee, Dipti Yadav, Lepakshi Barbora, Pinakeswar Mahanta, and Pranab Goswami	Silk-Cocoon Matrix Immobilized Lipase Catalyzed Transesterification of Sunflower Oil for Production of Biodiesel	Journal of Catalysts	DOI: 10.1155/2014/868535		2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Madhusmita Dash, V. Venkata Dasu, and Kaustubha Mohanty	Non-isothermal kinetic study of three lignocellulosic biomass using model-free methods	Journal of Renewable and Sustainable Energy	5 (6)	1-9	2013
Vikram Kumar, Muthusivaramapandian Muthuraj, Basavaraj Palabhanvi, Alope Kumar Ghoshal, Debasish Das	Evaluation and optimization of two stage sequential in situ transesterification process for fatty acid methyl ester quantification from microalgae	Renewable Energy	68	560-569	2014
H.A. Choudhury, R.S. Malani, V.S. Moholkar	Acid catalyzed biodiesel synthesis from Jatropha oil: Mechanistic aspects of ultrasonic intensification	Chemical Engineering Journal	231	262-272	2013
H.A. Choudhury, V.S. Moholkar	Synthesis of liquid hydrocarbons by fischer-tropsch process using industrial iron catalyst	International Journal of Innovative Research in Scientific Engineering and Technology	2	3493-3499	2013
H.A. Choudhury, S. Chakma, V.S. Moholkar	Mechanistic insight into sonochemical biodiesel synthesis using heterogeneous base catalyst	Ultrasonics Sonochemistry	21 (1)	169-181	2014
H.A. Choudhury, P.P. Goswami, R.S. Malani, V.S. Moholkar	Ultrasonic biodiesel synthesis from crude Jatropha curcas oil with heterogeneous base catalyst: Mechanistic insight and statistical optimization	Ultrasonics Sonochemistry	DOI: 10.1016/j.ultsonch. 2013. 10.023		2013
H.A. Choudhury, and V.S. Moholkar	Synthesis and characterization of Fe-catalyst for Fischer – Tropsch synthesis using biosyngas	International Journal of Scientific Engineering and Technology	2	817-821	2013
H.A. Choudhury, and V.S. Moholkar	An optimization study of Fischer – Tropsch synthesis using commercial cobalt catalyst	International Journal of Scientific Engineering and Technology	2	31-39	2013
S. Singh, V.S. Moholkar, A. Goyal	Optimization of carboxymethyl-cellulase production from Bacillus amyloliquefaciens SS35	3-Biotech	DOI 10.1007/s13205-013-0169-6		2013
S. Singh, V.S. Moholkar, A. Goyal	Isolation, identification, and characterization of a cellulolytic bacillus amyloliquefaciens strain SS35 from rhinoceros dung	ISRN Microbiology	-	1-7	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S. Khanna, A. Goyal, V. S. Moholkar	Effect of Fermentation Parameters on Bio-alcohols Production from Glycerol using Immobilized Clostridium pasteurianum: An Optimization Study	Preparative Biochemistry and Biotechnology	DOI:10.1080/10826068.2013.805625		2013
S. Khanna, A. Ranjan, A. Goyal, V.S. Moholkar	Medium optimization for mixed alcohols production by glycerol utilizing immobilized Clostridium acetobutylicum MTCC 116	Chemical and Biochemical Engineering Quarterly	27(3)	319-325	2013
S Khanna, A Goyal, VS Moholkar	Mechanistic investigation of ultrasonic enhancement of glycerol bioconversion by immobilized Clostridium pasteurianum on silica support	Biotechnology and Bioengineering	110	1637-1645	2013
S. Khanna, A. Goyal, V.S. Moholkar	Effect of fermentation parameters on bio-alcohols production from glycerol using immobilized clostridium pasteurianum: an optimization study	Preparative Biochemistry and Biotechnology	43	828-847	2013
P. Das, L. Barbora, M Das, and P. Goswami	Highly sensitive and stable laccase based amperometric biosensor developed on nanocomposite matrix for detecting pyrocatechol in environmental samples	Sensors and Actuators B: Chemical	192(1)	737-744	2014
D. Sahu, P. Mishra, N. Das, A. Verma, S. Gumma	The Net Adsorption of Hydrogen on Palladium Nanoparticles	Surface Review and Letters,	DOI: 10.1142/S0218625X1450022X		2013
D. Sahu, P. Mishra, S. Edubilli, A. Verma, and S. Gumma	Hydrogen Adsorption on Zn-BDC, Cr-BDC, Ni-DABCO and Mg-DOBDC Metal Organic Frameworks	Journal of Chemical & Engineering Data	DOI: 10.1021/je400546d, 2013		2013
P. Mazumdar, S. R. Dasari, V. Borugadda, G. Srivasatava, L Sahoo, V. V. Goud	Biodiesel production from high free fatty acids content jatropha curcas L. oil using dual step process	Biomass Conversion and Biorefinery	3	361-369	2013
P. Kalita, P. Mahanta, and U.K. Saha	Some studies on wall-to-bed heat transfer in a pressurized circulating fluidized bed unit	Procedia Engineering	56	163-172	2013
P. Kalita, M. Clifford, K. Kalita, U. K. Saha and P. Mahanta	Characterization and analysis of thermal response of rice husk for gasification applications	AIP Journal of Renewable and Sustainable Energy	5	013-119	2013
P. Kalita, U. K. Saha and P. Mahanta	Effect of biomass blending on hydrodynamics and heat transfer behavior in a pressurized circulating fluidized bed unit	International Journal of Heat and Mass Transfer	60	531-541	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
K. Suresh, A. Ranjan, S. Singh, V.S. Moholkar	Mechanistic investigations in sono-hybrid techniques for rice straw pretreatment	Ultrasonics Sonochemistry	21 (1)	200-207	2014
R.S. Malani, S. Khanna, and V.S. Moholkar	Sonoenzymatic decolourization of an azo dye employing immobilized horse radish peroxidase (HRP): a mechanistic study	Journal of Hazardous Materials	256-257	90-97	2013
B. Buragohain, S. Chakma, P. Kumar, P. Mahanta, V.S. Moholkar	Comparative evaluation of kinetic, equilibrium and semi-equilibrium models for biomass gasification	International Journal of Energy and Environment	4	581-614	2013
A. Ranjan, R. Mayank, V.S. Moholkar	Process optimization for butanol production from developed rice straw hydrolysate using <i>Clostridium acetobutylicum</i> MTCC 481 strain	Biomass Conversion and Biorefinery	3 (2)	143-155	2013
P.P. Goswami, H.A. Choudhury, S. Chakma, V.S. Moholkar	Sonochemical Synthesis and Characterization of Manganese Ferrite Nanoparticles	Industrial and Engineering Chemistry Research	DOI: 10.1021/ie401919x		2013
P.P. Goswami, H.A. Choudhury, S. Chakma, V.S. Moholkar	Sonochemical Synthesis of Cobalt Ferrite Nanoparticles	International Journal of Chemical Engineering	DOI: 10.1155/2013/934234		2013
P. Kalita, U. K. Saha, and P. Mahanta	Some Studies on Wall-to-Bed Heat Transfer in a Pressurized Circulating Fluidized Bed Unit	Procedia Engineering (5th BSME International Conference on Thermal Engineering)	56	163-172	2013
V.S. Moholkar and S. Singh	A Corrigendum to "Feasibility of rice straw as alternative substrate for biobutanol production by Ranjan et al. [Appl. Energy, 103 (2013) 32-38].	Applied Energy	116	436-438	2013

#### Book Chapter

P. Kalita, P. Mahanta, and U. K. Saha, 2014, Pressurized Circulating Fluidized bed Technology: A review towards a novel design approach, in the Multi Vol. Set on "ENERGY SCIENCE AND TECHNOLOGY" Studium Press (USA) Pvt. Ltd.

#### CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED

Name of Faculty	Title of Lecture/Paper	Name of Conf./Workshop	Place	Date
S. Singh, V.S. Moholkar, and A. Goyal	Optimization of pretreatment strategies for enzymatic saccharification of <i>Parthenium hysterophorus</i> for bioethanol production	International Symposium on Frontier Discoveries and Innovations in Microbiology and its Interdisciplinary Relevance (54th Annual Conference of Association of Microbiologists of India)	Maharshi Dayanand University, Rohtak	17-20 Nov 2013

Name of Faculty	Title of Lecture/Paper	Name of Conf./Workshop	Place	Date
M. Dash, V.V. Dasu, and K. Mohanty	Kinetic study of lignocellulosic biomass using non-isothermal model free methods towards biofuel production	International conference on Frontiers in energy, Environment, Health and Materials Research(EEMR-2013)	Bhubaneswar	12-13 Aug 2013
A.J. Chaudhari, U. Garg, V. Kulkarni, and N. Sahoo	Simulation models for spark ignition engine- A comparative performance study	4th International Conference on Advances in Energy Research-2013(ICAER-2013)	Indian Institute of Technology Bombay	10-12 Dec 2013
A.J. Chaudhari, V. Kulkarni, and N. Sahoo	Spark ignition engine with gasoline and alternative fuel- A comparative performance study	22nd National and 11th ISHMT- ASME Heat and Mass Transfer Conference	Indian Institute of Technology Kharagpur	28-31 Dec 2013
A. Yadav, H.S. Jha, M. Singh, R. Madaka, B.D. Boruah, and P. Agarwal	Study on photoconductivity of hydrogenated amorphous Silicon (a-Si:H) films on flexible substrate	International Conference on Nanotechnology (ICNT 2013)	Haldia Regional Center, Indian Institute of Chemical Engineering	25-26 Oct 2013
A. Yadav, R. Madaka, H.S. Jha, and P. Agarwal	Hydrogenated Amorphous Silicon Films on Flexible Substrates	International Conference on Advanced Nanomaterials and Nanotechnology (ICANN 2013)	IIT Guwahati	1-3 Dec 2013
A. Yadav, R. Madaka, H.S. Jha, and P. Agarwal	Comparative study of photosensitivity of hydrogenated a-Si:H thin films on flexible and glass substrates	International Conference On Nano Science And Technology (ICONSAT 2014)	Panjab University Sector-14, Chandigarh	3-5 Mar 2014
A. Borah, A. Goyal, and V.S. Moholkar	Comparative assessment of various invasive species as potential feedstock for biofuel production	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trend	Cotton College, Guwahati	29-31 Jan 2014
S. Singh, P.K. Dikshit, V.S. Moholkar, and A. Goyal	Statistical optimization of enzymatic hydrolysis of Parthenium hysterophorus by response surface methodology.	International Conference on Harnessing Natural Resources for Sustainable Development: Global Trend	Cotton College, Guwahati	29-31 Jan 2014

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Minoru Sasaki and Prof. Yoshihiko Uematsu	Department of Mechanical Engineering, Faculty of Engineering, GIFU University, Japan	Research collaboration	23 Sep 2013

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Dipl.-Ing. Dr. techn. Hans-Jörg Bart	Technische Universität Kaiserslautern, Germany	Research collaboration	9 Sep 2013
A team of delegation (12 persons) led by Prof R. Phakeng, Vice Principal, Research and Innovation, and Prof. Gugu Moche, Executive Dean, College of Science, Engineering and Technology	University of South Africa (UNISA)	Research collaboration	25 Jan 2014

**FACULTY MEMBERS ASSOCIATED WITH THE CENTRE**

Sl. No.	Name	Designation and Department
1	Agarwal Pratima, PhD	Professor, Department of Physics
2	Bora Utpal, PhD	Associate Professor, Department of Biotechnology
3	Dalal Amaresh, PhD	Assistant Professor, Department of Mechanical Engineering
4	De Mahuya, PhD	Assistant Professor, Department of Chemical Engineering
5	Debasish Das, PhD	Assistant Professor, Department of Biotechnology
6	Dubey Vikash Kr., PhD	Professor, Department of Biotechnology
7	Ghoshal A.K., PhD	Professor, Department of Chemical Engineering
8	Goswami P., PhD	Professor, Department of Biotechnology and Head, Centre for Energy
9	Goud V. V. , PhD	Assistant Professor, Department of Chemical Engineering
10	Gumma Sasidhar, PhD	Associate Professor, Department of Chemical Engineering
11	Goyal Arun, PhD	Professor, Department of Biotechnology
12	Kalita Karuna , PhD	Assistant Professor, Department of Mechanical Engineering
13	Katiyar Vimal, PhD	Assistant Professor, Department of Chemical Engineering
14	Kulkarni Vinayak , PhD	Assistant Professor, Department of Mechanical Engineering
15	Kumar Praveen, PhD	Assistant Professor, Department of Electronics and Electrical Engineering
16	Mahanta P., PhD	Professor and Head, Department of Mechanical Engineering
17	Mishra S. C., PhD	Professor, Department of Mechanical Engineering
18	Mohanty Kaustubha, PhD	Associate Professor, Department of Chemical Engineering
19	Moholkar Vijay K., PhD	Professor and Head, Department of Chemical Engineering
20	Muthukumar P., PhD	Associate Professor, Department of Mechanical Engineering
21	Nemade Harshal B. , PhD	Professor, Department of Electronics and Electrical Engineering
22	Saha U. K., PhD	Professor, Department of Mechanical Engineering
23	Sahoo N., PhD	Associate Professor, Department of Mechanical Engineering
24	Sahoo L., PhD	Professor, Department of Biotechnology
25	Somayaji C., PhD	Assistant Professor, Department of Mechanical Engineering
26	Trivedi Gaurav, PhD	Assistant Professor, Department of Electronics and Electrical Engineering
27	Uppaluri Ramagopal, PhD	Professor, Department of Chemical Engineering
28	Verma Anil, PhD	Associate Professor, Department of Chemical Engineering



# CENTRE FOR THE ENVIRONMENT

**YEAR OF ESTABLISHMENT OF THE CENTRE:** 2004

**ACADEMIC PROGRAMMES OFFERED:**

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

• PhD: 4

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

- Research laboratory – I
- Research Laboratory – II
- Analytical laboratory
- Computational laboratory
- Mammalian Cell Culture Laboratory

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

1. Vacuum pump Make: Tarsons, Model: 7011
2. Automatic digital autoclave, Equitron, cat No 7431PAD
3. PCR, Applied Biosystems VERITI 96 well thermal cycler
4. Fume Hood 02 nos.
5. Langmuir Blodgett trough
6. Carbon dioxide incubator
7. Gel Documentation system
8. Low Temperature Incubator
9. Biosafety Cabinet (Laminar Hood)
10. Minus 80 degree Freezer
11. Cold Room (Cold storage chamber)

12. Refrigerated Centrifuge

13. Lyophilizer (Freeze Dryer)

14. Cooling Water Bath

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

- Water and Wastewater Treatment
- Solid Waste Management and Recycling
- Environmental Bioremediation/ Environmental Biotechnology
  - Biosorption & Bioremediation of heavy metals
  - Biofiltration for treating Waste Gases and Green Solvents
  - Removal of Toxic and Recalcitrant Compounds
  - Biodegradation/Bio-detoxification of Toxic Wastes
- Environmental Genomics and Proteomics
- Green Chemistry
- Greenhouse gas Capture and Storage.
- Biofuels
- Air pollution- Dispersion, Control & Modeling
- Waste Immobilization
- Soil-water-contaminant Interaction
- Contaminant Transport and Retention in Porous Media
- Environmental History
- Environmental Economics
- Green Design
- Global Warming and Climate Modeling

**RESEARCH PROJECTS****a) New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Dr. Utpal Bora	Exploration and characterization of Seri-bioresources of N.E India for potential textile and non-textile applications	DBT	16.20	NA	3 Years (2014-2017)

**b) Ongoing Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. A. K. Ghoshal	Assessment of microbial communities and their biodegradation potentials in petroleum hydrocarbon contaminated environments in Assam	DBT	21.80	-	3 years
Dr. Utpal Bora	Establishment of Institutional Biotech Hubs by DBT under special programme for N.E states of India	DBT	19.00	-	3 years
Prof. Vikash Kumar Dubey	Variations in proteome profile of legume plants in response to heavy metal toxicity	DST	23.28	Dr. Anil Verma	3 years
Dr. Ranjan Tamuli	Molecular investigation of epigenetic modifications caused by environmental pollution using Neurosporacras-saas a model system	DBT	55.00	Dr. Utpal Bora	3 years

**RESEARCH PUBLICATIONS****Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Sampita Basu, Abhijit Sarma Roy, Kaushtubha Mohanty, Alok K Ghoshal	Enhanced CO <sub>2</sub> sequestration by a novel microalga: <i>Scenedesmusobliquus</i> SA1 isolated from bio-diversity hotspot region of Assam, India	Bioresource Technology	143	369-377	2013
Jiban Saikia, Bedabrata Saha, Gopal Das	Interpreting the adsorption of BSA and BLG onto ZnS NPs: Effect of conformational rigidity of the proteins	J. Colloid. Inter. Sci.	416	235-242	2014
Sushant Singh, Abhay Narayan Singh, Anil Verma and Vikash Kumar Dubey	Biodegradable polycaprolactone (PCL) nanosphere encapsulating superoxide dismutase and catalase enzymes	Applied Biochemistry and Biotechnology, DOI	DOI: 10.1007/s12010-013-0427-4		2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Jiban Saikia, Yeasin Sikdar, Bedabrata Saha, Gopal Das	Malachite nanoparticle: a potent surface for the adsorption of Xanthene dyes	J. Env. Chem. Engg			2013
Deepmoni Deka, Saprativ P. Das, Arabinda Ghosh, Debasish Das, Mohammad Jawed, Arun Goyal	Scale up and efficient bio-ethanol production involving recombinant cellulase (Glycoside hydrolase family 5) from <i>Clostridium thermocellum</i> .	Sustainable chemical processes	1:19	1-11	2013
Biju Prava Sahariah and Saswati Chakraborty	Performance of anaerobic-anoxic-aerobic batch fed moving bed reactor at varying phenol feed concentrations and hydraulic retention time	Clean technology and environmental policy	15 (2)	225-233	2013
Bijuprava Sahariah and Saswati Chakraborty	Effect of cycle and fill time on performance of sequential anaerobic-anoxic-aerobic fed batch moving bed reactor	Environmental Technology	34 (1-4)	245-56	2013
Banasri Sarma, Arup Kr. Sarma, V.P. Singh	Optimal Ecological Management Practices (EMPs) for Minimizing the Impact of Climate Change and Watershed Degradation Due to Urbanization	Water Resource Management	27	4069-4082	2013
Saprativ P. Das, Rajeev Ravindran, Arabinda Ghosh, Deepmoni Deka, Debasish Das, Mohammad Jawed, Carlos M.G.A. Fontes, ArunGoyal	Efficient pretreatment for bio-ethanol production from water hyacinth ( <i>Eichhornia crassipes</i> ) involving naturally isolated and recombinant enzymes and its recovery	Environmental progress and sustainable energy	DOI: 10.1002 /ep	11885	2013

#### CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED

Name of Faculty/ Student	Name of Conf./Workshop	Place	Date	International/ National
Praisyl Terangpi	First symposium on advances in sustainable polymers	IIT Guwahati	6-11 Jan 2014	National
Praisyl Terangpi	International conference on harnessing natural resources for sustainable development: Global trend	Cotton College, Guwahati	29-31 Jan 2014	International
Deepmoni Deka	International conference on harnessing natural resources for sustainable development: Global trend	Cotton College, Guwahati	29-31 Jan 2014	International
Nayanmoni Gogoi	International Conference on Harnessing Natural Resources for Harnessing for Sustainable Development – Global Trend, 2014	Cotton College, Guwahati	29-31 Jan 2014	International

Name of Faculty/ Student	Name of Conf./Workshop	Place	Date	International/ National
Bharati Brahmacharimayum, Mohit Prakash Mohanty and Pranab Kumar Ghosh	International Conference on Harnessing Natural Resources for Sustainable Development	Cotton College, Guwahati	29-31 Jan 2014	International
Surya Singh, Chandan Mukherjee, Anil Verma	International Conference on Harnessing Natural Resources for Sustainable Development (ICHNRSD 2014)	Cotton College, Guwahati	29-31 Jan 2014	International
Surya Singh, Chandan Mukherjee, Anil Verma	4th International Conference on Advances in Energy Research (ICAER 2013)	IIT Bombay, Mumbai	10-12 Dec 2013	International
Mahasweta Laskar, Mohit Prakash. Mohanty, Bharati Brahmacharimayum Pranab Kumar Ghosh	International Congress of Environmental research (ICER-2013)	Aurangabad	19-21 Dec 2013	International
Nayanmoni Gogoi	Water Futures: A Dialogue for Young Scholars and Professionals, An Indo-Bangladesh dialogue (Centre for North East Studies and Policy Research, Jamia Milia Islamia, New Delhi and Department of International Relations, University of Dhaka, Bangladesh in Association with the Ecosystems for life: A Bangladesh-India Initiative, IUCN)	New Delhi	14-26 Nov 2013	International
Deepmoni Deka	Regional Seminar on Eco-restoration for Development in NE India		22-23 Apr 2013	International
Isha Vishan, Ajay Kalamdhad	International conference on advances in Biotechnology & Bioinformatics & X convention of the Biotech Research society, India		25-27 Nov 2013	International
Utpal Bora	5th International Conference on Translational Cancer Research Multi-Targeted Approach to Treatment of Cancer New Delhi – the Heart of India	New Delhi	6-9 Feb 2014	International

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANIZATIONS / INVITED LECTURES:**

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Dr. Harish C. Joshi	Emory University, School of Medical Sciences, USA	Cancer and Microtubules	3 Dec 2013
Prof. Makio Takeda	Graduate School of Agricultural Science, Kobe University, Kobe, Japan	Molecular mechanism of photoperiodism that regulates pupal diapause in <i>Antheraea pernyi</i>	10 Jan 2014
Prof. Jun Kobayashi	Molecular Entomology Department of Biological and Environmental Science, Yamaguchi University, Japan	Establishment of a baculovirus expression vector system using wild silkworms for new biotechnology	10 Jan 2014

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Dr. Manabo Kamimuura	Division of Insect Science, National Institute of Agrobiological Science Tsukuba, Ibaraki, Japan	A simple method to express various genes in various insects by lipofection	10 Jan 2014
Dr. P. Jayaprakash	Central Silk Board, Guwahati	Seribioresources of North East India with special reference to Muga and Eri silkworms	10 Jan 2014
Dr. Rangam Rajkhowa	Deakin University, Australia	Protective functions of silk cocoon	10 Jan 2014
Dr. Ajoy Kumar Das	Arya Vidyapeeth College, Guwahati	Host specificity of phytophagous insects with special reference to Muga silkworm	10 Jan 2014
Prof. K. Kannan	Guru Gobind Singh Indraprastha University, New Delhi	Future of Biotechnology	13 Mar 2014

#### SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Sem./Wor./Con.	Funded By	Date	International/ National	Convener/ Co-ordinator/ Etc.	No. of participants
QIP-STC course on 'Biotechniques for Pollution Control and Resource Recovery'	AICTE	1-5 Jul 2013	National	Dr. Kannan Pakshirajan	-
Lecture Series on Seribio-technology 2014	DBT	10 Jan 2014	International	Coordinator: Dr. Utpal Bora, Members: Prof. Gopal Das, Dr. Ajaikumar B. Kunnumakkara	30

#### AWARDS AND HONOURS:

Ms Surya Singh, Research Scholar, won Best Paper Award (2nd runner-up) by Springer, for presenting the paper entitled "Development of Catalytic Activity Protocol for the Electrochemical Reduction of Carbon Dioxide", at the 4th International Conference on Advances in Energy Research (ICAER 2013), held during 10-12 Dec 2013 at IIT Bombay, Mumbai.

#### FACULTY MEMBERS ASSOCIATED WITH THE CENTRE

Sl. No.	Name	Designation and Department
1.	Barua Anamika, PhD	Associate Professor, Department of Humanities and Social Sciences
2.	Bora Utpal, PhD	Associate Professor, Department of Biotechnology
3.	Chaturvedi Rakhi, PhD	Professor, Department of Biotechnology
4.	Chakraborty Saswati, PhD	Professor, Department of Civil Engineering
5.	Das Chandan, PhD	Assistant Professor, Department of Chemical Engineering
6.	Das Gopal, PhD	Professor, Department of Chemistry and Head, Centre for the Environment
7.	Dasu Venkata V, PhD	Professor, Department of Biotechnology
8.	Dubey Vikash Kumar, PhD	Professor, Department of Biotechnology
9.	Dutta M. K. , PhD	Associate Professor, Department of Humanities and Social Sciences
10.	Ghosh Pranab Kumar, PhD	Associate Professor, Department of Civil Engineering
11.	Ghosal Alope Kumar, PhD	Professor, Department of Chemical Engineering

<b>Sl. No.</b>	<b>Name</b>	<b>Designation and Department</b>
12.	Gokhale Sharad, PhD	Professor, Department of Civil Engineering
13.	Goud Vaibhav V, PhD	Assistant Professor, Department of Chemical Engineering
14.	Goyal Arun, PhD	Professor, Department of Biotechnology
15.	Jawed Mohammad, PhD	Professor, Department of Civil Engineering
16.	Kundu Lal Mohan, PhD	Assistant Professor, Department of Chemistry
17.	Kalamdhad Ajay, PhD	Assistant Professor, Department of Civil Engineering
18.	Mahanta Chandan, PhD	Professor, Department of Civil Engineering
19.	Mandal Bishnupada, PhD	Associate Professor, Department of Chemical Engineering
20.	Mandal Tapas Kumar, PhD	Assistant Professor, Department of Chemical Engineering
21.	Mohanty Kaustubha, PhD	Associate Professor, Department of Chemical Engineering
22.	Mukherjee Chandan, PhD	Assistant Professor, Department of Chemistry
23.	Pakshirajan Kannan, PhD	Associate Professor, Department of Biotechnology
24.	Patel Bhisma Kumar, PhD	Professor, Department of Chemistry
25.	Purkait M. K. , PhD	Associate Professor, Department of Chemical Engineering
26.	Patra Sanjukta, PhD	Associate Professor, Department of Biotechnology
27.	Ray Manabendra, PhD	Professor, Department of Chemistry
28.	Sarma Arup Kumar, PhD	Professor, Department of Civil Engineering
29.	Tamuli Ranjan, PhD	Assistant Professor, Department of Biotechnology
30.	Verma Anil, PhD	Associate Professor, Department of Chemical Engineering

# CENTRE FOR NANOTECHNOLOGY

**YEAR OF ESTABLISHMENT OF THE CENTRE:** 2004

**ACADEMIC PROGRAMMES OFFERED:**

**Doctor of Philosophy (PhD)**

**STUDENTS ADMITTED IN THE YEAR 2013-2014:**

• PhD: 8

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

The centre has a total of 11 numbers of laboratories, out of which two have been set up in the CIF. The basic instruments/equipments facilities available in each laboratory are listed below—

Name of the lab	Name of the instruments/equipments
Material Res. Lab	Laminar air flow
	Ultra-low temperature freezer (-80 0C)
	UV spectrophotometer
	Microwave oven
	Agarose gel documentation system, Gel logic
	Regulated DC Power Supply
	Electromagnet
	Digital Gauss meter
	Digital Weighing balance
	Inverted Microscope
	Nanovoltmeter
	Source Meter
	Ultrasonicator
	Magnetic stirrer
XRD Lab	Bruker D8 Advance X-Ray Diffractometer
TEM Lab	Transmission electron microscope Jeol

OLED Lab	This lab has been set up in the CIF
Nanobio-tech Lab	BD FACS Calibur
	UV-Vis Spectrophotometer
	Fluorescence spectrophotometer
	FluoroLog
	Water purification system Milli Q / Elix
	Dynamic Light Scattering (DLS), Malvern Zetasizer Nano
	Micro plate reader
	Real Time PCR (Applied Bio system)
	Vortex
	Deep Freeze (-20 0C)
	Shaking Incubator
Cell culture Lab	C02 incubator
	Epi fluorescence microscope (Nikon eclipse)
	Water bath
	Digital Weighing Balance
	Horizontal
Synthesis Lab	Horizontal Laminar Air Flow Work Station
	Hot air oven
	Refrigerated Bath Circulator
	Portable autoclave
	Digital Weighing Balance
	pH meter
	Microwave oven
	Cooling centrifuge (Sigma)
	Micro Centrifuge
	Agarose gel electrophoresis set up
	Rotary Vacuum

Nano Fabrication Lab	Laboratory developed (assembled) Chemical Vapour Deposition (CVD)
	Thermal Evaporation coating system
	Electron Beam deposition system
	RF Co-Sputtering deposition system
	Rapid Thermal Annealing system
	Spin coating system
	Bath and Tip Sonication
	Laboratory developed (assembled) Probe station for I-V and Photo conductivity measurements
	Heating woven
	KBR pallet maker for FTIR measurement
MEMS & NEMS Lab	Analog Digital Scope (ADS) HM507, HAMEG Instruments, 50 MHz 100MS/s
	Digital Oscilloscope (Yokogawa) DL9040 5GS/s 500 MHz
	Function Generator 33120A 15MHz
	Universal Counter 53131A 225 MHz
	Multifunction Generator 4080 20 MHz
	Triple Power Supply ST4071 5V/30V
	Multiple Power Supply ST4077
	Hot plate
SPM Lab	Scanning Probe Microscope: Veeco
Thin Film and Micro Fluidics Lab	High end upright microscope
	Thermal stage
	High speed camera
	UV-Ozone cleaning unit
	Spin coater
	Fume chamber
	Clean bench
	Ultrasonic cleaning bath
	Millipore water supply unit
	AC/DC power supply units
	Electromagnet with Gaussmeter
	Mmicrobalance
	High speed centrifuge
	Air furnace
	High speed/high resolution camera
	Vacuum furnace
High Speed computational servers loaded with software like Ansys Fluent, Mathematica and Material Studio	

### MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:

#### Equipment:

- 1) CO<sub>2</sub> Gas cylinder,
- 2) UV Transilluminator,
- 3) Model FL-450XOFR,
- 4) Euiech pH meter,
- 5) Nanovoltmeter,
- 6) gel electrophoresis,
- 7) COMSOL Multiphysics etc,
- 8) Architect 3D etc

#### Facilities:

- (1) UPS Batteries, 6kva UPS, High Voltage Power Supply
- (2) 12V, 26AH, HCL Info Systems Ltd.,
- (3) Motor for centrifuge, magnetic stirrer etc,
- (4) Brake resistor for centrifuge,
- (5) Sureproin,
- (6) Desktop PC, upgradation of old PC

### MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

The centre is pursuing research in the multi-disciplinary area of Nanotechnology required to meet the future challenges, to augment academic partnerships with industry in the area of Nanotechnology. Nano-Electronics by VLSI group focuses on development SAW sensors, ECG amplifier and blind assisted walker. Nanoscale science and technology group has recently developed a new model for observation of autonomous motion of particles in aqueous medium (On chemical locomotives).

Gene Therapy group is mainly focused in developing 'GeneTherapyVectors'. They have established molecular mechanism of cell death via apoptotic signaling in suicide gene therapy. Nanobiotechnology group is pursuing interdisciplinary collaborative research at the Centre for Nanotechnology on "nanoparticles and nanocomposites". They are developing new nanoclusters for the potential applications as sensors, antimicrobial and anticancer agents. Nanophysics group is working on the various aspects on the defects of carbon nanotube and their possible application as sensor.

A combined group of faculty members from Chemistry and Physics have developed prototype organic light emitting diode (OLED) and nanotube based transistors. In addition Centre is also involved in fostering growth



of science and education in the north east in the field of nanotechnology by conference, workshops, symposium and seminars.

## MAJOR INITIATIVES AND BREAKTHROUGH IN

### RESEARCH PROJECTS

#### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. A. Chattopadhyay	Centre for Excellence in Research and Development of Nanoelectronic Theranostic Devices	DEITY	5175	Eleven Co-PI of various Departments	5 years
Dr. Dipankar Bandyopadhyay	Design and Development of Intelligent Catalytic Nanobots	DST Nano-Mission	43	NONE	3 years

#### b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Prof. S. S. Ghosh	Novel nanoscale materials targeted towards antimicrobial and anticancer activities	DBT	169.00	Prof. A. Chattopadhyay, Dr. Biplab Bose	3 years
Prof. P. K. Iyer	Design and Development and Fabrication of OLED Organic Solar club and organic TFTs based on Molecular Polymeric and composite materials	DST	523.00	Dr. M. Qureshi, Dr. D. K. Goswami, Prof. A. Srinivasan	5 years
Dr. Dipankar Bandyopadhyay	External Field Driven Flow Induced micro/nano scale Patterning, Mixing, Heat and Mass transfer in micro/nano Fluidic Devices	DST-SERC	45.00	NONE	3 years
Dr. D. K. Goswami	Fabrication and Characterization of Organic thin film transistor	DST	34.60	NONE	3 years
Dr. Dipankar Bandyopadhyay	A computational study on the phase separation induced pattern formation employing ultrathin films	CSIR	16.50	NONE	3 years
Prof. P. K. Giri	Controlled growth and studies on semiconductor nanowire heterostructures for solar photovoltaic applications	BRNS	25.00	Dr. D. K. Goswami	3 years

### RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

A research Grant of Rs. 51.75 Crore from DeitY for establishing a 'Centre for Excellence in Research and Development of Nanoelectronic Theranostic Devices'.

**c) Completed Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakhs)	Co-Investigator	Duration
Prof. A. Chattopadhyay	Development of Nanoscale Materials for Bacteria Removal from Surface Water	DRL	9.98	Prof. S. S. Ghosh	2 years
Prof. S. S. Ghosh	Nanoscale materials with therapeutic implications	DBT	102.62	Prof. A. Chattopadhyay, Dr. A. Ramesh, Dr. B. Bose	3 years
Dr. Dipankar Bandyopadhyay	A combined experimental and theoretical study on the instability and patterning of thin liquid crystal films	DST - Fast Track	9.60	None	3 years
Prof. A. Chattopadhyay	Newer Chemical and Physical Methods of Engineering Devices with Nanoscale Functional Components	DST	92.00	None	5 years
Prof. A. Chattopadhyay (Coordinator)	Engineering Nanoscale Materials and their Applications in nanotechnology	DST	202.00	None	3 years
Prof. A. Chattopadhyay (Coordinator for the institute-level project)	Novel Nanoscale Materials: Generation, Characterization, and Device Applications	DST	190.60	A number of faculty members from various departments	3 years
Dr. A. Khan	Development of Stimuli Sensitive Nanogels/Nanoparticles for Controlled Release System	DST	10.00		3 years

**RESEARCH PUBLICATIONS****Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
S. K. Sailapu, A. Chattopadhyay	Induction of Electromotive Force by an Autonomously Moving Magnetic Bot	Angewandte Chemie International Edition	53 (6)	1521-1524	2014
A. K. Sahoo, S. Banerjee, S. S. Ghosh, and A. Chattopadhyay	Simultaneous RGB Emitting Au Nanoclusters in Chitosan Nanoparticles for Anticancer Gene Theranostics	ACS Applied Materials and Interfaces	6 (1)	712-724	2014
R. Begum and A. Chattopadhyay	Redox-Tuned Three-Color Emission in Double (Mn and Cu) Doped Zinc Sulfide Quantum Dots	The Journal of Physical Chemistry Letters	5 (1)	126-130	2014

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
R. Begum, A. K. Sahoo, S. S. Ghosh and A. Chattopadhyay	Recovering hidden quanta of Cu <sup>2+</sup> -doped ZnS quantum dots in reductive environment	Nanoscale	6 (2)	953-961	2014
A. Jaiswal, P. K. Gautam, S. S. Ghosh and A. Chattopadhyay	Carbon dots mediated room-temperature synthesis of gold nanoparticles in poly (ethylene glycol)	Journal of Nanoparticle Research	16 (1)	1-14	2014
R. K. Biroju, P. K. Giri, S. Dhara, K. Imakita, M. Fujii	Graphene Assisted Controlled Growth of Highly Aligned ZnO Nanorods and Nanoribbons: Growth Mechanism and Photoluminescence Properties	ACS Appl. Mater. Interf.	6	377	2014
A. K. Singh, K. K. Dey, A. Chattopadhyay, T. K. Mandal, D. Bandyopadhyay	Multimodal chemo-magnetic control of self-propelling microbots	Nanoscale	6	1398-1405	2014
N. Chaubey, A. Sahoo, A. Chattopadhyay and S. S. Ghosh	Silver nanoparticle loaded PLGA composite nanoparticles for improving therapeutic efficacy of recombinant IFN $\gamma$ by targeting the cell surface	Biomaterials Science	DOI: 10.1039 / C3BM 60251F		2014
R. Ghosh, A. Sahoo, S. S. Ghosh, A. Paul and A. Chattopadhyay	Blue Emitting Copper Nanoclusters Synthesized in the Presence of Lysozyme as Candidates for Cell Labeling	ACS Applied Materials & Interfaces	6 (6)	3822-3828	2014
S. Sharma, S. Chockalingam, P. Sanpui, A. Chattopadhyay and S. S. Ghosh	Silver Nanoparticles impregnated Alginate-Chitosanblended-Nanocarrier Induces Apoptosis in Human Glioblastoma Cells	Advanced Healthcare Materials	3	106-114	2014
V. Yata, S. Banerjee, S. S. Ghosh	Folic acid conjugated-bio Polymeric nanocarriers: synthesis, characterization and In vitro delivery of prodrug converting enzyme	Advanced Science, Engineering and Medicine	6 (4)	388-392	2014
A. Ananth, Praveen Kumar, R. Usha, T. Banerjee, D. Bandyopadhyay	Instabilities of a free bilayer flowing on an inclined porous medium	Phys. Rev. E	88	063012	2013
A. Ananth, Praveen Kumar, H. Goyal, T. Banerjee, and D. Bandyopadhyay	Instability modes of a two-layer Newtonian plane Couette flow past a porous medium	Phys. Rev. E	87	063003	2013
K. Mondal, P. Kumar, D. Bandyopadhyay	Electric field induced instabilities of thin leaky bilayers: Pathways to unique morphologies and miniaturization	Journal of Chemical Physics	138	024705	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
A. Hens, K. Mondal, D. Bandyopadhyay	Self-organized Pathways to Nano-Patterns Exploiting the Instabilities of Ultrathin Confined Bilayers	Physical review E	87	022405	2013
H. Goyal, A. Ananth, Praveen Kumar, D. Bandyopadhyay, R. Usha, T. Banerjee	Instabilities of a confined two-layer flow on a porous medium: an Orr-Sommerfeld analysis	Chemical Engineering Science	97	109-125	2013
B. Ray, D. Bandyopadhyay, A. Sharma, S. W. Joo, S. Qian, G. Biswas	Long-wave interfacial instabilities in a thin electrolyte film undergoing coupled electrokinetic flows: a nonlinear analysis	Microfluidics Nanofluidics	DOI 10.1007/s10404-012-1122-4, 2013		2013
R. K. Biroju, P. K. Giri	Controlled Fabrication of Graphene-ZnO Nanorod, Nanowire and Nanoribbon Hybrid Nanostructures	J. Nanosci. Lett	4	34	2014
R. K. Baruah and R. Paily	A Dual-Material Gate Junctionless Transistor With High-k Spacer for Enhanced Analog Performance	IEEE Transactions on Electron Devices	61 (1)	123-128	2014
R. Ghosh, P. K. Giri, K. Imakita and M. Fujii,	Origin of Visible and Near Infrared Photoluminescence from Chemically Etched Si Nanowires Decorated with Arbitrary Shaped Si Nanocrystals	Nanotechnology	25	045703	2014
S. Chockalingam and S. S. Ghosh	Amelioration of cancer stem cells in Macrophage Colony Stimulating Factor-Expressing U87MG-human glioblastoma upon 5-fluorouracil therapy	PLOS One	PONE-D-13-38673R1 10.1371/journal.pone.0083877		2013
K. C. Narasimhamurthy and R. Paily	Wafer Scale Thin-Film Transistors using Different Semiconducting Purity Nanotubes, Dielectric Materials and Gate Control	Solid State Electronics Elsevier	79	37-44	2013
G. Saxena and R. Paily	Analytical modeling of square microhotplate for gas sensing application	Sensors Journal, IEEE	13 (12)	4851-4859	2013
R. Shrestha and R. Paily	Performance and throughput analysis of turbo decoder for the physical layer of digital-video-broadcasting-satellite-services-tohandhelds standard	IET Communications, The Institution of Engineering and Technology	7 (12)	1211 - 1220	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
R. K. Baruah and R. Paily	Impact of High-k Spacer on Device Performance of a Junctionless Transistor	Journal of Computational Electronics, Springer	12 (1)	14-19	2013
V. K. Mohandas and R. Paily	Stereo Disparity Estimation Algorithm for Blind Assisting System	CSI Transactions on ICT, Springer	1 (1)	3-8	2013
S. Joshi and R. Paily	Distributed Arithmetic based Split-Radix FFT	Journal of Signal Processing Systems	DOI 10.1007/s11265-013-0790-y		2013
N. Mahesh, A. Ganesan, M. P. Kumar and R. Paily	An Ultra-Wideband Baseband Transmitter Design for Wireless Body Area Network	Lecture Notes in Computer Science	7373	30-39	2013
R. K. Baruah and R. Paily	A Dual Material Double-Layer Gate Stack Junctionless Transistor for Enhanced Analog Performance	Lecture Notes in Computer Science	7373	30-39	2013
A. Mathew and M. K. Nandy	Two electrons in a cylindrical quantum dot under constant magnetic field	Physica B	421	127	2013
A. Mathew and M. K. Nandy	Decoherence study of electron spin states in quantum dots using a simplistic model	Mod. Phys. Lett. B	27	135-0119	2013
R. Shrestha and R. Paily	Design and Implementation of a Linear Feedback Shift Register Interleaver for Turbo Decoding	Lecture Notes in Computer Science	7373	30-39	2013
D. Sharma and R. Paily	Multi-standard $\Sigma$ - $\Delta$ Modulator for GSM/WCDMA Applications	IETE Journal of Research	58 (4)	292-297	
S. Sharma, S. Chockalingam, P. Sanpui, A. Chattopadhyay and S. S. Ghosh	Silver Nanoparticles impregnated Alginate-Chitosan blended Nanocarrier Induces Apoptosis in Human Glioblastoma Cells	Advanced Healthcare Materials	doi: 10.1002/adhm.201300090		2013
R. Ghosh, J. Deka, A. Chattopadhyay and A. Paul	Conformation aspect in the $\alpha$ -amylase induced agglomeration of citrate-stabilized gold nanoparticles	RSC Advances	3 (45)	23015-23027	2013
R. Khandelia, A. Jaiswal, S. S. Ghosh and A. Chattopadhyay	Gold nanoparticle-protein agglomerates as versatile nanocarriers for drug delivery	Small	9 (20)	3494-3505	2013
S. Das, A. Paul and A. Chattopadhyay	Nanocrystalline p-hydroxyacetanilide (paracetamol) and gold core-shell structure as a model drug deliverable organic-inorganic hybrid nanostructure	Nanoscale	5 (19)	9247-9254	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Md. Palashuddin Sk., C. K. Jana and A. Chattopadhyay	A gold-carbon nanoparticle composite as an efficient catalyst for homocoupling reaction	Chemical Communications	49 (74)	8235-8237	2013
S. Banerjee, A. K. Sahoo, A. Chattopadhyay and S. S. Ghosh	Hydrogel nanocarrier encapsulated recombinant I $\kappa$ B $\alpha$ as a novel anticancer protein therapeutics	RSC Advances	3 (33)	14123-14131	2013
K. K. Dey, S. Bhandari, D. Bandyopadhyay, S. Basu and A. Chattopadhyay	The pH taxis of an intelligent catalytic microbot	Small	9 (11)	1916-1920	2013
M. D. Adhikarim, S. Goswami, B. R. Panda, A. Chattopadhyay and A. Ramesh	Membrane-Directed High Bactericidal Activity of (Gold Nanoparticle)-Polythiophene Composite for Niche Applications Against Pathogenic Bacteria	Advanced Healthcare Materials	2 (4)	599-606	2013
S. Bhandari, R. Begum and A. Chattopadhyay	Surface ion engineering for tuning dual emission of Zn $_x$ Cd $_{1-x}$ S nanocrystals	RSC Advances	3	2885-2888	2013
A. Dasari, A. B. Desamala, A. K. Dasmahapatra and T. K. Mandal	Experimental studies and PNN prediction on flow pattern of viscous oil-water flow through circular horizontal pipe	Industrial & Engineering Chemistry Research	52	7975-7985	2013
A. B. Desamala, A. Dasari, V. Vijayan, B. K. Goshika, A. K. Dasmahapatra and T. K. Mandal	CFD simulation and validation of flow pattern transition boundaries during moderately viscous oil-water two-phase flow through horizontal pipeline	World Academy of Science, Engineering and Technology	73	1150-1155	2013
S. Timung, T. K. Mandal	Prediction of flow pattern of gas-liquid flow through circular microchannel using probabilistic neural network	Applied Soft Computing	13	1674-1685	2013
B. Santara, P. K. Giri, K. Imakita and M. Fujii	Evidence for Ti Interstitial Induced Extended Visible Absorption and Near Infrared Photoluminescence from Undoped TiO $_2$ Nanoribbons: An In-Situ Photoluminescence Study	J. Phys. Chem. C	117	23402	2013
S. Dhara and P. K. Giri	Ti nanoparticle decorated ZnO nanowire heterostructure: Photocurrent and photoluminescence properties	J. Exp. Nanosci.	8	332	2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
B. Santara and P. K. Giri	Impact of reaction temperature, stirring and cosolvent on the Solvothermal Synthesis of Anatase TiO <sub>2</sub> and TiO <sub>2</sub> /Titanate Hybrid Nanostructures: Elucidating the Growth Mechanism	Mater. Chem. Phys.	137	928	2013
S. Dhara and P. K. Giri	ZnO Nanowire Heterostructures: Intriguing Photophysics and Emerging Applications	Rev. Nanosci. Nanotech.	2	1-24	2013
B. Santara and P. K. Giri, K. Imakita and M. Fujii	Evidence of oxygen vacancy induced room temperature ferromagnetism in solvothermally synthesized undoped TiO <sub>2</sub> nanoribbons	Nanoscale	5	5476	2013
S. Dhara, K. Imakita, P. K. Giri, M. Mizuhata, M. Fujii	Aluminum Doped Core-shell ZnO/ZnS Nanowires: Doping and Shell Layer Induced Modification on Structural and Photoluminescence Properties	J. Appl. Phys.	114	134307	2013
B. Santara, P. K. Giri, K. Imakita and M. Fujii	Evidence for Ti Interstitial Induced Extended Visible Absorption and Near Infrared Photoluminescence from Undoped TiO <sub>2</sub> Nanoribbons: An In-Situ Photoluminescence Study	J. Phys. Chem. C	117	23402	2013
R. Ghosh, P. K. Giri, K. Imakita and M. Fujii	Origin of Visible and Near Infrared Photoluminescence from Chemically Etched Si Nanowires Decorated with Arbitrary Shaped Si Nanocrystals	Nanotechnology	-	-	
R. K. Biroju, P. K. Giri	Controlled Fabrication of Graphene--ZnO Nanorod, Nanowire and Nanoribbon Hybrid Nanostructures	Journal of Nanoscience Letters	-	-	2013
R. K. Biroju, P. K. Giri, S. Dhara, K. Imakita, M. Fujii	Graphene Assisted Controlled Growth of Highly Aligned ZnO Nanorods and Nanoribbons: Growth Mechanism and Photoluminescence Properties	ACS Appl. Mater. Interf.	DOI: 10.1021/am404411c		
A. Kumar, G. Das, B. Bose	Recombinant Receptor-binding Domain of Diphtheria Toxin Increases Potency of Curcumin by Enhancing Cellular Uptake	Mol Pharm. 2013	DOI:10.1021/mp400378x		2013

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Nagesh Ch and R. Paily	High Sensitivity Microbridge for Molecular Sensing Applications	International Conference on Design and manufacturing, IConDM 2013, Procedia Engineering, Elsevier	64	234–243	2013
R. G. Praveen and R. Paily	Blind Navigation Assistance for Visually Impaired Based on Local Depth Hypothesis from a Single Image	International Conference on Design and manufacturing, IConDM 2013, Procedia Engineering, Elsevier	64	351 – 360	2013

**CONFERENCES/WORKSHOPS/SEMINARS/SYMPOSIA ATTENDED**

Name of Faculty/Student	Name of Conf./Workshop	Place	Date	International/ National
S. Rarotra, T. K. Mandal, and D. Bandyopadhyay	SelectBio2014	IICT Hyderabad	2014	International
S. Timung, V. Kumar, A. K. Singh, T. K. Mandal, D. Bandyopadhyay	ICANN 2013	IIT Guwahati India	01-03 Dec., 2013	International
V. Pasumarthi, A. K. Singh, T. K. Mandal, D. Bandyopadhyay	ICANN 2013	IIT Guwahati, India	01-03 Dec., 2013	International
A. Das, B. Ravi, A. K. Singh, D. Bandyopadhyay	ICANN 2013	IIT Guwahati, India	01-03 Dec., 2013	International
A. K. Singh, K. K. Dey, A. Chattopadhyay, T. K. Mandal, D. Bandyopadhyay	6th BANGALORE INDIA NANO	BANGALORE India	2013	International
S. Timung, V. Tiwari, A. K. Singh, D. Bandyopadhyay, and T. K. Mandal	ISHMT-ASME	IIT Kharagpur	2013	International
A. Ananth Praveen Kumar, V. Prasad S, T. Banerjee and D. Bandyopadhyay	International Conference on Powder, Granule and Bulk Solids: Innovations and Applications	Thapar University	2013	International
V. Tiwari, S. Timung, A. Sharma, T. K. Mandal, D. Bandyopadhyay	COMSOL Conference	Bangalore	Oct 2013	International
J. Kumar, H. B. Nemade, P. K. Giri	ICANN 2013	IIT Guwahati, India	01-03 Dec., 2013	International



Name of Faculty/Student	Name of Conf./Workshop	Place	Date	International/ National
R. K. Biroju and P. K. Giri	ISJPS-2013	IIT Karaghpur, India	23-25 Feb., 2013	International
N.V. V Subbarao, G.M, V Suresh, P. K. Iyer and D.K. Goswami	OMTAT 2013	CUSAT, Kochi, India	3- 5 Jan., 2013	International
U. Goswami, P. Das, S. S. Ghosh and A. Chattopadhyay	ICANN 2013	IIT Guwahati, India	01-03 Dec., 2013	International
P. Loying, M. Agarwal , B. Bose	ICSCC- 2013	Mumbai	2013	International
P. Loying, M. Agarwal , B. Bose	Cell Signaling in Metabolism, Inflammation and Cancer, Cold Spring Harbor Asia Conferences 2013	China	2013	International
A. B. Desamala, A. K. Dasmahapatra and T. K. Mandal	8th CUTSE Conference, CUTSE - 2013	Malaysia	03 – 04 Dec., 2013	International
A. K. Sahoo, A. Chattopadhyay and S. S. Ghosh	Young Scientists Colloquium-2013. Material Research Society of India (MRSI) - Kolkata chapter	Jadavpur University, Kolkata. India.	28 Aug., 2013	National
R. Khandelia, A. Jaiswal, S. S. Ghosh and A. Chattopadhyay	Young Scientists Colloquium-2013. Material Research Society of India (MRSI) - Kolkata chapter	Jadavpur University, Kolkata, India	28 Aug., 2013	National
D. K. Maravi, A. K. Sahoo, U. Goswami, D. S. Prasad, S. S. Ghosh and L. Sahoo	International Conference on Harnessing natural Resources for Sustainable Development-Global Trend.	Cotton College, Guwahati, India	29-31 Jan., 2014	International
R. Ghosh, A. K. Sahoo, S. S. Ghosh, A. Chattopadhyay and A. Paul	Internal Conference On Nanoscience and Technology (ICONSAT 2014)	INST, Chandigarh, India	03-05 Mar., 2014	International

#### INVITED LECTURES OF FACULTY: IN INDIA, ABROAD:

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Prof. S. S. Ghosh	"Nanocarrier Based Protein Therapeutics", First Symposium on Advances in Sustainable Polymers January 6-11th 2014	Centre for Excellence for Sustainable Polymers and Dept. of Chemical Engg., IITG	IIT Guwahati	10 Jan 2014
Prof. S. S. Ghosh	"Understanding molecular events in cancer therapeutics", QIP short term course on "Molecular Tools in Medical Biotechnology Investigations"	Department of Biotechnology, IITG	IIT Guwahati	2 Dec 2013
Prof. S. S. Ghosh	"Nanotechnology for Cancer Therapy", ICANN 2013	Centre for Nanotechnology, IITG	IIT Guwahati	3 Dec 2013
Prof. S. S. Ghosh	"Emergence of Nanobiotechnology", Frontiers in Nanotechnology	Dept. of Basic Science and Humanities, Royal School of Engg. and Technology	Guwahati	16 Nov 2013

Dr. Dipankar Bandyopadhyay	"Self-propelling Microbots Decorated with Catalytic and Magnetic Nanoparticles"; SelectBio2014,	IICT, Hyderabad	Hyderabad	2014
Dr. Dipankar Bandyopadhyay	"Self-organized Healing of Thin Liquid Crystal Films"; ICANN 2013	IIT Guwahati	Guwahati	2013

**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

Name of Sem./Wor./Con.	Funded By	Date	International/National	Convener	No. of participants
3rd International Conference on Advanced Nanoscience and Nanotechnology (ICANN-2013)	DST, DBT, JACOMEX, ICON Analytical	1-3 Dec 2013	International	Prof. P. K. Iyer	350

**AWARDS AND HONOURS:**

1. Prof. Arun Chattopadhyay Member, Academic Council of Assam University Silchar (2013-2016).
2. Prof. Arun Chattopadhyay Member, Task Force on Nanobiotechnology, DBT: 2012-
3. Prof. Arun Chattopadhyay Programme Advisory Committee (PAC, Physical Chemistry) member; DST: 2012-2015
4. Prof. Arun Chattopadhyay Editorial Advisory Board Member: Nanoscale (Royal Society of Chemistry); Jan 2012-December 2014.
5. Prof. Arun Chattopadhyay Fellow of Royal Society of Chemistry (2014)
6. Prof. PARAMESWAR K. IYER Awarded "Head of Max Planck India Partner Group" in India by Max Planck Society, Germany and DST, India (2012-2017)
7. Prof. PARAMESWAR K. IYER Appointed Member of DST, SERB Fast Track Committee (Chemical Science) from 2012-2015 (Three years)
8. Dr. Dipankar Bandyopadhyay work titled Development of Multimodal Functional microbots published in the Royal Society Journal Nanoscale and highlighted by Labcritics in the following link: <http://www.labcritics.com/2014/01/14/researchers-develop-chemo-magnetic-controlled-self-propelled-microbots/>
9. Dr. Dipankar Bandyopadhyay Visiting Faculty, Yeungnam University South Korea, June 2013.
10. Dr. Dipankar Bandyopadhyay Nominated Member, American Chemical Society, March 2014.

**STUDENTS' ACHIEVEMENTS:**

1. Sunil Kumar Sailapu received first position for the Exhibition of the paper entitled "Chemical Autonomous Devices" in Reflux 2.0 at IIT Guwahati

during 29th – 30th March, 2014.

2. BEST POSTER award for "Electrolytic production of Hydrogen energy by water - splitting in Polymer based Micro reactors, Saptak Rarotra, Tapas Kumar Mandal, and DipankarBandyopadhyay," SelectBio2014, IICT Hyderabad (2014).
3. BEST POSTER award for Effect of gold nanoparticles on the self-organization of ultra-thin polymer films, Abhijna Das, Bolleddu Ravi, Amit Kumar Singh, 2 DipankarBandyopadhyay, ICANN 2013, IIT Guwahati, India (2013).
4. "Hardware Implementation and Testing of LMAPP Decoder for High Throughput Applications" by Rahul Shrestha and Roy Paily adjudged as Best entry in Design Contest Winner of 27th International Conference on VLSI Design and the 13th International Conference on Embedded Systems, IIT Bombay, January 5th - 9th, 2014.
5. Rumi Khandelia Received MRSI Best Poster Award at the Young Scientists' Colloquium (YSC)-2013 of Materials Research Society of India - Kolkata Chapter, held at Jadavpur University, Kolkata on 28th August 2013.
6. Rama Ghosh Received Nanoscale Best Poster Award and C.N. Rao Best Poster Award at the International Conference On Nanoscience and Technology (ICONSAT 2014), March 3 – 5, 2014, INST, Chandigarh, India.

**SPECIAL MENTION:**

1. The work titled "Induction of Electromotive Force by an Autonomously Moving Magnetic Bot" by Sunil Kumar Sailapu, Arun Chattopadhyay got selected as the cover page for the International Journal "Angewandte Chemie International Edition" for the week starting 3rd Feb, 2014. (Volume 53, Issue 6).

**FACULTY MEMBERS ASSOCIATED WITH THE CENTRE**

<b>Sl. No.</b>	<b>Name</b>	<b>Designation and Department</b>
1	Dipankar Bandyopadhyay, PhD	Assistant Professor, Department of Chemical Engineering
2	Biplab Bose, PhD	Assistant Professor, Department of Biotechnology
3	Arun Chattopadhyay, PhD	Professor, Department of Chemistry
4	Siddhartha Sankar Ghosh, PhD	Professor, Department of Biotechnology
5	Pravat Kumar Giri, PhD	Professor, Department of Physics
6	Dipak Kumar Goswami, PhD	Associate Professor, Department of Physics
7	Parameswar Krishnan Iyer, PhD	Professor, Department of Chemistry
8	Tapas K Mandal, PhD	Assistant Professor, Department of Chemical Engineering
9	Harshal B. Nemade, PhD	Associate Professor, Department of Electronics and Electrical Engineering
10	Roy Paily Palathinkal, PhD	Professor, Department of Electronics and Electrical Engineering and Head, Centre for Nanotechnology,
11	Anumita Paul, PhD	Associate Professor, Department of Chemistry
12	Lingaraj Sahoo, PhD	Professor, Department of Biotechnology

# CENTRAL LIBRARY

Being the knowledge & information hub of the institute, Central Library has grown strength to strength along with the Institute and continues to extend services and resources for the academic pursuit of the community. The services and facilities have been planned and provided based on the needs of the Students, Research Scholars, and Faculty and Staff members. During the reported period the total book transactions stands more than 1.45 lakhs. In addition, 191 users of other academic Institutions have also availed the reference facility of the Central Library. To provide the reading facility to the Institute's academic community, Central Library remains open from 8.00 am to 12.00 midnight throughout the year.

## 1. Collection Development:

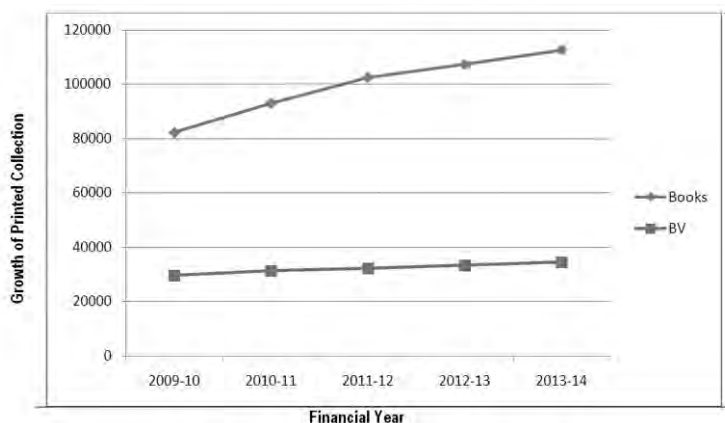
a) A large number of books, database, international and national journals on various subjects have been added during the Financial Year 2013 -14. The total collection strength of the Central Library now stands as follows:

Details	Collection Size
Books	113728
E- books	7931

Details	Collection Size
Bound volume journals	34453
Back file electronic journals	1696
Theses, standards, Reports etc.	2501
Non-Book material (CD, DVD, etc.)	3717
<b>Total</b>	<b>164026</b>
Print and Online Journal Subscription (2013-2014)	525

b) The growth of the printed collections (Books and Bound Volume Printed Journals) for last five years stands as follows:

Year	Collection	
	Books	Back Volumes
2009-2010	82227	29524
2010-2011	92993	31365
2011-2012	102501	32186
2012-2013	107268	33166
2013-2014	112616	34453



c) As most of the research activities are heavily dependent on the journal publications, Central Library has emphasized on regular subscription of the current journals. Further, for better accessibility of the contents, efforts have been made to increase the online journals over the printed journals. Presently the Central Library is subscribing 525 titles across all academic areas of which 306 are online journals. In addition to that Institute is having access to 12,350 online journals through 'INDEST-AICTE Consortium' and 'DeLCON: DBT- Electronic Library Consortium'.

d) Apart from the above, Central Library has also procured some of the world's most renowned abstract database like SciFinder, MathSciNet, Scopus, Web of Science, INSPEC, etc. during the reporting period.

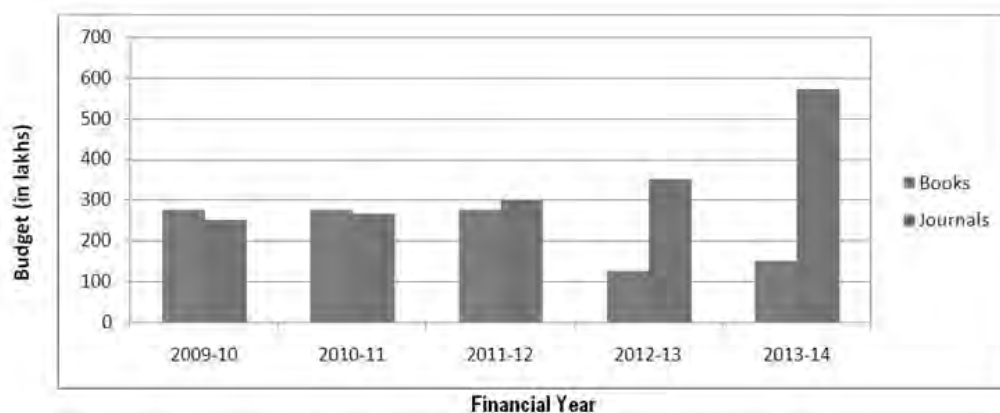
e) To make awareness about the regional culture and to generate interest about the vernacular literature,

Central Library has also a reasonably good collection on Assamese language.

## 2. Budget:

The books and journal budget of the Central Library has also increased over the last 5 financial years. The details of books and journal budget from 2009-10 to 2013-14 as follows:

Year	Books (Rs. in Lakhs)	Journals (Rs. in Lakhs)
2009-2010	275.00	250.64
2010-2011	275.00	265.49
2011-2012	275.00	301.90
2012-2013	125.00	350.00
2013-2014	150.00	573.00



## 3. Services and Facilities:

a) To provide sufficient reading facility, the Central Library has added 63 seating capacity. With this the total seating capacity now stands 201.

b) Barcode based automated circulation system continues to provide hassle free transactions for the users' community. The system is being revamped with better barcode technology for faster transactions.

c) A new user-friendly webpage has been designed for easy access to electronic resources accessible to the Institute.

d) For safe keeping of personal belongings of the library users, key based Locker Units has been made available throughout the library operation hours.

## LIBRARIAN

Dr. Tamal Kumar Guha

# CENTRE FOR EDUCATIONAL TECHNOLOGY

**YEAR OF ESTABLISHMENT OF THE CENTRE:** 2004

**NO. OF LABORATORIES WITH BRIEF INTRODUCTION:**

**• Web Laboratory:**

Uploads and maintains NPTEL Content on Servers for National & International web cast via NPTEL HQ at IITM.

**• Video Studio**

Captures using HD cameras educational content of lectures, shows, demonstrations, etc given by Authors of NPTEL Courses.

**• Sound & Broadcast Studio**

Edits sound in educational content created at IITG

**• Instruction Design Lab:**

Works on Instructional Design using Educational Psychology and Pedagogy to enhance educational content created at IITG for NPTEL, MOOCs and other NMEICT projects at CET.

**• Graphic Design Studio:** Gives graphic design inputs to educational content that is created and uploaded.

**• Server Room & Digital Archives:**

Provides a mirror Server , backup storage and preserves original Video& sound tapes on which educational content is recorded.

**• 3D Virtual Content Creation Lab:**

Conducts Research on creation of next generation 3D Virtual reality educational content using a Virtual Reality System with Headgear mount.

**• E-Learning Class Room:**

Provides all facilities to conduct IN Line lectures and connects across the Nation. Provides facilities for IITG Faculty to conduct Lectures in other IITs, & institutions from IITG campus. Has a seating capacity of 45 students. Students of IITG can attend Webcasts and lectures held elsewhere in other institutions. Due to space constraints Digital Recording Studio and Webcast Studios are co located in E-Learning class Room.

**• NKN-Video Conferencing Room:**

Provides Conferencing Facilities for 25 participants through NKN dedicated line using which IITG Faculty conduct classes for other IITs /Institutions from within IITG. This space also doubles up for use as Regular Conference & meeting room for CET.

**• VR Labs:** Physically located in individual departments at IITG in which ON Line & Remote Triggered Labs are operated.

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

Under NPTEL
HD Switcher
Panasonic PTZ Integrated HD Camera
Panasonic Multi function PTZ Camera Controller
P2 HD/SD Player Recorder
Data Video Multi format Live Switcher
Data Video Talk back system
Panasonic HD Camcorders
Panasonic 2/3" 3CCD Full HD Sensor Solid State P2 Memory Card Camcorder
Libec Tripod Set
Data Video HDR-55
Panasonic 1/3" 3 MOS Full HD Sensor Solid State P2 Memory Card Hand-Held Camcorder
Automatic Audio Mixer
Compact Audio Mixer
Vocal Set Wireless
Active Speakers Wall Mount
Panasonic HD 15" Monitor
Eduspot Lecture Capture Software with 2 nos. of Network PTZ Camera

Server, Make: IBM, Model: IBM X3500M4
MacBook Pro 13"
Mac Mini QudCore
<b>Under E Kalpa</b>
Macbook Air 13"
Godrej Workstation
Sennheiser Wireless G3 Series Eng Set EW12PG3
Handheld Portable Audio recorder

### MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT DURING 1 APRIL 2013 – 31 MARCH 2014:

Name	Courses Developed and Hosted Online	Labs De-veloped
NPTTEL	60 (49 web courses and 11 video Courses)	2
Virtual Reality Labs Project	141 experiments	18
D. Source	24 course; 14 case studies; 15 design resources	

### MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

Educational Content Creation, Pedagogy and Instructional Design Research, Multidisciplinary Teaching Applications using Online Educational Technology.

### RESEARCH PROJECTS

#### a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Pradeep Yammiyavar	Knowledge Incubation Cell	MHRD-TEQ-IP-II	250.00	-	3 years
Jatindra Kumar Deka	Pedagogy Research Project, Main Phase	MHRD	-	-	3 years

#### b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (years)
Pradeep Yammiyavar	QIP -Curriculum Development Cell	AICTE	72.00	-	Annual
Pradeep Yammiyavar	NPTTEL-II	NMEICT	325.84	-	3 years
Ratnajit Bhattacharjee	VR Lab	NMEICT	319.00	-	3 years
Jatin Kumar Deka	Pedagogy Research Project	NMEICT	91.94	-	3 years
Ravi Mokashi Punekar	D-Source -E-Kapla	NMEICT	157.00	-	3 years

#### c) Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakhs)	Co-Investigator	Duration
M. K. Bhuyan	Indian Sign Languages	MHRD	132.00	P. Bora	Completed in 2013

**RESEARCH PUBLICATIONS**

**Journals (International / National)**

Name of Author	Name of Paper	Name of Journal	Vol. and Issue No.	Page No.	Year of Publication
Shrikant Salve & Pradeep Yammiyavar	Towards proposing an intelligent error limiting User Interface for rural Indian data entry operators	Australian Journal of Intelligent Information Processing Systems	13 (4)	-	2014

**Conference/Workshop/Seminar/Symposia**

Name of Author/s	Name of Paper	Name of Conference	Vol. and Issue No.	Page No.	Year of Publication
Shrikant Salve and Pradeep Yammiyavar	Influence of Local 'Language' in Data Entry Errors: a Pilot Study in the Rural Indian Setting	IEEE Explorer	Paper ID: 2869377	-	24 Jul 2013
Raina Agarwal and Pradeep Yammiyavar	Bridging the Gap Between Traditional and Online Shopping Methods for Indian Customers Through Digital Interactive Experience	Proceedings of ICACCI 2013 2nd International Conference on Advances in Computing, Mysore, India Communication & Informatics; Mysore	Paper-ID: 156976042	-	22-25 Aug 2013
Arnita Saini and Pradeep Yammiyavar	: Weak Eyesight Therapy: A case study in designing an application for m-Health system	IEEE Proceedings of the International Conference on Human Computer Interaction 2013. Madras	362	-	Jul 2013
Yogesh Deshpande; Samit Bhattacharya; Pradeep Yammiyavar	A Study of the Impact of Task Complexity And Interface Design on E-Learning Task Adaptations	ACM Proceedings of the 11th Asia Pacific Conference on Computer Human Interaction , Bangalore	ISBN no. 978-1-4503-2253-9	-	Sep 2013
S. P. Ojha, P. G. Yammiyavar	Smart Assembly Systems: Need for Future Products,	Proceedings of National Conference in Recent Advancements in Mechanical Engineering, NERIST, Arunachal Pradesh		321-326	8-9 Nov 2013
Vikash Kumar and Pradeep Yammiyavar	Towards development of a tool for integration of sustainable development in education – a case study of design education in India	International Conference on Environment and Humanities, Eco-revolution; Pokhara, Nepal	ISBN: 978-62951-818-3	-	1 Oct 2013
Deshpande, Pradeep Yammiyavar & Samit Bahttacharya	Adaptation in Children - A GUI Interaction Based Task-Performance Study	Advances in Information and Communication Technology series, Springer	0407	-	Aug 2013



**SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED**

<b>Name of Sem./Wor./Con.</b>	<b>Funded By</b>	<b>Date</b>	<b>International/ National</b>	<b>Convener/ Co-ordinator/ Etc.</b>	<b>No. of participants</b>
National Workshop on use & deployment of NPTEL courses	MHRD Under NMEICT	29-30 Apr 2013	National	Prof. Pradeep Yammiyavar	112
Regional Workshop for Pedagogy Research Project at IIT Guwahati	MHRD Under NMEICT	15-16 Nov 2013	National	Dr. Jatin Deka	30
Bio-techniques for Pollution control & resource recovery	AICTE	1-5 Jul 2013	National	Dr. Kanan Pakshirajan	24
Molecular Tools in Medical Bio-Technology Investigations	AICTE	2-6 Dec 2013	National	Dr. Sanjukta Patra & Dr. Vishal Trivedi	13
Advanced Chemical Process Design	AICTE	8-12 Jul 2013	National	Dr. A. K. Goldar & Dr. Ramgopal Uppaluri	13
Role of Numeric analysis in Scientific computing	AICTE	20-24 May 2013	National	Dr. Srinivasan Natesan	25
Recent Advances in Network Algorithms	AICTE	9-13 Sep 2013	National	Dr. Sushant Karmakar	35
Opto electronics & Optical Communication	AICTE	16-20 Sep 2013	National	Dr. R. Sonkar & Dr. T Venkatesh	30
Applications of Lasers in Manufacturing	AICTE	24-28 Jun 2013	National	Dr. M. Ravi Sankar & Prof. U. S. Dixit	25
Geotechnical Engineering Practices & Developments	AICTE	6-10 Jan 2014	National	Dr. A. Murali Krishna & Dr. A Dey	35

**PATENTS**

IPR- Copy Rights of 60 uploaded NPTEL courses contents under 'Creative Commons' have been secured.

**FACULTY MEMBERS ASSOCIATED WITH THE CENTRE**

<b>Sl. No.</b>	<b>Name</b>	<b>Designation and Department</b>
1	Ratnajit Bhattacharjee, PhD	Professor, Department of Electronics and Electrical Engineering
2	Jatin Deka, PhD	Associate Professor, Department of Computer Science and Engineering
3	R. Mokashi Punekar, PhD	Professor, Department of Design
4	Pradeep Yammiyavar, PhD	Professor, Department of Design and Head, Centre for Educational Technology

# CENTRAL INSTRUMENTS FACILITY

**YEAR OF ESTABLISHMENT OF THE CENTRE:** 2004

**EXISTING FACILITIES (MAJOR EQUIPMENT):**

- 400 MHz Nuclear Magnetic Resonance (NMR) Spectrometer, Make: Varian, Model: Mercury plus
- Electron Spin Resonance (ESR) Spectrometer, Make: JEOL, Model: JES-FA200
- Scanning Electron Microscope (SEM), Make: LEO, Model: 1430vp
- Confocal Laser Scanning Microscope (CLSM), Make: Zeiss, Model: LSM 510Meta
- Field Emission Scanning Electron Microscope (FESEM), Make: Zeiss, Model: Sigma
- Atomic Force Microscope (AFM) and Scanning Tunneling Microscope (STM), Make: Agilent, Model 5500 series
- Laser Micro Raman System, Make: Horiba Jobin Vyon, Model LabRam HR
- High Temperature Differential Scanning Calorimetry (DSC)/Thermo Gravimetric (TG) System, Make: Netzsch Model: STA449F3A00
- Transmission Electron Microscope (TEM), Make: JEOL, Model: JEM 2100
- Vibrating Sample Magnetometer (VSM), Make: Lakeshore, Model:7410 series
- Liquid Chromatography Mass Spectrometer (LCMS/MS), Make: Waters, Model: Q-ToF Premier
- Picosecond Time-resolved cum Steady State Luminescence Spectrometer, Make: Eddinburg Instruments, Model: FSP920
- Desktop Helium Liquefier, Make: Cryomech, Model: LHEP18
- Physical Property Measurement System (PPMS), Make: Quantum Design, Model: PPMS-9
- Nanoindentor Make: CETR, Model: UNMT-1
- Spectroscopic Ellipsometer Make: SEMILAB, Model: GESSE
- Single Crystal X-ray Diffractometer, Make: Agilent Model: Single source supernova E (Mo source).
- Surface Area and pore size analyzer and high pressure surface analyzer, Make: Quantachrome Instruments, Model: Autosorb, IQ MP
- Impedance and Material Analyzer (IMA), Make: Quantachrome Instruments, Model: Autosorb, IQ MP
- 600 MHz Nuclear Magnetic Resonance (NMR) Spectrometer, Make: Bruker, Model: Ascend 600

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED DURING 1 APRIL 2013 – 31 MARCH 2014:**

- Micro Particle Image Velocimetry, Euro 74,766.29
- Isothermal Titration Calorimeter, \$ 80,000
- High Temperature Gel Permeation Chromatography, \$108,000

No of B.Tech/M.Tech/M.Sc/Research projects/Ph.D thesis/Journal publications/patents completed/published using the CIF facilities in the reporting year 2013 (Based on the data received from 78 of the 112 institutes using the facility)

- B. Tech/ M. Tech/ M.Sc./Ph. D. Projects completed using the CIF facilities: 107
- Journal publications (International) using the CIF facilities : 234
- Journal publications (National) using the CIF facilities: 08
- Conference proceedings (International) using the CIF facilities: 57
- Conference proceedings (National) using the CIF facilities: 24

**SPECIAL MENTION:**

- X-ray crystallography for large molecule (protein) – an instrument procured by a DST funded project will be installed in CIF and will be available for the user of CIF.
- An amount equals to Rs. 91,232.00 approximately has been collected as charges of external samples analysis for the period from 1st April 2013 to 31st March 2014.
- Institutes benefited from the facilities of CIF \*
  1. Gauhati University, Guwahati
  2. Tezpur University, Tezpur
  3. Manipur University, Manipur
  4. Girizananda Institute of Pharmaceutical Science, Guwahati
  5. National Institute of Technology (NIT) Tiruchiraapalli
  6. Banaras Hindu University, Varanasi
  7. North Eastern Hill University (NEHU), Shillong
  8. Assam Don Bosco University, Guwahati
  9. Veterinary College, Khanapara

10. Institute of Advanced Study in Science and Technology (IASST), Guwahati
11. Aligarh Muslim University (AMU), Aligarh
12. Shri Shankardeva Nethralaya, Guwahati
13. National Institute of Technology (NIT) Silchar
14. Regional Dental College & Hospital, Guwahati
15. C. Abdul Hakeem College of Engineering and Technology, Melvisharam
16. Regional Institute of Pharmaceutical Science and Technology, Agartala
17. Central Institute of Technology (CIT), Khokrajhar
18. Institute of Bioresources and Sustainable Development, Manipur
19. North Eastern Regional Institute of Science and Technology (NERIST), Itanagar

\* Sample from North Eastern academic/research institutes are analyzed at a discounted charge.

**FACULTY MEMBERS ASSOCIATED WITH THE CENTRE**

G. Krishnamoorthy, Associate Professor, Department of Chemistry and Head, Central Instruments Facility

# COMPUTER AND COMMUNICATION CENTRE

## INTRODUCTION

The Computer and Communication Centre of IIT Guwahati is the central computing resource pool of the institute. The Computer and Communication Centre is responsible for:

- Providing Email service and Internet connectivity to the institute
- Catering to the general purpose as well as high computational need of the users
- Maintenance of the campus network
- Hosting and maintenance of Institute's web pages
- Providing EPABX services
- Providing Office Automation services

The Computer and Communication Centre has been involved in development of several in-house software packages. It is also providing assistance to other academic institute of north-east region of India. The centre also conducts summer training to facilitate external students.

The computer lab of the centre presently has more than 280 computers with configurations like 4 GB RAM, tri/core-i3 processors etc. The lab remains open for 16 hours in a day which is accessible to all authorized users of the Institute. Computer practical for the common courses are held in the Centre. The computer lab facilities of the Centre are also extended to the students of other institutes. The resources of the Centre are constantly upgraded to meet the ever evolving standards of information technology.

The Computer and Communication Centre provide and maintain the PCs of the faculty and staff members of the Institute. In addition to providing direct support to the members of the Institute, the Computer and Communication Centre also frequently hosts write-ups (HOW-TOs, FAQs etc.) in its Intranet website. The Centre also maintains an online E-Notice board for posting and viewing notices electronically campus-wide, a web-

based Complain Management Information System etc.

## MAJOR EQUIPMENT AND FACILITIES

The major equipment purchased in the last financial year are:

### Computer Network Enhancement

The centre is responsible for providing the network connectivity to upcoming hostels/building as well as to reinforce the existing network infrastructure. To cater the need a number of network equipment were purchased. They include managed and unmanaged gigabit network switches, Wall-mount racks, LIUs etc. The center has also extended the network and voice facility to some new offices and infrastructures, like IITG staff canteen, new sports complex, new academic extension blocks of various departments.

Apart from these, Centralized Wi-Fi connectivity with ldap-based single sign-on and guest logins has been provided in whole Academic Building, Administration, CCC & Library, Guest House, old Sports complex and extending this facility in new areas. We have procured 2 (two) nos. Wireless Controllers alongwith 200 nos. Of Wireless Access Points for the implementation of the same.

### Servers and PCs

On the Server front, the Computer Centre has two Clusters – one high availability Cluster meant for regular programming and the other is meant for High Performance Computing (HPC), which is integrated with the Nation-wide Garuda Grid. Apart from these, a mix of high-end Servers from IBM, Dell, SUN, and HP caters to the need for Authentication, E-mail, Proxy, Automation and Web services. This year, the mail storage have been upgraded with an addition of a new storage enclosure which has increased the storage space by another 8TB. This upgradation has enabled us to double the mailbox size of all students. Moreover, a

local DNS server has been moved to new independent hardware for better performance, and another one is in the process of migration.

#### **Renewal/Procurement of MoU/ Licenses/Softwares**

This year the Centre has procured Matlab software with 165 licenses and implemented the same for long pending computing needs of various departments. The Centre has also upgraded Gaussian software. The centre has procured Plagiarism detection Software TURNITIN with 1000 student user licenses.

#### **Expansion of existing EPABX system**

With the expansion of the campus, the Computer Centre has increased the capability of the existing EPABX system and also extended its telephone network to new offices and expansion wings of the institute.

#### **Office Automation Services**

The Computer and Communication Centre has been involved in development of several in-house software packages for providing services to institute's various office automation work. This include online (Dual-Degree+MA+MTech-MDes+PhD) application as well as data process, Training and Placement, Student Course Registration, Alumni Registration, Student Affairs, Faculty Online Leave, Staff Administration, Faculty Administration, Student Course Feedback and e-Payment application. This year, we are planning to implement R & D application and Payroll application.

#### **ONGOING SPONSORED PROGRAMMES**

##### **National Knowledge Network (NKN) Project**

Our Institute is an active partner of the National Knowledge Network (NKN). Presently, we have been connected with 1Gbps connectivity for video

conferences, virtual classrooms and high-speed internet services. Regular project meetings and important events are attended through this NKN virtual classroom.

#### **ERNET Point of Presence**

IIT Guwahati, a PoP (Point-of-Presence) for ERNET India in the whole of North-Eastern India is entrusted with the task of networking the academic institutions of the region and provide technical assistance where required. Currently, eleven educational and research institutes have taken Internet connectivity from the ERNET PoP.

The ERNET node is upgraded with high end Juniper routers, switches and firewalls. Now, the PoP backbone is upgraded to 1 Gbps connectivity to Delhi, Mumbai and Kolkata.

#### **CONSULTANCY AND OTHER COMMUNITY SERVICES**

The computer Centre has been involved in setting up of campus network and providing consultancy services to nearby educational institutes and state government departments as and when needed.

#### **WORKSHOPS ATTENDED**

1. Mr. Iqbal Inam attended GARUDA boot camp during 21-22 January 2014 at C-DAC, Bangalore.
2. Mr. P. K. Dutta attended workshop on Big data analytics on 15 February 2014 at Knowledge Park, C-DAC, Bangalore.

#### **FACULTY MEMBER ASSOCIATED WITH THE CENTRE**

Diganta Goswami, Professor, Computer Science and Engineering and Head, Computer and Communication Centre



**PART III**

**APPENDICES**

**Faculty**

**Officers and Scientific Staff (Group A)**

**Degree Awardees**

**Progress in Construction Works**

**Details of Research and Development Projects**

**Summary of Institute Accounts**





## Appendix-I

# FACULTY

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Baskaran, A.	Asst. Professor	Biotechnology
Bora, U.	Assoc. Professor	Biotechnology
Bose, B.	Assoc. Professor	Biotechnology
Chaturvedi, R.	Professor	Biotechnology
Chaudhary, N.	Asst. Professor	Biotechnology
Das, D.	Assoc. Professor	Biotechnology
Dasu, V. V.	Professor	Biotechnology
Dubey, V. K.	Professor	Biotechnology
Ghosh, S. S.	Professor	Biotechnology
Goswami, P.	Professor	Biotechnology
Goyal, A.	Professor	Biotechnology
Jaganathan, B. G.	Asst. Professor	Biotechnology
Kanaujia, S. P.	Asst. Professor	Biotechnology
Kumar, M.	Asst. Professor	Biotechnology
Kumar, S.	Asst. Professor	Biotechnology
Kunnumakkara, A. B.	Asst. Professor	Biotechnology
Limaye, A. M.	Asst. Professor	Biotechnology
Maiti, S. K. (From 18.03.2014)	Asst. Professor	Biotechnology
Mandal, B. B.	Asst. Professor	Biotechnology
Pakshirajan, K.	Assoc. Professor	Biotechnology
Pandey, L. M. (From 19.03.2014)	Asst. Professor	Biotechnology
Patra, S.	Assoc. Professor	Biotechnology
Ramakrishnan, V.	Asst. Professor	Biotechnology
Ramesh, A.	Assoc. Professor	Biotechnology
Rangan, L.	Professor	Biotechnology
Sahu, L.	Assoc. Professor	Biotechnology
Saini, G. K.	Assoc. Professor	Biotechnology
Sivaprakasam, S.	Asst. Professor	Biotechnology
Sukumar, P.	Asst. Professor	Biotechnology
Swaminathan, R.	Professor	Biotechnology
Tamuli, R.	Assoc. Professor	Biotechnology
Trivedi, V.	Assoc. Professor	Biotechnology
Bandyopadhyay, D.	Asst. Professor	Chemical Engineering
Banerjee, T.	Assoc. Professor	Chemical Engineering
Das, C.	Asst. Professor	Chemical Engineering
De, M.	Asst. Professor	Chemical Engineering
Ghosh, P.	Professor	Chemical Engineering
Ghoshal, A. K.	Professor	Chemical Engineering
Golder, A. K.	Asst. Professor	Chemical Engineering

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Goud, V. V.	Asst. Professor	Chemical Engineering
Gumma, S.	Assoc. Professor	Chemical Engineering
Katiyar, V.	Asst. Professor	Chemical Engineering
Kishore, N.	Asst. Professor	Chemical Engineering
Kotecha, P.	Asst. Professor	Chemical Engineering
Kumar, A.	Asst. Professor	Chemical Engineering
Mahapatra, A. D.	Asst. Professor	Chemical Engineering
Majumder, S. K.	Assoc. Professor	Chemical Engineering
Mandal, B.	Assoc. Professor	Chemical Engineering
Mandal, T. K.	Asst. Professor	Chemical Engineering
Mohanty, K.	Assoc. Professor	Chemical Engineering
Moholkar, V. S.	Professor	Chemical Engineering
Pugazhenthii, G.	Assoc. Professor	Chemical Engineering
Purkait, M. K.	Assoc. Professor	Chemical Engineering
Rajaraman, P. V. (From 25.04.2013)	Asst. Professor	Chemical Engineering
Saha, P. K.	Professor	Chemical Engineering
Singh, A.	Assoc. Professor	Chemical Engineering
Subbiah, S. (From 29.10.2013)	Asst. Professor	Chemical Engineering
Tiwari, P.	Asst. Professor	Chemical Engineering
Upadhyay, R. K.	Asst. Professor	Chemical Engineering
Uppaluri, R. G. V. S.	Professor	Chemical Engineering
Vairakannu, P.	Asst. Professor	Chemical Engineering
Verma, A.	Assoc. Professor	Chemical Engineering
Bag, S. S.	Assoc. Professor	Chemistry
Baruah, J. B.	Professor	Chemistry
Biswas, S. P. (From 01.07.2013)	Asst. Professor	Chemistry
Chatterjee, S. (From 02.12.2013)	Asst. Professor	Chemistry
Chattopadhyay, A.	Professor	Chemistry
Das, D.	Asst. Professor	Chemistry
Das, G.	Professor	Chemistry
Dutta, S.	Asst. Professor	Chemistry
Gupta, A. K.	Assoc. Professor	Chemistry
Iyer, P. K.	Professor	Chemistry
Jana, C. K.	Asst. Professor	Chemistry
Khan, A. T.	Professor	Chemistry
Krishnamoorthy, G.	Assoc. Professor	Chemistry
Kundu, L. M.	Asst. Professor	Chemistry
Mahata, K. (From 25.02.2013)	Asst. Professor	Chemistry
Mandal, B.	Assoc. Professor	Chemistry
Manivannan, V.	Professor	Chemistry
Manna, D.	Asst. Professor	Chemistry
Mondal, B.	Assoc. Professor	Chemistry
Mukherjee, C.	Asst. Professor	Chemistry
Pan, S. C.	Asst. Professor	Chemistry
Panda, A. N.	Assoc. Professor	Chemistry
Patel, B. K.	Professor	Chemistry
Paul, A.	Assoc. Professor	Chemistry
Paul, S.	Assoc. Professor	Chemistry
Punniyamurthy, T.	Professor	Chemistry
Qureshi, M.	Assoc. Professor	Chemistry
Ray, M.	Professor	Chemistry
Sahu, K.	Asst. Professor	Chemistry
Saikia, A. K.	Professor	Chemistry

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Sarma, M.	Asst. Professor	Chemistry
Sastri, C. V.	Asst. Professor	Chemistry
Sudhakar, A. A.	Asst. Professor	Chemistry
Barua, G.	Assoc. Professor	Civil Engineering
Bharat, T. V.	Asst. Professor	Civil Engineering
Bhattacharjya, R. K.	Assoc. Professor	Civil Engineering
Chakraborty, A.	Assoc. Professor	Civil Engineering
Chakraborty, S.	Professor	Civil Engineering
Choudhury, R.	Asst. Professor	Civil Engineering
Das, S.	Asst. Professor	Civil Engineering
Dasgupta, K.	Asst. Professor	Civil Engineering
Deb, S. K.	Professor	Civil Engineering
Dey, A.	Asst. Professor	Civil Engineering
Dutta, A.	Professor	Civil Engineering
Dutta, S.	Professor	Civil Engineering
Ghosh, P. K.	Assoc. Professor	Civil Engineering
Gokhale, S. B.	Assoc. Professor	Civil Engineering
Goyal, M. K.	Asst. Professor	Civil Engineering
Jawed, M.	Professor	Civil Engineering
Kalamdhad, A.	Asst. Professor	Civil Engineering
Kartha, S. A.	Assoc. Professor	Civil Engineering
Kaushik, H. B.	Assoc. Professor	Civil Engineering
Kumar, B.	Asst. Professor	Civil Engineering
Mahanta, C.	Professor	Civil Engineering
Mallikarjuna, C.	Assoc. Professor	Civil Engineering
Maurya, A. K.	Assoc. Professor	Civil Engineering
Mishra, A. K.	Asst. Professor	Civil Engineering
Murali Krishna, A.	Assoc. Professor	Civil Engineering
Pekkat, S.	Assoc. Professor	Civil Engineering
Pradhan, B.	Assoc. Professor	Civil Engineering
Ryntathiang, T. L.	Assoc. Professor	Civil Engineering
Sarma, A. K.	Professor	Civil Engineering
Sekharan, S.	Assoc. Professor	Civil Engineering
Sharma, H.	Asst. Professor	Civil Engineering
Shelke, A. (From 04.07.2013)	Asst. Professor	Civil Engineering
Singh, A. K.	Professor	Civil Engineering
Singh, B.	Professor	Civil Engineering
Singh, K. D.	Assoc. Professor	Civil Engineering
Singh, L. B.	Asst. Professor	Civil Engineering
Talukdar, S.	Professor	Civil Engineering
Anand, A.	Asst. Professor	Computer Science & Engineering
Awekar, A. C.	Asst. Professor	Computer Science & Engineering
Barua, G.	Professor	Computer Science & Engineering
Bhaduri, P.	Professor	Computer Science & Engineering
Bhattacharya, S.	Asst. Professor	Computer Science & Engineering
Biswas, S.	Assoc. Professor	Computer Science & Engineering
Dandapat, S. (Up to 30.05.2014)	Asst. Professor	Computer Science & Engineering
Das, P. K.	Assoc. Professor	Computer Science & Engineering
Deka, J. K.	Assoc. Professor	Computer Science & Engineering
Goswami, D.	Professor	Computer Science & Engineering
Inkulu, R.	Asst. Professor	Computer Science & Engineering
Kapoor, H. K.	Assoc. Professor	Computer Science & Engineering
Karmakar, S.	Asst. Professor	Computer Science & Engineering

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Kenkireth, B. G.	Asst. Professor	Computer Science & Engineering
Kesh, D.	Asst. Professor	Computer Science & Engineering
Mitra, P.	Assoc. Professor	Computer Science & Engineering
Nair, S. B.	Professor	Computer Science & Engineering
Nandi, S.	Professor	Computer Science & Engineering
Rao, S. V.	Professor	Computer Science & Engineering
Sahu, A.	Asst. Professor	Computer Science & Engineering
Sajith, G.	Professor	Computer Science & Engineering
Saradhi, V. V.	Asst. Professor	Computer Science & Engineering
Sarkar, A.	Asst. Professor	Computer Science & Engineering
Shannigrahi, S.	Asst. Professor	Computer Science & Engineering
Singh, S. R.	Asst. Professor	Computer Science & Engineering
Sur, A.	Asst. Professor	Computer Science & Engineering
Venkatesh, T.	Asst. Professor	Computer Science & Engineering
Banerjee, S. (From 02.08.2013)	Asst. Professor	Design
Barua, U.	Assoc. Professor	Design
Bokil, P.	Asst. Professor	Design
Chakrabarti, D.	Professor	Design
Das, A. K.	Professor	Design
Dharmalingam, U. K.	Asst. Professor	Design
Iqbal, S.	Asst. Professor	Design
Karmakara, S.	Asst. Professor	Design
Madhukaillya, M.	Asst. Professor	Design
Majhi, M.	Asst. Professor	Design
Omkar, P. S. (24.06.2013 - 26.12.2013)	Asst. Professor	Design
Punekar, R. M.	Professor	Design
Shende, A.	Asst. Professor	Design
Sorathia, K. B.	Asst. Professor	Design
Swain, A. K. (Up to 26.11.2013)	Asst. Professor	Design
Yammiyavar, P. G.	Professor	Design
Ahamed, S. R.	Assoc. Professor	Electronics & Electrical Engineering
Bhattacharjee, R.	Professor	Electronics & Electrical Engineering
Bhuyan, M. K.	Assoc. Professor	Electronics & Electrical Engineering
Bora, P. K.	Professor	Electronics & Electrical Engineering
Bose, S. K.	Professor	Electronics & Electrical Engineering
Chatterjee, A.	Visiting Asst. Professor	Electronics & Electrical Engineering
Chouhan, S.	Asst. Professor	Electronics & Electrical Engineering
Dandapat, S.	Professor	Electronics & Electrical Engineering
Das, S.	Asst. Professor	Electronics & Electrical Engineering
Dhaka, K. (From 20.05.2013)	Asst. Professor	Electronics & Electrical Engineering
Gogoi, A. K.	Professor	Electronics & Electrical Engineering
Guha, P.	Asst. Professor	Electronics & Electrical Engineering
Jacob, T.	Asst. Professor	Electronics & Electrical Engineering
Kar, I.	Asst. Professor	Electronics & Electrical Engineering
Karthik, K.	Assoc. Professor	Electronics & Electrical Engineering
Krishnaswamy, S.	Asst. Professor	Electronics & Electrical Engineering
Kumar, P.	Asst. Professor	Electronics & Electrical Engineering
Mahanta, C.	Professor	Electronics & Electrical Engineering
Majhi, S.	Professor	Electronics & Electrical Engineering
Nayak, S. K.	Asst. Professor	Electronics & Electrical Engineering
Nemade, H. B.	Professor	Electronics & Electrical Engineering
Pal, D.	Asst. Professor	Electronics & Electrical Engineering
Palathinkal, R. P.	Professor	Electronics & Electrical Engineering

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Prasanna, S. R. M.	Professor	Electronics & Electrical Engineering
Rai, B. K.	Asst. Professor	Electronics & Electrical Engineering
Rajesh, A.	Assoc. Professor	Electronics & Electrical Engineering
Sahu, P. R.	Assoc. Professor	Electronics & Electrical Engineering
Sethi, A.	Asst. Professor	Electronics & Electrical Engineering
Shrestha, G. B.	Visiting Professor	Electronics & Electrical Engineering
Singh, K. R.	Assoc. Professor	Electronics & Electrical Engineering
Sinha, R.	Assoc. Professor	Electronics & Electrical Engineering
Sonkar, R. K.	Asst. Professor	Electronics & Electrical Engineering
Sundaram, S. (From 15.07.2013)	Asst. Professor	Electronics & Electrical Engineering
Tripathy, P.	Asst. Professor	Electronics & Electrical Engineering
Trivedi, G.	Asst. Professor	Electronics & Electrical Engineering
Barua, A.	Professor	Humanities and Social Sciences
Barua, A.	Assoc. Professor	Humanities and Social Sciences
Barua, K.	Professor	Humanities and Social Sciences
Bedamatta, R.	Asst. Professor	Humanities and Social Sciences
Borbora, S.	Professor	Humanities and Social Sciences
Chaterjee, B. (From 01.01.2014)	Vis. Professor	Humanities and Social Sciences
Das, D.	Assoc. Professor	Humanities and Social Sciences
Das, L.	Assoc. Professor	Humanities and Social Sciences
Dutta, M. K.	Assoc. Professor	Humanities and Social Sciences
Hussain, D.	Asst. Professor	Humanities and Social Sciences
Kashyap, N.	Asst. Professor	Humanities and Social Sciences
Mahanta, S.	Assoc. Professor	Humanities and Social Sciences
Mallick, S.	Assoc. Professor	Humanities and Social Sciences
Punekar, R. M.	Professor	Humanities and Social Sciences
Ray, S.	Asst. Professor	Humanities and Social Sciences
Robinson, R.	Professor	Humanities and Social Sciences
Saikia, A.	Assoc. Professor	Humanities and Social Sciences
Saikia, P.	Asst. Professor	Humanities and Social Sciences
Sarmah, P.	Asst. Professor	Humanities and Social Sciences
Sengupta, B.	Asst. Professor	Humanities and Social Sciences
Sharma, S.	Assoc. Professor	Humanities and Social Sciences
Som, B.	Assoc. Professor	Humanities and Social Sciences
Tripathi, N.	Assoc. Professor	Humanities and Social Sciences
Venkataraman, P.	Assoc. Professor	Humanities and Social Sciences
Alam, R.	Professor	Mathematics
Bandyopadhyay, S.	Asst. Professor	Mathematics
Bhattacharjya, B.	Asst. Professor	Mathematics
Bora, S.	Assoc. Professor	Mathematics
Bora, S. N.	Professor	Mathematics
Chakrabarty, A. K.	Asst. Professor	Mathematics
Chakrabarty, S. P.	Asst. Professor	Mathematics
Dalal, D. C.	Professor	Mathematics
Das, G. K.	Asst. Professor	Mathematics
Deka, B. (From 24.01.2014)	Asst. Professor	Mathematics
Dey, A. K.	Asst. Professor	Mathematics
Dutta, S.	Asst. Professor	Mathematics
Kalita, J. C.	Professor	Mathematics
Kamal, S.	Asst. Professor	Mathematics
Kapoor, K.	Assoc. Professor	Mathematics
Krishna, K. V.	Assoc. Professor	Mathematics
Kumar, P.	Asst. Professor	Mathematics

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Mandal, P. S.	Asst. Professor	Mathematics
Mitra, D.	Asst. Professor	Mathematics
Palaparthi, A. S. S. K.	Asst. Professor	Mathematics
Pati, S.	Assoc. Professor	Mathematics
Prasad, M. G. P.	Professor	Mathematics
Ramesh, H.	Asst. Professor	Mathematics
Saikia, A.	Assoc. Professor	Mathematics
Sarma, B. K.	Professor	Mathematics
Selvaraju, N.	Assoc. Professor	Mathematics
Sinha, R. K.	Professor	Mathematics
Srikanth, K. V.	Asst. Professor	Mathematics
Srinivasan, N.	Professor	Mathematics
Srivastava, R. K.	Asst. Professor	Mathematics
Swain, J.	Asst. Professor	Mathematics
Upadhyay, S.	Asst. Professor	Mathematics
Wagh, V. V.	Asst. Professor	Mathematics
Bag, S.	Asst. Professor	Mechanical Engineering
Bandopadhyaya, D.	Asst. Professor	Mechanical Engineering
Banerjee, A.	Asst. Professor	Mechanical Engineering
Basu, D. N.	Asst. Professor	Mechanical Engineering
Biswas, G. (From 06.09.2013)	Professor and Director	Mechanical Engineering
Biswas, P.	Asst. Professor	Mechanical Engineering
Chakraborty, D.	Professor	Mechanical Engineering
Dalal, A.	Asst. Professor	Mechanical Engineering
Das, M.	Asst. Professor	Mechanical Engineering
Dass, A. K.	Professor	Mechanical Engineering
De, A. K.	Asst. Professor	Mechanical Engineering
Dixit, U. S.	Professor	Mechanical Engineering
Dwivedy, S. K.	Professor	Mechanical Engineering
Gadgil, H. P.	Asst. Professor	Mechanical Engineering
Gautam, S. S. (From 27.06.2013)	Asst. Professor	Mechanical Engineering
Gavara, M. R.	Asst. Professor	Mechanical Engineering
Joshi, S. N.	Asst. Professor	Mechanical Engineering
Kakoty, S. K.	Professor	Mechanical Engineering
Kalita, K.	Asst. Professor	Mechanical Engineering
Kanagaraj, S.	Assoc. Professor	Mechanical Engineering
Kore, S. D.	Asst. Professor	Mechanical Engineering
Krishna Murthy, K. S. R.	Assoc. Professor	Mechanical Engineering
Kulkarni, V. N.	Asst. Professor	Mechanical Engineering
Kumari, P. (From 01.07.2013)	Asst. Professor	Mechanical Engineering
Mahanta, P.	Professor	Mechanical Engineering
Mamilla, R. S.	Asst. Professor	Mechanical Engineering
Mishra, S. C.	Professor	Mechanical Engineering
Muthukumar, P.	Assoc. Professor	Mechanical Engineering
Narayanan, R. G.	Asst. Professor	Mechanical Engineering
Natarajan, G.	Asst. Professor	Mechanical Engineering
Pal, S.	Asst. Professor	Mechanical Engineering
Panda, S.	Asst. Professor	Mechanical Engineering
Pandey, M.	Professor	Mechanical Engineering
Rajendraswami, S. R. (From 17.04.2013)	Asst. Professor	Mechanical Engineering
Reddy, A. N.	Asst. Professor	Mechanical Engineering
Robi, P. S.	Professor	Mechanical Engineering
Saha, U. K.	Professor	Mechanical Engineering

<b>Name</b>	<b>Designation</b>	<b>Department</b>
Sahasrabudhe, A. D.	Professor	Mechanical Engineering
Sahoo, N.	Assoc. Professor	Mechanical Engineering
Senthilvelan, S.	Assoc. Professor	Mechanical Engineering
Sharma, D.	Asst. Professor	Mechanical Engineering
Somayaji, C.	Asst. Professor	Mechanical Engineering
Tiwari, R.	Professor	Mechanical Engineering
Agarwal, P.	Professor	Physics
Alagarsamy, P.	Assoc. Professor	Physics
Basu, S.	Professor	Physics
Bhattacharya, S. (From 15.10.2013)	Asst. Professor	Physics
Bhattacharya, S.	Asst. Professor	Physics
Bhuyan, B.	Assoc. Professor	Physics
Boruah, B. R.	Assoc. Professor	Physics
Chakrabarti, S. K. (From 16.09.2013)	Asst. Professor	Physics
Das, S.	Asst. Professor	Physics
Dey, T. N.	Asst. Professor	Physics
Ghosh, S.	Assoc. Professor	Physics
Giri, P. K.	Professor	Physics
Goswami, D. K. (Up to 10.12.2013)	Assoc. Professor	Physics
Kadolkar, C. Y.	Assoc. Professor	Physics
Khare, A.	Professor	Physics
Khijwania, S. K.	Assoc. Professor	Physics
Kumar, G. (From 08.10.2013)	Asst. Professor	Physics
Lahiri, J. (From 12.11.2013)	Asst. Professor	Physics
Maity, D.	Asst. Professor	Physics
Nandi, S.	Asst. Professor	Physics
Nandy, M. K.	Assoc. Professor	Physics
Padmanabhan, P. K.	Assoc. Professor	Physics
Pal, D.	Assoc. Professor	Physics
Pamu, D.	Asst. Professor	Physics
Poulose, P.	Assoc. Professor	Physics
Raha, U.	Asst. Professor	Physics
Ravi, S.	Professor	Physics
Santra, S. B.	Professor	Physics
Sarma, A. K.	Assoc. Professor	Physics
Setlur, G. S.	Assoc. Professor	Physics
Sharma, A. K.	Asst. Professor	Physics
Sil, A.	Asst. Professor	Physics
Srinivasan, A.	Professor	Physics
Thota, S.	Asst. Professor	Physics
Tripathi, S. M. (From 24.10.2013)	Asst. Professor	Physics

# OFFICERS AND SCIENTIFIC STAFF (GROUP A)

## Officers (Group A)

Name	Designation	Dept./Section
Raychoudhury, B. N.	Registrar	Registrar's Office
Barua, S. K.	Deputy Registrar	Academic Affairs
Bhuyan, K.	Deputy Registrar	Quality Improvement Programme
Boro, D.	Deputy Registrar	Alumni Affairs and External Relations
Das, U. C.	Deputy Registrar	Research and Development
Goswami, D. J.	Deputy Registrar	Administration (on deputation)
Mishra, Amardip	Deputy Registrar	Finance and Accounts
Sharma, D.	Deputy Registrar	Administration
Borgohain, P.	Assistant Registrar	Faculty Affairs
Choudhury, S.	Assistant Registrar	Establishment
Das, G.	Assistant Registrar	Engineering Section
Deka, S.	Assistant Registrar	Administration (on lien)
Haokip, T. T.	Assistant Registrar	Medical
Kakati, M.	Assistant Registrar	Students' Affairs
Konwar, L. K.	Assistant Registrar	Public Relations
Mandal, S.	Assistant Registrar	Stores and Purchase
Salhotra, N. D.	Assistant Registrar	Legal Cell
Goswami, A.	Superintending Engineer (Elect.)	Engineering Section
Singh, T. J.	Superintending Engineer (Civil)	Engineering Section
Baishya, P. (Up to 31.01.2014)	Exe. Engineer (Civil)	Engineering Section
Bhagawati, D.	Exe. Engineer (Elect.)	Engineering Section
Roy, N.	Exe. Engineer (Civil)	Engineering Section
Dutta, D.	Asst. Exe. Eng. (Civil)	Engineering Section
Gogoi, A. K.	Asst. Exe. Eng. (Civil)	Engineering Section
Sarma, N. K.	Asst. Exe. Eng. (Civil)	Engineering Section
Senapati, S.	Asst. Exe. Eng. (Civil)	Engineering Section
Guha, T. K.	Librarian	Central Library
Saibaba, B.	Deputy Librarian	Central Library
Rajbangshi, R. K.	Assistant Librarian	Central Library
Borthakur, M.	Chief Medical Officer (NFSG)	Medical
Barua, L.	Chief Medical Officer (NFSG)	Medical
Baruah, A. K.	Chief Medical Officer (NFSG)	Medical
Gogoi, L. C.	Sr. Security Officer	Security



**Scientific Staff (Group A)**

<b>Name</b>	<b>Designation</b>	<b>Department/Centre</b>
Biswanath, H.	Scientific Officer Gr. II	Chemical Engineering
Kalita, R.	Scientific Officer Gr. II	Chemical Engineering
Das, B.	Scientific Officer Gr. II	Chemistry
Borsaikia, A. C.	Technical Officer Gr. I	Civil Engineering
Saikia, J.	Scientific Officer Gr. II	Civil Engineering
Borah, B.	Scientific Officer Gr. II	Computer Science and Engineering
Kachari, N. A.	Scientific Officer Gr. II	Computer Science and Engineering
Das, M. P.	Scientific Officer Gr. II	Electronics and Electrical Engineering
Das, S.	Technical Officer Gr. I	Electronics and Electrical Engineering
S., Josephine	Scientific Officer Gr. II	Electronics and Electrical Engineering
Sharma, L. N.	Technical Officer Gr. I	Electronics and Electrical Engineering
Paul, P.	Scientific Officer Gr. II	Mechanical Engineering
Saikia, R.	Scientific Officer Gr. II	Mechanical Engineering
Sarma, D. K. (on lien)	Workshop Supdt.	Mechanical Engineering
Sarma, S.	Technical Officer Gr. I	Physics
Borgohain, C.	Technical Officer Gr. I	Central Instruments Facility
Senapati, K. K. (on lien)	Scientific Officer Gr. II	Central Instruments Facility
Barbora, L.	Scientific Officer Gr. II	Centre for Energy
Deka, D.	Scientific Officer Gr. II	Centre for the Environment
Borah, M. M.	Scientific Officer Gr. II	Computer and Communication Centre
Das, S.	Scientific Officer Gr. II	Computer and Communication Centre
Dutta, P. K.	Technical Officer Gr. I	Computer and Communication Centre
Ghosh, J. K.	Scientific Officer Gr. II	Computer and Communication Centre
Inam, I.	Scientific Officer Gr. II	Computer and Communication Centre
Islam, J.	Scientific Officer Gr. II	Computer and Communication Centre
Saikia, G. K.	Scientific Officer Gr. II	Computer and Communication Centre
Sairam, A. S. (on lien)	Technical Officer Gr. I	Computer and Communication Centre
Acharyya, K.	Scientific Officer Gr. II	Nanotechnology
Das, P.	Scientific Officer Gr. II	Nanotechnology

# DEGREE AWARDEES

In the 15th Convocation held on 8 June 2013, 940 students were awarded degrees in the following disciplines:

## Four Year BTech and BDes

Programme	Degree Awarded
Biotechnology	32
Civil Engineering	46
Chemical Engineering	44
Computer Science and Engineering	59
Chemical Science and Technology	27
Design	23
Electronics and Communication Engineering	57
Electronics and Electrical Engineering	24
Engineering Physics	26
Mathematics and Computing	31
Mechanical Engineering	62
<b>Total</b>	<b>431</b>

## Two year MA

Programme	Degree Awarded
Development Studies	44
<b>Total</b>	<b>44</b>

## Two year MSc

Programme	Degree Awarded
Chemistry	31
Mathematics and Computing	32
Physics	32
<b>Total</b>	<b>95</b>

## Two year MTech/MDes

Programme	Degree Awarded
Biotechnology	30
Civil Engineering	59
Chemical Engineering	38
Computer Science and Engineering	57
Design	20
Electronics and Electrical Engineering	46
Mechanical Engineering	55
<b>Total</b>	<b>305</b>

## PhD

Programme	Degree Awarded
Biotechnology	4
Civil Engineering	5
Chemical Engineering	2
Chemistry	18
Computer Science and Engineering	1
Design	2
Electronics and Electrical Engineering	8
Energy	4
Environment	3
Humanities and Social Sciences	3
Mathematics	3
Mechanical Engineering	3
Nanotechnology	1
Physics	8
<b>Total</b>	<b>65</b>

**Gold and Silver Medalists**

President of India Gold Medal  
Kulkarni Mandar Narsinh  
BTech (Electronics and Communication Engineering)

Silver Medal  
Abhinandan Nath  
BTech (Computer Science and Engineering)

Silver Medal  
Surojit Ganguli  
BTech (Mechanical Engineering)

Silver Medal  
Abhinanda Dilip  
BTech (Civil Engineering)

Silver Medal  
Tushar Krishnan  
BTech (Biotechnology)

Silver Medal  
Mayur Tikmani  
BTech (Chemical Engineering)

Silver Medal  
Sarthak Gupta  
BTech (Electronics and Electrical Engineering)

Silver Medal  
Joy Prakash Das  
BTech (Engineering Physics)

Silver Medal  
Nallamala Harikishan  
BTech (Chemical Science and Technology)

Silver Medal  
Udit Agarwal  
BTech (Mathematics and Computing)

Silver Medal  
Arnita Saini  
BDes (Design)

Silver Medal  
Bijita Sarma  
MSc (Physics)

Silver Medal  
Pallabita Basu  
MSc (Chemistry)

Silver Medal  
Abdul Halim  
MSc (Mathematics and Computing)

Silver Medal  
Sameem Akhtara  
MA (Development Studies)

Dr. Shankar Dayal Sharma Gold Medal  
Kailash Atal  
BTech (Electronics and Communication Engineering)

List of students who have fulfilled the requirements  
for the award of BTech degree in Computer Science  
and Engineering

Roll No.	Name
09010101	Abhinandan Nath
09010102	Abhinav Sonker
09010103	Aditya Kumar
09010104	Akash Deep Rawat
09010105	Akash Gupta
09010106	Akshay Madrosiya
09010107	Anchal Choubey
09010108	Ankit Jaiswal
09010109	Ankit Kumar
09010110	Anurag Anshu
09010111	Apoorv Kumar
09010112	Apul Jain
09010113	Ayush Syal
09010114	Ayushi Mathur
09010119	Juhi Bagrodia
09010122	Kuldeep
09010123	Kulkarni Anand Sudhir
09010124	N Eswara Prashanth
09010125	N. Vishnu Teja
09010126	Naga Rohit S
09010128	Narendra Kumar Meena
09010130	Parag Agrawal
09010131	Pasunuri Rahul
09010132	Pooja Dubey
09010133	Pragya Parul
09010135	Purwar Sanketh Kishan
09010137	Rajat Khanduja
09010138	Rajkumar Singh
09010139	Raman Anurag
09010140	Ravi Sethia
09010141	Rishi Barua
09010144	Rovin Bhandari
09010146	Saurabh Singla
09010147	Shah Akhilesh Kailashchandra
09010148	Shubham Tripathi
09010150	Snehlata
09010153	Sumeet Kumar Singh

09010154	Sunil Kumar
09010158	Virendra Kumar
09010160	Anik Chattopadhyay
09010161	Pranav Gupta
09010162	Sidharth Chandrashekhar Pardeshi
09010163	Karri Swathi
09010165	Ayush Parolia
09010166	Gundlapalli Srinivas
09010167	Vikram Kumar Goyal
09010168	Behara Mani Shyam Patro
08010102	Abishek Ahluwalia
08010111	Bipin Roshan Nag
08010113	Chetan Prakash
08010115	Chinthala Sai Kumar Reddy
08010119	Darapu Bharat Kumar
08010122	Faisal Ali
08010123	Gaurav Ranjan
08010135	Pasula Aditya
08010141	Rishibha Singh Netam
08010142	Rohith D Naik
08010152	Thota Narasimha Krishnachaitanya
05010127	Praveen Kumar

List of students who have fulfilled the requirements for the award of BTech degree in Electronics and Communication Engineering

Roll No	Name
09010201	Abhijeet Singh
09010202	Abhinav Agarwal
09010203	Abhishek Sayana
09010204	Aditi Olemann
09010205	Ajay Kumar Kandavalli
09010206	Anuj Verma
09010207	Anurag Nandkumar Kapale
09010209	B V Ashok Kumar
09010211	Deendayal Meena
09010213	Devendra Singh Sachan
09010214	Devineni Jaya Kartheek
09010215	Dheeraj Khoriya
09010216	Gode Venkata Leelasomesh
09010217	Hardik Sharma
09010218	Harne Krunal Manohar
09010219	Himanshu Agrahari
09010220	Himanshu Kohli
09010221	Hosea Pradeep Kandikatla
09010222	Jayesh Bhaskar Yerrapragada
09010223	Jinghom Chakhap
09010224	Kailash Atal
09010225	Kulkarni Mandar Narsinh
09010227	Lovish Choudhary
09010229	Manchala Satya Vardhan
09010230	Manish Kumar
09010232	N Abhilash

09010233	Nalam Sharath Chandra
09010234	Naveen Kumar Rai
09010235	Neeraj Mishra
09010237	Parichaiy Chopra
09010238	Parsi Rahul
09010239	Prabal Tirkey
09010240	Punnamaraju.V.R.Giridhar
09010241	Rahul Mittal
09010243	Ravi Aryan
09010245	Rudra Pratap Singh
09010246	Siddharth Kabra
09010247	Somanchi Neerad
09010248	Srijan Maulick
09010249	Suraj Saurabh
09010250	Tushar Garg
09010251	Twisha Prasad
09010254	Anup Das
09010255	Ajaykumar Kannan
09010256	Mrinalini Sachan
09010257	Meduri Sudeep
09010258	Gurugubelli Venkata Ramana
09010259	Mohit Jindal
09010260	Umesh Tekwani
09010261	Kalyanam Keerthi Vishal
08010209	C Sri Santosh
08010221	Koppu Sai Baba
08010229	Mukesh Patel
08010242	Siddhant Khanna
08010244	Srujan Kumar Gudelly
08010252	Manzil Zaheer
05010229	Pole Shiva Kumar

List of students who have fulfilled the requirements for the award of BTech degree in Mechanical Engineering

Roll No	Name
09010301	Abhijeet Agrawal
09010302	Abhinav Yadav
09010303	Abhishek Das
09010304	Advaith S
09010305	Ajay Kumar Sethi
09010306	Akhil Roy Singla
09010308	Arka Bhakta
09010312	Benjamin Varughese Johnson
09010313	Bhushanam Bharat
09010314	Deepesh Gupta
09010315	Gargi Brahma
09010316	Garimella V R S Harsha Teja
09010317	Harsh Sahai
09010318	Heera Lal
09010320	Hemant Kumar Agrawal
09010322	Himanshu Bhandari
09010323	Jay Prakash Dulhani
09010324	Jayanta Kumar Basak

09010326	Konduri Vamshi Krishna	09010407	Anjaneya
09010327	Krishna Gopal	09010408	Ankur Bansal
09010328	Kshitiz Sharma	09010412	Ayyalasonmayajula V Sivaradhakrishnaa
09010330	Mane Tushar Jijaba	09010413	Bhanu Pratap Singh
09010331	Mansimran Singh	09010414	Deepak Mittal
09010332	Marmeeek Kishor Kumar Kosambia	09010415	Doshi Param Jayesh
09010333	N. R. Sreeram	09010416	Dwij Fouzdar
09010334	Nipun Sareen	09010417	Gagandeep Singh
09010335	Nirbhay Sachan	09010418	Gaurav Ajitsaria
09010336	Nitin Khola	09010419	Gosale Vivek Nagnath
09010337	Padmanabh Baruah	09010424	J Laxmi Reddy
09010338	Palavai Aditya Prasad	09010428	Kolli Purna Chand
09010339	Paresh Goel	09010430	Mamidi Anvesh Reddy
09010340	Penumarthi Vivek Chowdary	09010431	Manish S Sugandhi
09010341	Prabhat Kumar	09010432	Manosh Protim Majumder
09010342	Praneet Amitabh	09010433	Md Qamaruddin Khan
09010343	Rabindra Pator	09010435	Minakhi Prasad Misra
09010344	Rahul Gautam	09010436	Neeraj Kumawat
09010346	Rituraj	09010437	Nikhil Verma
09010347	Robin Prinja	09010440	Pawan Patel Niranjan
09010348	Rohit Kumar	09010441	Puneet Kumar Sapawat
09010349	Sai Kiran B	09010443	Rajendra Choudhary
09010350	Samit Das	09010444	Ramvijay Meena
09010351	Sasanka Sekhar Sinha	09010445	Sarang C Adgokar
09010352	Saurabh Singh	09010446	Sarthak Kansal
09010353	Sauvik Kumar Gohain	09010447	Shashank Jakhu
09010354	Siddhartha Nambiar	09010448	Shubham Lal
09010355	Soshem Hungyo	09010449	Somnath Sikdar
09010358	Upendra Kumar Garg	09010450	Sujal Sehgal
09010359	Vaidya Nikhil Gururaj	09010451	Sunny Rajpal
09010360	Vasu Goel	09010452	Taba Abang
09010361	Vasu Raj	09010453	Tushar Apurv
09010363	Surojit Ganguli	09010454	V Sri Venkata Krishna
09010364	Karan Bansal	09010455	Vivek Garg
09010365	Vibhor Kalra	09010456	Yogesh Sirotia
09010366	M Anirudh Reddy	09010457	Abhinanda Dilip
09010367	Vivek Gupta	08010425	Kudmetha Kiran Kumar
09010368	Kartikeya Mohan Sahai	08010427	Manoj Kanakapur
09010369	Amit Sheoran	08010443	Sanjay Kumar Ray
09010370	Priti Choudhary	07010415	Dilip V
08010326	Maganti Narasimha Rao	07010448	Vishal Anand
08010323	Kollipara Pranayanadh		
08010347	Shivam Mishra		
06010311	B V S K Chaithanya Kaki		

List of students who have fulfilled the requirements for the award of BTech degree in Civil Engineering

<b>Roll No</b>	<b>Name</b>
09010401	A Deepak Mallyk
09010402	Abhishek Kumar
09010403	Abhishek Singh
09010404	Amit Kumar Singh
09010405	Amit Kumar Yadav

List of students who have fulfilled the requirements for the award of BTech degree in Biotechnology

<b>Roll No.</b>	<b>Name</b>
09010602	Abhishek Maitreyi
09010603	Akash
09010605	Anish Jain
09010606	Arun Kaniyamattam
09010607	Ashwini Kumar
09010608	Bharath Kumar Guntamadugu
09010609	Deepak Tewari
09010611	Gacche Nitin Ashokrao

09010613	Jitesh Advani
09010615	Khushboo Borah
09010616	Koppolu Siddardha
09010617	Malasane Ajinkya Rajendra
09010618	Monmi Pangging
09010619	Mriganka Pattnaik
09010620	Nikhil Aggarwal
09010622	Nishit Sharma
09010623	Obaiah D
09010625	Pulkit Chandak
09010626	Pushpalata
09010627	Rakesh Kumar Choudhary
09010629	Sahil Kumar Rastogi
09010630	Shashank Shekhar
09010631	Shaunak Kar
09010633	Suraj
09010634	Thulabandu Venkata Revanth Sai Kumar
09010635	Talasani Harshavardhan Reddy
09010636	Tushar Krishnan
09010639	Vivian Robert J
09010640	Voleti Sai Rashmi
08010605	Akhil Jalutharia
08010611	Deepak Pratap Singh
05010627	Vivek Singh Rawat

List of students who have fulfilled the requirements for the award of BTech degree in Chemical Engineering

Roll No.	Name
09010701	Abhijit Saurav
09010702	Abhinav Agrawal
09010703	Abhishek Kumar
09010704	Aditya Kumar
09010705	Akshay Singh Rathore
09010707	Anikesh Kumar
09010708	Anirudh Murali
09010709	Anjishnu
09010711	Ankit Mandil
09010712	Apurva Kumar
09010714	Arralli Prashanth
09010717	Bharath K Srikanth
09010718	Bhuvnesh Jindal
09010719	Bikash Ranjan Mishra
09010720	Chandrikapure Nikhil Shivnath
09010721	Deepshikha
09010727	Kriti Mishra
09010728	Kunal Ashish
09010729	Mayur Tikmani
09010731	Nayanjyoti Deka
09010732	P Chaitanya
09010733	Pinnamraju Anil Krishna

09010734	Pramod Kumar Maurya
09010735	Priyam Saraswat
09010736	Rahul Patel
09010737	Rajani Kant Baro
09010738	Rashmi Muraleedhar
09010739	Rishabh Bardia
09010740	Sahil Jagnani
09010741	Satish Kumar
09010742	Shubham Jain
09010743	Sintu Rongpipi
09010744	Syed Ahsan Ibrahim
09010745	Thirumala Kumara Ashwin
09010748	Vibhor Agarwal
09010749	Vipul Gupta
09010752	Zeeshan Zafar
08010705	Ankit Agarwal
08010708	Ashish Jindal
08010711	Brajen Baishya
08010740	Sumit Hablani
07010723	Nilesh Kumar Surana
06010733	Rohit Kumar Meena
06010734	Sandeep Joshi Ganji

List of students who have fulfilled the requirements for the award of BTech degree in Electronics and Electrical Engineering

Roll No.	Name
09010801	Abhishek Kumar
09010805	Amiya Tiwari
09010807	Anish Kumar
09010808	Ankit Yadav
09010809	Ashish Arora
09010811	Himanshu Saini
09010814	Kislay Verma
09010816	Paloma Sodhi
09010817	Pothuraju Tejo Bhavani Shankar
09010818	Prateek Jain
09010819	Rumit Kumar Singh
09010820	Sachin Gupta
09010822	Sarthak Gupta
09010823	Savalla Nikhilesh
09010824	Shivam Mishra
09010825	Shobhit Kumar Bansal
09010826	Sidharth Maheshwari
09010828	Vadrevu Abhinav
09010829	Vaibhav Deshwal
09010830	Varanasi Sowmya
09010831	Ujwal Kalra
08010805	Anuj Kumar Annu
08010807	C Vishnuyadav
08010824	Pranvendra Champawat

List of students who have fulfilled the requirements for the award of BTech degree in Engineering Physics

Roll No	Name
09012101	Amit Kumar
09012102	Anat Siddharth
09012103	Ankit Rathi
09012104	Athmakoor Nischal Kumar
09012107	Chimmani Ram Nikhil
09012108	Deshpande Niharika Vinay
09012109	Deshpande Rahul Shashikant
09012110	Doddam Divakar Reddy
09012111	Joy Prakash Das
09012112	K Pavan Chandra
09012113	Karan Sinha
09012114	Kaustav Dhar
09012116	Kutikuppala Ravi
09012118	Mundhada Shantanu Omprakash
09012119	Nitesh Dhasmana
09012121	Pawan Kumar
09012123	R Karthigeyan
09012124	Rehan Asif
09012125	Rishabh Jain
09012127	Shaik Noore Elahi
09012129	T S K Chaitanya
09012130	Tatipamula Samuel
09012131	Venkateshwarlu Thappetla
08012102	Aditi Gupta
08012106	Atinderpal Singh
07012119	V Siva Kumar Kalagara

List of students who have fulfilled the requirements for the award of BTech degree in Chemical Science and Technology

Roll No.	Name
09012201	Aditya Patil
09012203	Anand S
09012205	Ejaz Akram
09012206	Gautam Kumar
09012207	Gosula Yaswanth
09012210	Harshada Ojha
09012211	Himanshu Jain
09012212	Kshitij Bafna
09012213	Mohit Choudhary
09012214	Mrigendra Joshi
09012215	Nallamala Harikishan
09012216	Nayan Jyoti Saikia
09012217	Nikhil Kumar Rathi
09012218	Pandillapalli Vidya Sagar Reddy
09012220	Prateek Kumar Gautam
09012221	Priyam Das
09012222	Raj Jyoti Das
09012223	Rituraj Preetisagar

09012224	S L V Kaushik
09012225	Saloni Gautam
09012226	Saurabh Kumar
09012227	Shreyas Nangalia
09012229	Sumeet Kotasthane
09012230	Vaibhav Dixit
09012232	Vishal Kumar Jaiswal
08012212	Hrishikesh Bhuyan
08012213	Kamalika Hembram

List of students who have fulfilled the requirements for the award of BTech degree in Mathematics and Computing

Roll No	Name
09012302	Abhinav Bhondele
09012303	Abhinav Yadav
09012304	Abhishek Kumar
09012305	Ajay Shankar Bidyarthi
09012306	Amanjot Singh Matharu
09012307	Anirudh Kejriwal
09012309	Gaurav Shivaji Pachpute
09012310	Himanshu Verma
09012311	Kanu Sahai
09012313	Kunal Bariwal
09012314	Leonard Topno
09012315	Manoj Swargiary
09012316	Mohit Yadav
09012318	Nagarjun C D
09012319	Noorani Samir Salim
09012320	Rahul Ritesh
09012321	Raj Kamal
09012322	Ritesh Nainani
09012323	Sahil Sandeep Salunke
09012324	Shashank Jayant
09012325	Siddhartha Tyagi
09012326	Sonesh Kumar
09012327	Sumit Singh Chauhan
09012328	Suqali Ravindra Naik
09012329	Thuppari Goverdhan
09012330	Udit Agarwal
09012332	Varun Narang
09012334	Nischaay Chopra
07012310	G. Nithyanandam
07012314	Miriyalu Bala Krishna
07012315	Muchenthula Anil K Reddy

List of students who have fulfilled the requirements for the award of BDes degree in Design

Roll No	Name
09020501	Abhinav Kishore
09020502	Adarsh Bindal
09020503	Aditya Ponnada

Roll No	Name
09020504	Anurag Jindal
09020505	Arnita Saini
09020506	Ashwin Athlye
09020507	Astha Dhawan
09020509	Hozefa Kanchwala
09020510	KV Ketan
09020511	M S N Karthik
09020513	Niyati Gupta
09020514	Omna Toshniwal
09020515	P Yaswanth Reddy
09020516	Pratik Mall
09020517	Priyamvada Tiwari
09020519	Rahul Gautam
09020520	Rhythm Agarwal
09020522	S Nikhil Siva
09020523	Sahil Aggarwal
09020524	Siddhant Kumar Yadav
09020526	Vijaya Siri Sindhura T
09020527	Vikas Kumar
08020516	Pramod Kumar

List of students who have fulfilled the requirements for the award of MSc degree in Physics

Roll No	Name
11212102	Ankita Bhuyan
11212103	Archana Haloi
11212104	Arjun H
11212105	Arup Jyoti Halder
11212106	Ayan Mallick
11212109	Bijita Sarma
11212111	Buddha Deka Boruah
11212112	Camelia Das
11212114	Chumki Chakraborty
11212117	Dibyashree Chakraborti
11212118	Indranil Banerjee
11212119	Moinuddin Ahamed
11212122	Namita Shokeen
11212123	Pranjit Laskar
11212124	Pravat Rabi Naskar
11212125	Priyadarshini Kapri
11212126	Raja Bonia
11212128	Roopam Sinha
11212129	Sangkha Borah
11212130	Sanjib Nayak
11212132	Sk Noor Nabi
11212133	Sobhit Kumar Singh
11212134	Soumya Bhattacharya
11212136	Subhadeep Chakraborty
11212137	Subrata Saha
11212139	Sujit Paik
11212140	Suman Das
11212142	Susmita Ghosh

Roll No	Name
11212144	Vipul Kumar Pandey
11212145	Yenugudhati Basava Raju
10212114	Debopam Ghosh
10212128	Pubali Mandal

List of students who have fulfilled the requirements for the award of MSc degree in Chemistry

Roll No	Name
11212201	Adwitiya Kar
11212203	Ananda Karak
11212204	Anirban Mondal
11212205	Ankhi Mukherjee
11212206	Arka Bhattacharyya
11212208	Asik Hossian
11212211	Bidhan Ghosh
11212212	Bikash Samaddar
11212214	Buddhadeb Mondal
11212215	Fazle Haque
11212216	Ganesh Chandra Paul
11212217	Gouranga Das
11212219	N Vijayan
11212220	Naga Suresh Enjamuri
11212221	Pallabita Basu
11212223	Prasenjit Das
11212224	Raghunath Bag
11212225	Ramesh Pal
11212226	Rana Dalapati
11212227	Sabyasachi Pramanik
11212228	Sampa Maiti
11212230	Sayanta Sekhar Nag
11212231	Sayontani Sinha Roy
11212232	Shramana Chatterjee
11212235	Subhankar Panda
11212236	Sujan Mondal
11212237	Sujit Sarkar
11212239	Sumit Singha
11212240	Timir Baran Sil
11212241	Ujjal Ghosh
10212212	Kazi Masud

List of students who have fulfilled the requirements for the award of MSc degree in Mathematics and Computing

Roll No	Name
11212301	Abdul Halim
11212304	Akansha
11212305	Arushi
11212306	Avik Ranjan Adhikary
11212307	Ayan Chatterjee
11212308	Bandita Roy
11212309	Deb Kumar Giri



Roll No	Name	Roll No	Name
11212310	Dharmadas Mardanya	11224108	Bristita Bora
11212311	Farha Sultana	11224109	Chao Aicheng Mung Borgohain
11212313	Geethika Sebastian	11224110	Dalia Bhattacharjee
11212318	Km Surabhi	11224111	Debatirtha Kayshap Neog
11212319	Madhusudan Bera	11224112	Deepak Basumatary
11212321	Manik Chandra Singha	11224113	Devomitra Choudhury
11212322	Manoj Kumar Mishra	11224114	Dhruba Jyoti Nath
11212323	Monabbar Hossain	11224115	Haren Saikia
11212324	Nandita Roy	11224116	Harish Chandra Pandit
11212325	Nemi Chand Nagar	11224117	Hemajit Phukan
11212327	Palas Mandal	11224118	Jagat Jyoti Sonowal
11212330	Preeti Tomar	11224119	Jiyaul Haque
11212333	Projesh Nath Choudhury	11224120	Jyotish Dutta
11212334	Richa Katiyar	11224121	Mizinksa Daimari
11212335	Santu Kumar Bhangi	11224122	Mrinmoy Sangma
11212339	Sudipto Sarkar	11224123	Munni Kumari
11212340	Sunil Kumar Shukla	11224124	Navajit Khound
11212341	Tamal Pramanick	11224125	Navin Kumar
11212343	Tapas Karmakar	11224126	Nilima Gogoi
10212301	Abhijit Das	11224127	Parag Kumar Deka Boruah
10212304	Ankit Pal	11224128	Poppy Das
10212310	Chhaya	11224130	Prithi Raj Borah
10212326	Patne Rohit Madhukar	11224131	Puja Borbaruah
10212327	Prabhujit Mohapatra	11224133	Ranjan Kumar Behera
10212342	Udai Kumar	11224134	Rashmi Rekha Deka
		11224138	Romen Ningthoujam
		11224139	Rudhir Prakash Sarma
		11224140	Sajib Das
		11224141	Sameem Akhtara
		11224142	Sandeep Kumar Chaurasia
		11224143	Sonia Basumatary
		11224144	Stutima Basistha
		11224145	Subasana Dutta
		11224146	Tanmoy Das
		11224147	Ubaid Mushtaq
		11224148	Biswajit Nath
		11224149	Karuna Deori

List of students who have fulfilled the requirements for the award of MA degree in Development Studies

Roll No	Name
11224101	Afrida Tasneen
11224102	Angshuman Sarma
11224103	Anindita Das
11224104	Ayush Kumar
11224105	Bankerlang Kharmylliem
11224106	Bhaswati Haloi
11224107	Bidyut Bikash Saikia

List of students who have fulfilled the requirements for the award of the MTech degree in Computer Science and Engineering

Name	Roll No	Project Title
Ripon Patgiri	09410134	Improving Job Completion Time of Map Reduce in Heterogeneous Environments
Nitin Kumar Jain	10410102	Cloud Computing Interoperability
Dirisala Gopalarao	10410103	Multiclass Maximum Margin Matrix Factorization
Kotikalapudi S V D Prasad	10410104	Mining Index Terms
Y Padmaja	10410105	Streaming Algorithms for Approximate Gabriel Graph, Relative Neighbourhood Graph and Euclidean Minimum Spanning Tree
Apurba Paul	10410106	Analysis of Bayesian Classifiers for Determining Open or Resolved Status of Question and Answer Discussions

Bhavana V S	10410107	Study and analysis of a set of Temporal Features and Pitch Synchronous Cepstral Co-efficient for Speaker Recognition.
Raju Bairishetti	10410108	Modelling and Verification of Compensating Transactions
Anshita Mishra	10410109	Trustworthy Broadcasting in Ad Hoc VANETS
Navneet Singh Gaur	10410110	Elastic Bandwidth Allocation and Routing in Flexible OFDM-Based Optical Networks
A Chandrakanth Reddy	10410111	Deterministic Algorithms for Distributed Trigger Counting
Ellanti Saranya	10410112	Study of Edge Detection Algorithms and Modelling Capabilities of PCA on Traffic Signs
Ananya Jana	10410113	Model to Predict the Attention Sequence of Web Page Objects
Vineet Uprari	10410114	Exploring the dynamics of social network
Ashish Kumar Shukla	10410115	Testing Web Applications Using UML Diagram
Rinku Das	10410116	Privatizing user credential Information of Web Services in a shared user Environment
Prithu Banerjee	10410117	IDS for ICMP Network Attacks Using Failure Detection and Diagnosis Theory of DES
Naik Mohakkumar Rajeshbhai	10410118	A Study of Packet Pacing Schemes in Small Buffer Networks
Mahasweta Mitra	10410119	IDS for ARP Spoofing and NDP Attacks Using LTL Based DES Framework
Saurav Kumar	10410123	Localized Workstealing Scheduling on Clustered Multicore Architecture
Appa Rao Maiskar	10410124	LDS Prefetching for Shared Memory Multiprocessor.
Potey Swapnil Madhukar	10410125	Flow Classification based on Label Propagation on Flow Similarity Graph
Shilpa Choudhary	10410126	Schedulability Analysis of Mixed Time – triggered/Event –Triggered Systems using Calendar Automata
Mallikarjun Boddu	10410127	Hash based Hybrid Index for Flash Memory
Mojjada Lakshmi Prasad	10410128	Novel Approach for Multi Cast Routing in Network-on-chip
Amit Kumar Yadav	10410129	Greedy Obstacle Avoidance Routing using Obstacle Position Information in Wireless Sensor Network
Nagaraju Polavarapu	10410130	Reserve Caching for Improving Performance in Chip Multi Processors (CMP)
K Reddigirish	10410131	Tuning Multi-Class SVM Hyperparameters using DEA.
Saparapu V Ramakrishna	10410132	Off-Chip Memory Bandwidth and Last Level Cache Partitioning in Chip Multiprocessor System
Dasari Srinivas	10410133	Online Testing of Digital VLSI Circuit for Bridging Faults
Subhrangsu Mandal	10410135	Deterministic 1-2 skip List in Distributed Systems
Abhijit Mondal	10410136	RTT Based TCP Congestion Control Algorithm for Small Buffer Networks
Rupayan Das	10410137	Design and Development of Speech and Speaker Recognition Systems based on HTK
Surya Prakash P	10410138	A Study on Comparing Different Matching Algorithms
Anish Hirwe	10410139	P.S.O. Emulation by Robots
Sweta Priyadarshni	10410140	Comparison between the chord and pastry under an identical environment
Trimbake Nilesh Shripati	10410141	Web Application Load Balancing in IaaS Cloud

Manoj Singh Chauhan	10410142	Application Programming Interface for Mining Wikipedia
Hemant Anare	10410143	Issue of Routing in Tree Based NOC's
B Venkateswarlu Naik	10410144	Real Time Dynamic Voltage and Frequency Scaling (RT-DVFS) for Power Optimization in Multiprocessor Real Time Systems
Soumyadeep Ghosh Dastidar	10410155	Performance Evaluation of Infrastructure based Services in a Private Cloud Environment
Vivek Kumar Gupta	11410101	Speech Tokenization based on Pitch and Energy Contours for Word recognition
Nishant Singhal	11410102	Speaker Recognition using Acoustic Properties of Oral and Nasal Pitch Periods
Chandra Mohan Sharma	11410124	Architecture Exploration and Scheduling of Interfering Task Stream
Dileep Kumar Reddi	11410128	Stability Analysis of Classifiers using Data Envelopment Analysis
Modi Hardik Girish	11410137	Mutual Exclusion Rule Mining in Transaction Databases
Thota Santosh	11410138	Quantitative Analysis of Incremental Linear and Nonlinear Dimensionality Reduction Algorithms
Navin Kumar	11410140	GPU Based Simulator Design for Distributed Cache Management of Large Multicore Connected using Bufferless Mesh NoC
Goutam Das	11410146	Scalable APIs for Mining Wikipedia
R. Shanchamo Yanthan	11410154	Prevention of Blackhole Attack in AODV Protocol
List of students who have fulfilled the requirements for the award of the MTech degree in Computer Science and Engineering with Specialization in Information Security		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Nanu Alan Kachari	09410145	A Study on Contemporary Email Security
Ashish Bhandari	10410145	DES Based IDS for Throughput Degradation Attack on TCP
Lalit Kumar Vashishtha	10410148	LSB Matching Steganalysis based on Feature Analysis
Vikas Kumar	10410153	Detection of Stealth Man-In-The Middle Attack in wireless LAN
Ripunjoy Sonowal	10410154	Specification based Intrusion Detection System for SHORT-AODV
Swarup Kumar Mallick	10410157	Application Behavior Enforcement Based on Network Characteristics
Sreedish P S	10410158	Just in Time Indexing
List of students who have fulfilled the requirements for the award of the MTech degree in Electronics and Electrical Engineering with Specialization in Signal Processing		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Biplab Ketan Chakraborty	10410211	Motion Adaptive Video Coding Scheme for Time-Varying Network
Gaurav Kumar Jha	10410212	Energy Efficient Graphics Processing Unit
Avik Hati	10410213	Anonymous Computing Protocols for E- voting & E-tendering
Srinivas A. V. L. N.	10410215	Video Search and Similarity Measures
D Ajaykumar	10410216	Continuous Hand Gesture Recognition
A. Pavan Kumar Saladi	10410217	Scalable Video Coding using 3D DWT and Compressive Sensing
Gangireddy Siva Reddy	10410221	Isolated Handwritten Akshara Recognition in Assamese

Gnana Praveen R	10410227	A Code and Domain Independent Traitor Tracing System
Pattepu Sunil	10410230	Energy Efficient Cooperative Relaying Schemes for Wireless Sensor Networks
Hemant Kumar Kathania	10410232	Soft-Weighting for Robust Children Speech Recognition under Mismatched Condition
Narasimha Rao Banavathu	10410234	Malicious user Suppression in Co-operative Spectrum Sensing for Cognitive Radio
Ramakant	10410252	Fusion of Information from Data Gloves and a Camera for Hand Gesture Recognition
Kaustav Das	10410255	Investigation of Different Aspects of Antenna Beamforming using Adaptive Arrays
Pedamalli Saikrishna	10410260	Detection and Removal of Impulse Noise from Images using Sparse Representations
Jogi Raj Kumar	10410262	An Investigation into Space Time Codes
Lalani Dhaval Rameshchandra	11410212	Robust Mode Estimation for Low Frequency Oscillations in Power Systems
Rohan Prasad	11410215	Rule Based Expert System for Automatic Diagnosis of DR from Color Fundus Images
Mandadi Bala Krishna	11410218	Unusual Event Detection for Automated Video Surveillance
Mehta Varunkumar Rajendrabhai	11410220	Myocardial Infarction Detection by Multiscale Covariance Analysis of Multilead ECG Signals
Gudidevuni Harathi	11410228	Realization of Adaptive Filters using Compressed Two's Complement Data Format

List of students who have fulfilled the requirements for the award of the MTech degree in Electronics and Electrical Engineering with Specialization in VLSI

<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Sk. Irfan Ali	10410201	Design of single-bit Continuous-time Delta-sigma Modulator for Audio Signals
Shanthanu Kumar Singh	10410202	Low Cost VLSI Architecture of Fast Inverse Modified Discrete Cosine Transform for H.264 Applications
Nagesh Kumar	10410203	High Performance VLSI Architecture of Adaptive Decision Feedback Equalizer for Gigabit Systems
Amrita Brahmachari	10410204	Low Power RF Zig Bee Transmitter using CORDIC-based Frequency Translation
Abdul Raouf Kahlid MT	10410205	High Throughput Architecture for Reconstruction of Compressively Sensed MRI
Gaurav Kumar	10410207	Hardware Accelerator for Channel Estimation and Compensation in LTE Standard
Guhagarkar Nikhil Rajan	10410208	Hardware Reconfigurable Systolic Array Processor for Multiple Motion Estimation Algorithms in H.264
Kishore Kumar Perumalla	10410209	High Performance Architecture for Complex Multiplier using Distributed Arithmetic
Kondaseema Srinivas	10410210	Efficient VLSI Implementation of BCH and RS Decoders for DVB-S2/ DVB-S Standards

Srinivas Boina	10410223	Design of a low power successive Approximation Register ADCs
Pyli Venkata Seshubabu	11410204	High Performance VLSI Architecture for Multi-user Channel Estimation
Sathish Babu Baragadi	11410209	High Performance Viterbi Decoder Design for TCM Decoders
List of students who have fulfilled the requirements for the award of the MTech degree in Electronics and Electrical Engineering with Specialization in Communication Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Rama Chandra Reddy T	10410218	Analysis and Design of L-Slot Loaded Compact Planar Antenna
Mazumdar Sudha Parimala	10410236	Multicasting using Anypath Routing in Wireless Mesh Networks
R B Prasad Gedela	10410240	Analysis of Orthogonal Frequency Coding for SAW Correlators based Communication Systems
V. Gopal	10410242	Performance Study of Diversity Combiners over Non-Homogenous Fading Channels
Srinivas Ramavath	10410244	A Study on PAPR Reduction Techniques for OFDM Systems
Ripudaman Singh	10410249	An Energy Efficient Synchronized and Low- Latency MAC Protocol for Wireless Sensor Networks
Vikas Kumar Gupta	10410264	Effect of Timing Error on the Symbol Error Rate Performance of QAM Modulations
Pravin Kumar R.	11410236	Parallel Concatenation of LDPC Codes and Its Application
Niyas K Haneefa	11410245	Clustering and Classification of Protein Sequences
List of students who have fulfilled the requirements for the award of the MTech degree in Electronics and Electrical Engineering with Specialization in Applied Control		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Saurabh Upadhyay	10410246	Output Feedback Controller Design for Uncertain Systems
Gokul.T.V	10410250	Sliding Mode Controller for Uncertain Systems with Mismatched Uncertainty
Janak Kumar Sethi	10410253	Modeling of a Wind Farm in Presence of Wake Interactions
Vikram Kumar	10410254	Vanishing Point Detection Methods of a Corridor
Suryakanta Sahoo	10410269	Adaptive Critic based Optimal Control
List of students who have fulfilled the requirements for the award of the MTech degree in Mechanical Engineering with Specialization in Machine Design		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
J. Bhanu Subramanya Sastri	10410305	Dynamic Analysis of Magneto Rheological Elastomer Cored Sandwich Beams
Divakar Bommana	10410323	Experimental Investigation of a stress wave force balance system for aerospace applications
Kadam Pradeep Ashok	10410332	Geometrically non linear flexure and elastic stability of radially graded annular plates with heated edge

Nipal Deka	10410333	Failure analysis and optimum design of smart functionally graded structures
Nitinkumar Sharma	10410336	Active vibration control of smart functionally graded structures
Sawangikar Sandeep Vinayak	10410337	On the performance of cylindrically orthotropic 1-3 piezoelectric composite distributed actuator for vibration control of annular plates
Upendra Kumar Singh	10410338	Finite element analysis for design electromagnetic coils and field shapers electromagnetic shearing
Nikhil. C.	10410339	Application of Goal Oriented Error Estimation procedure for the Accurate Computation of Stress Intensity Factors
Mangalekar Nikhil Pradeep	10410340	Experimental Studies of Thin Wall Machining of Aluminum 8011 Alloy
N. Anvesh Reddy	10410341	Energy Harvesting using Vibration of Piezoelectric Material
Saikat Bhowmik	10410342	Nonlinear analytical solutions for flexure of functionally graded shell panels integrated with a piezoelectric composite layer
Prathap Simha P.V.	10410343	Comparison of different displacement based methods for determination of mode I Stress intensity factors of surface cracks
Gaurav Kumar	10410344	Control of Rigid and Flexible Rotors Levitated by Active Magnetic Bearings
Rahul Chandran M.P.	10410346	Optimum Design of Rolling Element Bearings using Evolutionary Algorithms
Rajesh Ranjan	10410347	Three Dimensional Finite Element Thermo- Mechanical Analysis of Submersed Arc Welding
Padghan Nikhil Dagdu	10410348	Numerical Investigation of crack-tip constraint parameters in two dimensional geometries
Sachin Singh	10410349	Distortion and residual stress analysis in fusion welding process using finite element method
Narendra Kumar Patel	10410350	Finite Element Analysis of Rolling Element Bearings
Arun. S	10410351	Performance enhancement of medical grade PMMA (bone cement) by reinforcing MWCNTs
Shiv Dayal Vishwakarma	10410352	Design and development of friction stir welding setup
Arun Kumar Kadian	10410353	Thermal Analysis of Friction Stir Welding
Krishna Mohan Kumar	10410354	Vibration Analysis of Randomly Oriented Glass Fiber Composite with Crack
Mukesh Kumar	10410356	Formability of friction stir, welded sheets made of dissimilar materials
Mohite Pradip Ramchandra	10410357	Finite Element Analysis to Study the Effect of Standoff Distance in Electromagnetic Welding Process
Anand Mohan Nakka	10410358	Bending Fatigue Performance of Symmetric and Asymmetric Composite Gear
Parag Moni Bhuyan	10410359	Experimental Studies on Laser Bending Process with Linear and Curvilinear Irradiation
Hrituraj Langthasa	10410360	Modeling and Time Delay Analysis of Smart Active Actuators
Yatin Manocha	11410301	Multi Tool turning: Structural and Thermal Characteristics
Jai Shankar Kumar	11410320	Finite Element estimation of generalized stress intensity factors sharp V-notch
Ramanuj Vishwakarma	11410321	Multi Tool turning: Dynamics Characteristics

Prem Soren	11410330	Evolutionary Infeasibility Driven Approaches for Engineering Optimization
List of students who have fulfilled the requirements for the award of the MTech degree in Mechanical Engineering with Specialization in Fluids and Thermal Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Mustafa Sadiqueali Nomani	10410304	Study of Wave behind multiple inclined cylinders
Vernekar Rohan Ranganath	10410308	Lattice Boltzmann Method Applied to Radiative Heat Transfer Analysis
Pailwan Sushant Prakash	10410311	Numerical and experimental analysis of metal hydride based heat transformer
Hiranya Kumar Das	10410316	Numerical Simulation Incompressible Fluid Flows with Heat and Mass Transfer
Jayesh. P	10410318	Experimental on nanofluid based thin film temperature sensor for transient measurements
Ganore Vishal Ashok	10410324	Analysis of Thermal Energy Storage Systems for Solar Thermal Power Plant
Pramod Kumar Bansod	10410325	Design, Development and performance Evaluation of a Biomass Briquetting Machine
Rupesh Kumar Khutey	10410326	Numerical Analysis of heat Transfer in a Microchannel with Nanofluids
Prashant Meshram	10410327	Numerical simulations of natural convection flow in a porous square enclosure
Amiya Kar	10410329	Modeling and Analysis of Evaporation in polymer electrolyte fuel cell operation
Partha Pratim Kemprai	10410330	Analytical and Numerical Investigation of Electrokinetic based active micromixing.
Anil Kumar Mishra	10410361	Inverse Determination of Parameters During Laser forming
Yogesh Kumar Nishad	10410362	Scale up Production of bamboo charcoal and Vinegar
Saumes Harichandan	10410363	Preparation and characterization of a superparamagnetic nanoparticle and nanofluids for hyperthermia application
Md. Quaisar Reza	10410365	Mesosopic modeling of two-phase behaviour under oscillatory bias
Priyamrit Bora	10410368	Performance Improvements of a domestic Kerosene Cooking Stove with a Sic-based Porous Radiant Burner
Keshab Biswakarma	10410370	Numerical and Experimental Investigations of a Vertical Axis wind Turbine Rotor
Maryom Dabi	10410372	Performance and Emission Characteristics of a Dual Fuel Engine Using Producer Gas as a Primary Fuel
Gopal Sharma	11410338	Performance And Emission Characteristics Of Dual Fuelled Diesel Engine Using Producer Gas
Rajat Bhardwaj	11410341	Development Of A Computer Simulation Model For Bio-Fuel Run Compression Ignition Engine
Abhishek Agarwal	11410342	Development of a hand operated briquetting machine and characterization of biomass products

Jegathishkumar R	11410356	Thermal Modeling Of Activated Carbon And Methanol Adsorption Refrigeration System
Likhendra Prasad	11410366	Development of Thermal Energy Storage System for Solar Thermal Power Plant Applications
List of students who have fulfilled the requirements for the award of the MTech degree in Mechanical Engineering with Specialization in Computer Assisted Manufacturing		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Ujjal Barman	10410379	Simulation and Design of Electroosmotic Micropump
List of students who have fulfilled the requirements for the award of the MTech degree in Civil Engineering with Specialization in Structural Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
K. S. Ravindra Babu	09410466	Seismic evaluation and retrofitting of elevated storage tanks
Valipshetty Dineshkumar N.	10410402	Seismic behaviour of reinforced concrete frame-wall buildings for varying wall-area ratio
Sachin. S	10410403	Lateral load behaviour of masonry infilled RC Frames with central opening
Patil Sandeep Shantinath	10410405	Empirical period formulae for force based seismic design of buildings
Ashutosh Kumar Jha	10410406	Estimation of low failure probability using subset simulation
V.R. Narendrababu Perumalla	10410407	Free Vibration analysis of cracked cantilever beam using finite element method
Desai Amit Kakaji	10410408	Analysis of integral abutment bridge considering soil-structure interaction
Rakesh K.R.	10410409	Model Updating, Fatigue Analysis and Life Estimation of Teesta Bridge
Mihir Kanti Daspriya	10410410	Effect of binder type, source concentration of chloride and exposure period on chloride ingress in concrete
Rajesh R. Rele	10410411	Analysis of three-cell prestressed concrete box girder including shear lag effect
Md Mukhlis Akhatar	10410412	Seismic behaviour of reinforced concrete flat plate systems with critical slab column connection
Kanulla Nagavijaykumar	10410413	A study on fresh properties, strength and durability of self-compacting concrete
Ajmal Hasan M.A.	10410414	Numerical techniques for damage identification
Shashibhushan Kumar Singh	10410415	Finite element analysis of layered shells
Pradeep Yadav	10410416	Fracture mechanics based approach for evaluation of size effect in beam-column connections
Alekhjit Hazarika	10410417	Finite element approach to determine the characteristics of fiber reinforced elastomeric isolator (FREI)
Pranit Namdeo Khelurkar	10410418	Finite element modeling of Indian plate
Naveen Chandra Vankala	10410419	Structural damage detection using analytical and experimental modal analysis



List of students who have fulfilled the requirements for the award of the MTech degree in Civil Engineering with Specialization in Water Resources Engineering and Management

Name	Roll No	Project Title
Ankita Kakoti Das	09410465	Hydrological simulation and yield analysis of crops using aquacrop model
Subhadeep Chakrabarti	10410448	Modeling non darcian transport into a well in an anisotropic aquifer
Rituraj Buragohain	10410449	Monitoring of ground water table using ground penetrating radar
Harinder Singh Thakan	10410450	Ground water modeling of Chennai city aquifer using GMS
Thappeta Suresh Kumar	10410455	Generalized method of steady state flow analysis in compound channel considering momentum transfer mechanism
Subbarao Pichuka	10410456	Impact of climate change on flash floods and spatial variation of lean season flow
Swati Bhawe	10410459	A study on infiltration characteristics of locally available soil
Sathe Sandip Sampatrao	10410460	Characterization of borehole sediment profile in an arsenic affected aquifer regime
Shanilo Seb	10410461	River modeling of Ganga River using HEC- RAS
Mahesh Patel	10410479	Flood characteristics at Downstream: Case studies of dam break analysis
Manti Patil	11410461	Impact of Climate Change on Stream Flow of Ranganadi Hydropower Project

List of students who have fulfilled the requirements for the award of the MTech degree in Civil Engineering with Specialization in Geotechnical Engineering

Name	Roll No	Project Title
Awdhesh Kumar Choudhary	10410421	Influence of different types of soils on soil- geosynthetics interaction behavior
Sandeep S Nikam	10410422	Role of drying and wetting soil water characteristic curve in unsaturated soil seepage modeling
Rajendra Singh Bisht	10410423	A study on settlement behaviour of piled rafts
D. Asher John	10410425	A study on specific surface area and suction capacity of soils
Bodala Ramu	10410427	Effect of the particle size of sand on the various behavior of sand-bentonite mixtures
Suchit Kumar Patel	10410429	A study on behaviour of suction caisson foundations
Shiv Shankar Kumar	10410430	Site-specific seismic ground response analysis of Guwahati city
Kamlesh Kumar	10410431	Study on design aspects of stone columns and liquefaction mitigation
Babloo Kumar	10410432	Tensiometer measurement of suction for Indian fly ashes
Tapas Das	10410433	A study on strength behaviour of compacted soil mixes with fly ash and tyre buffing
Sawant Madhurita Baban	11410475	Seismic response of concrete gravity dams including hydrodynamic effects

List of students who have fulfilled the requirements for the award of the MTech degree in Civil Engineering with Specialization in Environmental Engineering		
Name	Roll No	Project Title
Kulkarni Vihangraj Vijaykumar	10410464	Perchlorate removal from wastewater by various physicochemical processes
Ashish Kumar Nayak	10410468	Composting of sewage sludge using different composting techniques
Satya Durga Chakka	10410469	Ozone and aerosol in the indoor environment of a workplace
Bulli Langthasa	10410474	Evaluation of landfill site focusing on groundwater contamination potential due to leachate
Puspanjali Sonowal	10410475	Vermicomposting of dewatered sludge from effluent treatment plant of pulp and paper mill
Rakhee Das	10410486	Enhancement of private operator's skill sets of outsourced operation and maintenance works of a water treatment plant - A case study
List of students who have fulfilled the requirements for the award of the MTech degree in Civil Engineering with Specialization in Transportation Systems Engineering		
Name	Roll No	Project Title
Sreekumar M.	10410436	Development of car-following model for heterogeneous traffic with no lane discipline
Devarshi Pratap Singh	10410437	Impact of land use mix on trip behavior
Sabyasachi Biswas	10410438	Road safety audit of Guwahati city roads
Santhi Jagadeeswari T	10410439	Analysis of Non-Motorized Mode Choice Behaviour in the context of Developing Countries
Appa Rao Gandhi	10410442	Behaviour of confined single size sand cushioned aggregate as sub - base material
Rajiv Kumar	10410444	An improved laboratory mix methodology for microsurfacing and field application
Anusha Kumari Adavikottu	10410445	Traffic characteristics and emissions at road intersection
Santhosh Kadavy	10410462	Developing first order macroscopic model for heterogeneous traffic
Amar Diliprao Dighade	10410472	Behavior of interlocking concrete block pavement laid over sand cushioned aggregate
Metkari Mahendrakumar Appasaheb	11410447	Evaluation of driver behaviour model for heterogeneous traffic with no lane discipline
Priyansh Singh	11410449	Determination of mixing and compaction temperatures of Asphalt concrete mixes
Madhu Lisha Pattanaik	11410458	Moisture susceptibility of warm mixes with evotherm
Kolapkar Sagar Sunil	11410496	Evaluation of mix design parameters & energy savings with Sasobit® as a WMA additive

List of students who have fulfilled the requirements for the award of the MTech degree in Biotechnology		
Name	Roll No	Project Title
Siddharth Nimkar	10410611	Target Recognition and Cleavage in the RISPR-Cas System: Molecular Mechanism of Helicase and Nuclease Activities of Cas3
Deepika Singh	10410616	Study of BMP signaling in <i>Drosophila melanogaster</i> female germ line stem cell niche
S. Manu	10410620	Exploring Plant Products Mediated Inhibition of Hemozoin Formation : Potentials in Development of Antimalarials
Kumaran S.V.	10410621	Dynamic metabolic modeling and target identification for fatty acid synthesis in the fresh water isolate <i>Chlorella</i> sp
Ajay Kumar Kataria	10410624	Cloning, Over-expression and Functional Characterisation of the Cas Protein Associated with the Adaptation Stage of CRISPR-Cas System
Shivali Rawat	11410601	Cloning and characterization of abiotic stress responsive EcPCS gene and VuDREB2A promoter
Ujjwal Ranjan Dahiya	11410602	Alcohol oxidase from <i>Aspergillus terreus</i> MTCC6324: partial biophysical characterization of recombinant protein from <i>E.coli</i> BL21 and expression in eukaryotic system( <i>Pichia pastoris</i> )
Joyabrata Mal	11410603	Carbon monoxide conversion using native hydrogenogenic microorganisms isolated from wastewater treatment plant
Ritika Chaturvedi	11410604	Molecular Signaling of Cripto-1
Amritansh Chandra	11410606	Studies on the production of cuticle degrading proteases and PCR-RFLP analysis of protease genes in <i>Metarhizium anisopliae</i> isolates
Rajesh Kumar	11410608	Exploring the membrane binding and potential antimicrobial activity of an amphipathic peptide derived from <i>E.coli</i> MreB protein
Rimjhim Roy Choudhury	11410609	Flow cytometric studies on <i>Pongamia pinnata</i>
Abhayjit Singh	11410610	Regulation of extracellular proteases in <i>Bacillus cereus</i> , Strain PD1
Ruchi Handoo	11410611	Production, purification and characterization of dextransucrase and dextran from <i>Weissella cibaria</i> VTT E-072749
Robin Sachdeva	11410612	Studies on identification of novel drug target of <i>Leishmania donovani</i>
Tasneem Ali	11410613	Analysis of MD simulation trajectories of intrinsically disordered proteins
Deepshikha Malik	11410614	Multifunctional Silica Nanoparticle for Lipase Immobilization
Saurav Prasad	11410616	Feasibility Studies on Biotechnological Valorization of Whey Permeate For D(-) Lactic Acid Production
Preshobha K.P.	11410617	In vitro morphogenesis and effect of abiotic elicitors on production of catechins, caffeine and theophylline in cell suspension cultures of ovary explants of tea( <i>Camellia assamica</i> ssp. <i>lasiocalyx</i> )
Saket Kumar Singh	11410618	Silk Based Sustained Delivery of Model Molecule
K. Jagadeesh	11410621	Studies on mitochondrial component of calcium signaling in <i>Neurospora crassa</i>
Girish Kumar Yadav	11410622	Actin Cytoskeleton in Mesenchymal Stem Cell Differentiation
Shirke Pallavi Uday	11410623	Studies on Potential Therapeutic Applications of a Bactericidal Amphiphile
Anupriya Mehra	11410624	Study the Cytoadherence of Uninfected RBCs to Endothelial Cells During Malaria like Conditions

Ravindra Arjunrao Raut	11410625	Development of Seri-Bioresource Database(SBDB)
Preet Lal	11410626	Cloning and expression of drug target genes for tuberculosis therapeutics
Bikash Chandra Maharaj	11410627	Screening, optimization and scale-up of Streptococcus sp. for synthesis of Hyaluronic Acid(HA)
Hemant Kumar	11410628	Studies on marine cyanobacteria (Synechococcus sp.) for potential biofuel cell applications
Deepak Anand	11410629	Advancement of SeSaM with novel nucleotide analogue
Indrani Ray	11410630	Quantification of Topological and Sequential effects in Protein Conformational Fold Selection
List of students who have fulfilled the requirements for the award of the MTech degree in Chemical Engineering with Specialization in Petroleum Refinery Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Project Title</b>
Ashimjit Sarmah	10410701	Conceptual Design of Ethanol Bio-Refinery
Debashis Kundu	10410702	Quantum and Statistical Mechanical Approaches for the Prediction of Pure Component and Phase Equilibrium Properties
Kapil M Gumte	10410703	Study of Various Control Systems using Commercial Process Simulator
Srinivas Rachakonda	10410707	Stokesian Dynamic Simulation of Shear Induced Migration in Pressure Driven Flow of Suspension in Porous Channels
C. Dharmendra	10410709	Numerical Simulation of Shear induced Particle migration in Rotating Cylinders
Ajit Kumar Giri	10410710	Hydrodynamics and Drag Reduction in Trickle Bed Reactor
Suvamay Jana	10410711	Solubility of Small Gases in Polymers: A Molecular Simulation Study
Avhad Santosh Ashok	10410712	Absorption of CO <sub>2</sub> into Aqueous Blend of Triethanolamine and Monoethanolamine
Rahul Datta	10410713	Simulation of Adsorptive Gas Separation on Seolitic Molecular Sieves
Vijay Kumar	10410714	Synthesis, Characterization and thermal degradation kinetics of poly(methyl methacrylate) (PMMA)/organically modified montmorillonite (OMMT) nanocomposites
Satyannarayana Edubilli	10410715	Effect of Adsorption History on Flexibility of MIL-53(AI) Metal Organic Framework
Anoop Kumar Gupta	10410716	Numerical Simulation of Mono-Dispersed and Bi-Dispersed Fluidized Beds
Bhanwar Singh	10410722	Study of Liquid Cooled Pebble Bed Reactor: DPM Simulation
Swapan Kumar Achar	10410723	An experimental investigation of biodiesel synthesis from vegetable oils
Sunita	10410724	Electric Field Induced Instabilities in a thin dielectric bilayer:Influence of Slippage
Patel Chiragkumar Kantilal	10410725	Surfactant Assisted Synthesis and Characterization of Aluminum oxide
Mohammed Saquib	10410727	Crystallization Study of Polyethylene Block Polyethylene Glycol Diblock Copolymer

Rajesh Prasad	10410728	Hydrodynamics of gas-liquid-solid three phase flow in a modified fluidized bed
Abir Ghosh	10410730	Dynamics and Morphologies of thin Liquid Crystal Films
Amit	10410731	Methanation of Carbon Oxides on Ti-Al and Zr-Al supported Nickel catalysis
Ravi Thej Pilla	10410735	Separation of Carbon Dioxide from Gases using Polyimide Membrane
Kishant Kumar	10410736	Synthesis and Characterization of MCM-41 for CO <sub>2</sub> Adsorption
Santosh Kumar	10410737	Bioreduction of Cr(VI) by Indigenous Microorganisms
Kanchapogu Suresh	10410738	Development of ceramic membrane for microfiltration application
Gaurav Kumar	10410742	Degradation of Pharmaceutical (Dipyrene) from wastewater by Fenton Oxidation Process
Kelothu Suresh	10410743	Investigations in Rice Straw Hydrolysis through Physical, Chemical, Sono chemical and Enzymatic Routes and Combinations Thereof
Mridul Krishnam	10410746	Nanofluid-Preparation, Characterization and Application
Kulbhushan Samal	10410747	Development of Hybrid Membrane System for the Treatment of pb Bearing Wastewater
Srinath A	10410748	Preparation and Characterization of Graphene for Bipolar Plate of PEMFC

List of students who have fulfilled the requirements for the award of the MTech degree in Chemical Engineering with Specialization in Petroleum Science and Technology

Name	Roll No	Project Title
Niloy De	11410702	Numerical Simulation of Suspension Flow in Porous Channels
Ritesh Satyanarayanji Malani	11410709	Kinetic and Mechanistic Investigation in Sono-Enzymatic Decolorization of Azo Dyes
Kalicharan Hembrom	11410729	Diffusion Reaction based Modeling for CO <sub>2</sub> absorption into Aqueous Blends of 2-Amino-2-hydroxymethyl-1,3-propanediol and Monoethanolamine
Tarang K Bulchandani	11410760	Study of Liquid Coded Pebble Bed reactor

List of students who have fulfilled the requirements for the award of the MTech degree in Chemical Engineering with Specialization in Materials Science and Technology

Name	Roll No	Project Title
Venkatanarayana Prasad S.	11410731	Dynamics of Micro-Droplet Spreading on Porous Granular Beds
Vijeet Tiwari	11410734	Flow Patterns and Interfacial Morphologies of Mesoscale Multiphase Flow
Sainath K	11410740	Stabilization of Silicone Oil-in-water Emulsions in the Presence of Ionic Surfactants and Salts
Sontti Somasekharagoud	11410751	Gas Phase Overall Volumetric Mass Transfer Coefficient for Absorption of CO <sub>2</sub> into Aqueous Blends of Amines
Vinayak Vijayan	11410763	Hydrodynamics of Moderately Viscous Oil-water flow through undulated pipeline

List of students who have fulfilled the requirements for the award of the M.Des. degree in Design		
Name	Roll No	Project Title
Deshpande Shruti Dhananjay	11420501	Exploring Fractals in Design
Anjali	11420503	Temporality- Tree of Life
Jithin George	11420504	Design of Fuel Cell car for Urban Mobility
Nishtha Mehrotra	11420505	Aks: Facilitating social interaction in private public space
Ishpreet Batra	11420506	Food Experience
Jayakrishnan C M.	11420507	Vegetable and Fruit Washer
Himanshu Seth	11420508	IVR based solution for people at the risk of suffering from TB, in rural Assam
Raina Agarwal	11420509	To replicate the real world shopping experience to virtual shopping experience
R. Ramprasad	11420510	A Military truck concept for the armed forces
Devabrat Borgohain	11420512	Design of a motor bike keeping the emotive perspective of a target age group
Gautam Kumar	11420513	Design a visual medium to teach moral values to school children
Mohammad Shahid	11420514	Lettering in Bollywood Film Posters
B. Uday Kumar	11420515	Non-conventional Energy Source(Human Power) towards electricity generation for illuminating a public space(Park)
Yuvaraj P.	11420516	Light for Day
Subhajit Chandra	11420517	A Bengali Font for Small Display Screens
Wanjari Ketan Kishor	11420518	Compact City C a b Concept
Sandip Adhikary	11420519	Design of a virtual learning environment to increase learners' performance and attention
Moumita Naskar	11420520	WATER NOW, a public awareness campaign around water scarcity
Nabaneet Ch. Bora	11420521	Assamese font inspired from Assamese Manuscripts
Suchita Pande	11420522	Decorative Roman Letterings from Indian Craft
List of students who have fulfilled the requirements for the award of the PhD degree in Biotechnology		
Name	Roll No	Thesis Title
Asim Bikas Das	07610610	Molecular Signaling Pathways of Recombinant Human Cripto-1
Shadab Ahmed	07610611	Cloning, expression, purification and biochemical characterization of a novel $\alpha$ -L-arabinofuranosidase of family 43 glycoside hydrolase (GH43) from <i>Clostridium thermocellum</i>
Anil Kumar Shukla	08610603	Targeting Redox Metabolism of Leishmania Parasite for Potential Chemotherapy of Leishmaniasis
Abhay Narayan Singh	09610607	Studies on Procerain B, a Novel Cysteine Protease from <i>Calotropis procera</i>

List of students who have fulfilled the requirements for the award of the PhD degree in Chemical Engineering		
Name	Roll No	Thesis Title
Ujwala Hujuri	06610705	Product Distribution and Mechanistic Aspects In Pyrolytic Decomposition of Some Commodity Plastics
S. Murugavelh	08610708	Studies on Bioreduction of Cr(VI) using Environmentally Significant Microorganisms
List of students who have fulfilled the requirements for the award of the PhD degree in Chemistry		
Name	Roll No	Thesis Title
Shahzad Ali	05612209	New Synthetic Methodologies by Using in situ Generated Iodonium Ion and by Trapping of o-Quinone Methide Intermediate with Various Nucleophiles
Francis A.S. Chipem	07612201	Excited State Intramolecular Proton Transfer in 2-(2'-Hydroxyphenyl) benzimidazole and its Nitrogen Substituted Analogues and 2-(2'-Hydroxyphenyl)-3H-oxazo[4,5-b]pyridine
Vijendra Kumar Fulwa	07612202	Synthesis and Characterization of Compounds Derived From 2-Cyanopyridine
Mohan Lal	07612204	Exploration of 1,3-Dicarbonyl Compounds for Multicomponent Reactions (MCRs) Based Syntheses of Heterocycles
Somasekhar Bondalapati	07612205	Stereoselective Synthesis of Tetrahydro - pyrans, -thiopyrans and -quinolines
Sayak Bhattacharya	07612206	Studies of He+HeH+ and H2+OH(CN) reactive scattering systems using multiconfiguration time-dependent Hartree approach
Atul Kumar Dwivedi	07612207	Development of Fluorescent Water Soluble Polyfluorene for Chemical and Biological Sensors
S. Sakthivel	07612216	Study of Asymmetric Cyanohydrin and Sulfoxidation Reactions, and Fluorometric Recognition of Zn <sup>2+</sup> and Optically Active 2- Substituted Pyridines
Himanshu Sekhar Jena	07612219	Diastereoselectivity in Bimetallic Complexes Containing Chiral Tridentate Ligands
Sandeep Kumar Dey	07612222	Anion Coordination Induced Supramolecular Self-Assemblies of Hydrogen bonding Tripodal Scaffolds: From Charge-assisted Complexation to Neutral Molecular Capsules
Dipjyoti Kalita	08612201	Supramolecular chemistry and reactivity of quinoline derivatives
Pipas Saha	08612204	Newer Strategies for the Synthesis of Mono- and Bicyclic Oxygen Heterocycles
Santosh Kumar Sahoo	08612206	Development & Applications of Transition Metal Catalysts for the Construction of Heterocycles
Rajen Kundu	08612208	Design, Synthesis and Applications of Fluorescent Small Organic Molecules and Nucleoside
Ziyauddin Khan	08612211	Rational Design of Cadmium Sulfide based Nano-hybrid Materials: Synthesis, Characterization and Evaluation of Photocatalytic Properties for Efficient Hydrogen Generation and Organic Dye Degradation

Md. Ashif Ali	09612206	Study of Copper(I)-Catalyzed C-C, C-N and C-O Bonds Formation, and Palladium(II)-Catalyzed One-pot Conversion of Aldehydes to Primary Amides
Mr. Ramana Tamminana	09612212	Study of Copper-Based C-S, C-Se and C-N Bonds Formation
Murali Mohan Guru	09612222	Study of Copper(II) Based Oxidative C-H Functionalization/C-C/N-N/C-N/C-O Bonds Formation for Synthesis of Substituted Azoles
List of students who have fulfilled the requirements for the award of the PhD degree in Civil Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Bhupendra Barman	004401	Evaluation Of Suspended Sediment Flux Along A Cross-Section Of The Brahmaputra River
Lalsangzela Sailo	05610407	Evaluation of Factors Controlling Release and Mobilization of Arsenic in parts of Brahmaputra Floodplain
Sandip Mondal	05610408	Design and Development of an Arsenic Removal Filter using Indigenous Materials
Wazir Alam	08610404	Analytical Predictions Of Flow Into Auger Holes And Ditch Drains In Homogeneous Anisotropic Soil
Akash Priyadarshree	10610407	Strength And Deformation Characteristics Of Geocell - Fiber Reinforced Granular Soil
List of students who have fulfilled the requirements for the award of the PhD degree in Computer Science and Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Lipika Deka	06610102	Consistent Online Backup in Transactional File Systems
List of students who have fulfilled the requirements for the award of the PhD degree in Design		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Mohsen Jaafarnia	08610501	Automobile Design: Approaches to understanding visual form
Pratul Chandra Kalita	08610503	Marketing-Research-Finding Sensitive Visualisation (Mrfsv) Method For Product Design With Special Reference To Domestic Dishwashing In Indian Context
List of students who have fulfilled the requirements for the award of the PhD degree in Electronics and Electrical Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
S. R. Nirmala	04610207	Wavelet Weighted Distortion Measures for Retinal Images
C. Shyam Anand	06610201	Wavelet Domain Bilateral Filtering For Denoising Mr Images
Laxmi Narayan Sharma	06610204	Multiscale Processing of Multichannel Electrocardiogram Signals
Sarada Prasad Dakua	06610208	Left Ventricular Wall Detection from MRI Scans using Random Walk



Jyoti Ranjan Panda	07610204	Printed Monopole Antennas With Multiple Bends For Rfid, Wlan And Uwb Applications
Dola Gobinda Padhan	08610212	Improved Control Structures And Methodologies For Linear Processes With Delay
Mukesh Singh	09610202	Vehicle to Grid Implementation using Fuzzy Logic Controller
Kandarpa Kumar Sarma	09610211	MIMO Channel Modeling using a Class of Soft-Computational Techniques
List of students who have fulfilled the requirements for the award of the PhD degree in Humanities and Social Sciences		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Ashima Majumdar	06614106	Urban Informal Manufacturing Sector in Assam : An Analysis of Growth Dynamics, Productivity, Linkage and Social Security
Anurag Bhattacharyya	06614107	Places, Landscapes and Lives: Towards an Ecocritical Reading of Selected Fiction of Gao Xingjian
Parag Dutta	06614108	A Study Of State Finances And Fiscal Reforms In Assam: Post Reform Experiences And Challenges
List of students who have fulfilled the requirements for the award of the PhD degree in Mathematics		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Ravi Srivastava	07612301	Distance Problems For Hermitian Matrix Polynomials - An $\varepsilon$ - Pseudospectra Based Approach
Shubh Narayan Singh	07612302	Semi-Flower Automata
Shuvam Sen	07612306	Compact Biharmonic Computation Of The Navier-Stokes Equations: Extension To Complex Flows
List of students who have fulfilled the requirements for the award of the PhD degree in Mechanical Engineering		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Sachin Kumar Singh	05610310	Identification of Multiple Cracks in a Shaft System
Perumalla Janaki Ramulu	08610306	Forming Behavior Of Friction Stir Welded Sheets
Hrushikesh Sarangi	08610307	Optimal Strain Gage Locations for Experimental Determination of Stress Intensity Factors
List of students who have fulfilled the requirements for the award of the PhD degree in Physics		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
J Anto Pradeep	04612102	An Investigation Of Optical Properties Of Porous Silicon: Refractive Index, Photoluminescence And Raman Scattering Studies
Aneesh R.	06612101	Experimental Studies On The Development Of Nanoparticle Based Optical Fiber Humidity Sensor With Linear Response Over A Large Dynamic Range

Sunita Mohanty	07612102	Magnetic Properties of Co and Ni doped SnO <sub>2</sub> Based Diluted Magnetic Semiconductors
Sangeetha N.S.	07612104	Interplay of Magnetism, Superconductivity and Charge density wave in Lu <sub>2</sub> Ir <sub>3</sub> Si <sub>5</sub> and R <sub>2</sub> Ir <sub>3</sub> Sn <sub>5</sub> (R=rare earth) Compounds
Soumen Dhara	07612108	Studies on Controlled Growth and Optoelectronic Properties of ZnO Nanowires, Nanorods and its Heterostructures for Efficient UV Photodetection
Vindhyawasini Prasad	07612109	Search for di-muon decays of a light scalar Higgs boson in radiative Y(1S) decays
Jahir Abbas Ahmed	07612110	Sandpile model under rotational constraint: Scaling, universality and crossover
Arindam Pal	08612114	Growth Kinetics of Self-assembled Structures of Perylene and Naphthalene Derivatives by Thermal Evaporation and Their Characterizations
List of students who have fulfilled the requirements for the award of the PhD degree in Energy		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Sushovan Chatterjee	05615101	Studies On Immobilized Lipase And Biosurfactant For Hydrolysis
Amrita Ranjan	08615103	Butanol Production from Rice Straw: Process Development and Optimization
Swati Khanna	08615105	Bioconversion of Glycerol by Immobilized Clostridium pasteurianum: Process Development, Optimization and Intensification
Siba Shankar Mohapatra	09615105	Development And Performance Evaluation Of A Natural Convection Grain Dryer
List of students who have fulfilled the requirements for the award of the PhD degree in Environment		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Deepmoni Deka	05615203	Bioethanol production involving cellulase producing Bacillus subtilis AS3 using environmentally available thatch grass (Hyparrhenia rufa) as weed
J. Anandkumar	07615202	Synthesis and Application of Novel Adsorbents for Wastewater Treatment
Biju Prava Sahariah	08615203	Performance Evaluation of Continuous and Fed Batch Sequential Moving Bed Reactors for Removals of Phenol, Thiocyanate and Ammonia-Nitrogen from Wastewater
List of students who have fulfilled the requirements for the award of the PhD degree in Nanotechnology		
<b>Name</b>	<b>Roll No</b>	<b>Thesis Title</b>
Shilpa Sharma	08615302	Metal Nanoparticles and Nanocomposites as Antibacterial and Anticancer Agents

## PROGRESS IN CONSTRUCTION WORKS

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical Progress		Total Progress upto 31.03.2014		Remarks
			Upto 31.03.13	During 2013-2014	Physical	Financial (₹ in lakhs)	
1.	Boys' Hostel 8 (450 capacity)	2608.98	85%	15%	100%	2384.27	The work is completed in September 2013 and under occupation.
2.	Boys' Hostel 10 (956 capacity with 31050 Sqm floor area)	8228.00	5%	35%	40%	2884.32	400 rooms shall be made available for occupation by this academic session.
3. (a)	Extension of Girls' Hostel Phase-II (2820 sqm)	783.34	43%	57%	100%	545.00	Work is completed and is handed over for occupation.
(b)	Girls' Hostel 2 (500 capacity, 13790 sqm floor area)	4240.17	10%	50%	60%	2026.35	(a) All piling works complete. Block-A: All RCC, Brickwork, plastering complete. Flooring is in progress. Block-B (b) 50% structural work complete. Block-C Works up to plinth beam complete.
4.	Married Scholars hostel	2532.53	--	12%	12%	215.17	Piling work is in progress. Piling work shall be completed within May 2014.
5. (a)	Extension of Academic Complex (Phase-III)						
	Departments of CSE, Chemistry (1st floor), Civil Engineering, HSS and Mathematics (7450 sqm)	2241.83	90%	10%	100%	1563.76	Works complete.

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical Progress		Total Progress upto 31.03.2014		Remarks
			Upto 31.03.13	During 2013-2014	Physical	Financial (₹ in lakhs)	
(b)	(Phase-IV and Classroom)						
	Department of Chemistry, EEE and ME	7238	15%	25%	40%	1913.34	(i) Finishing work in Chemistry and EEE is in progress (ii) Structural work in ME complete and Brick work is in progress. (iii) Structural work of class room is in progress.
6.	Residential Quarters						
(a)	30 units of F type in 6 blocks (5738 Sqm)	1002.37	70%	30%	100%	799.73	Building works are complete and minor site development work is on progress.
(b)	30 units of E-type in 5 blocks (4548 Sqm)	918.88	50%	45%	95%	801.82	2 blocks of 12 units is handed over for occupation in June 2013. Balance 3 blocks of 18 units is almost ready expected to be handed over by the end of May 2014
(c)	28 units of B-type in 2 blocks (2403 Sqm)	455.83	76%	24%	100%	412.98	The work has been complete and taken over by the institute.
7.	Construction of Student's Activity Centre building Phase-II, Institute, student canteen and covered stage (9015 Sqm)	2929.94	75%	25%	100%	2835.56	1) All works complete 2) SAC building complete and occupied since March. 2014 3) Final bill is under preparation.
8.	Extension of Kendriya Vidyalaya Phase-II (3960 sqm)	789.74	95%	5%	100%	904.25	The work has been complete and handed over to KV Authority.
9.	Badminton and Weight Lifting Complex	900.46	35%	65%	100%	771.86	The work was complete before inter IIT Sports Meet for hosting of the games.
10.	Infrastructure Development of Sports Complex	211.00	15%	85%	100%	231.54	The work was complete before inter IIT sports meet for hosting of the games.
11.	Construction of Security Road along the Boundary wall of the Campus (Phase-III)	301.39	80%	20%	100%	244.63	Work completed on 31.08.2013.
12.	Research Building Complex	5675.46	--	25%	25%	974.23	The foundation work is complete and structural work is in progress.

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical Progress		Total Progress upto 31.03.2014		Remarks
			Upto 31.03.13	During 2013-2014	Physical	Financial (₹ in lakhs)	
13.	Guest House 2		---	30%	30%	716.14	Foundation work 50% completed. Structural slab and column of Part-I and 2 upto 1st floor completed
14.	Community Hall near D type	273.46	1%	79%	80%	92.00	All foundation and superstructure work complete except erection of truss and roofing sheet. Brickwork and plastering is almost complete and a part of site development work including drainage work is under progress.
15.	Construction of boundary wall phase-IV.	1476.90	--	10%	10%	130.00	Piling and foundation work is in progress
16.	Construction of Drains						
(a)	RCC drain from near civil Engineering Department in Academic to culvert near Raw water treatment plant at IIT Guwahati campus	80.52	--	100%	100%	75.63	Work completed on 15.07.2013.
(b)	Brick drain from water treatment plant to RCC drain and from North West corner of hostel Brahmaputra to near Ghorajan nallah CRPF camp at IITG campus.	16.49	--	50%	50%	8.13	Work is under progress.
17.	Installation, testing and commissioning of 11 KV sub-station with associated works (Ph-II)	145.94	65%	100%	100%	142.58	Work complete.
18.	Low Side Air Conditioning Works of New 4 x 300TR HVAC Plant (Phase – II),	369.60	10%	100%	100%	300.00	Work complete

# DETAILS OF RESEARCH AND DEVELOPMENT PROJECTS

## NEW RESEARCH PROJECTS

Research projects received during the year 2013-2014 are given below:

Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
Carbon monoxide conversion using native hydrogenogenic microorganisms for sulphate-rich wastewater treatment	Dr. K. Pakshirajan	BCIL	Biotechnology	750000
A novel process for thermostable gene prospecting gene prospecting from thermophilic metagenome	Dr. S. Patra	CSIR	Biotechnology	2992000
An investigation on the expression of various protein tyrosine kinases and their phosphorylated form in different stages of the development of Oral Squamous Cell Carcinoma	Dr. A. Kr. Kunnumakkara	DBT	Biotechnology	4670000
structural and functional Characterization of adaptation stage of CRISPR-Cas System in Mycobacterium tuberculosis	Dr. B. Anand	DBT	Biotechnology	5918200
Molecular Mechanism of Ribosome Assembly in Bacteria	Dr. B. Anand	DBT	Biotechnology	5880000
Understanding the role of cellular cross talks for cartilage tissue repair using a 3D co-culture tissue model (RGYI)	Dr. B. B. Mandal	DBT	Biotechnology	3706000
Silk2Heal-Combining Indian Silk and functionalized recombinant spider silk Spiber	Dr. B. B. Mandal	DBT	Biotechnology	7470000
Development of novel tissue engineered silk biomaterial based wound dressing patch for diabetic foot ulcers	Dr. B. B. Mandal	DBT	Biotechnology	4295000
Deciphering the role and architecture of CRISPR Cas defense system in Leptospira interrogans	Dr. M. Kumar	DBT	Biotechnology	4795000
In vitro production of doubled-haploids in tea	Dr. R. Chaturvedi	DBT	Biotechnology	6458000
Unraveling the rationale behind solvent stability of proteins	Dr. S. Patra	DBT	Biotechnology	2820000

Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
Production of recombinant human interferon gamma (IFN $\gamma$ ) from <i>Kluyveromyces lactis</i>	Dr. V. V. Dasu	ICMR	Biotechnology	288325
Forecasting air quality impacts of episodic conditions occurring at traffic intersections in a mixed use urban environment	Dr. S. B. Gokhale	IoENGG	Biotechnology	70000
Understanding the mechanism of substrate delivery through solute- binding proteins related to ABC transporters	Dr. S. P. Kaunaujia	SERB	Biotechnology	4719600
An investigation of the therapeutic potential of buttein isolated from <i>Toxicodendron vernicifluum</i> against human oral squamous carcinoma	Dr. A. K. B. Kunnumakkara	SERB	Biotechnology	2255000
Real-time quantitative RT-PCR based expression profiling of matrix metalloproteinases and their inhibitors in prostate cancer cell lines	Dr. A. M. Limaye	SERB	Biotechnology	2400000
Stem cell based Bioengineering of annulus fibroses in an intervertebral disc model using North East silk biomaterials	Dr. B. B. Mandal	SERB	Biotechnology	5450000
Innovation in Science Pursuit for Inspired Research	Dr. B. B. Mandal	SERB	Biotechnology	3500000
Modulation of gene expression in <i>Leptospira interrogans</i> exposed to human catecholamine hormone	Dr. Manish Kumar	SERB	Biotechnology	2350000
Role of store operated calcium entry in diabetes and hyperlipidemia induced vascular smooth muscle dysfunction	Dr. P. Sukumar	SERB	Biotechnology	2490000
Elucidation of the substrate delivery and specificity mechanism of solute binding proteins cognate to the ABC transporters	Dr. S. P. Kanaujia	SERB	Biotechnology	2400000
Bioprocess development for the L-asparagines production by recombinant strain and its evaluation as food additive for acrylamide free products	Dr. V. V. dasu	DBT	Biotechnology	1969800
Application of radiotracer techniques in design of circulating fluidized bed for higher production of propylene	D. A. Singh	BRNS	Chemical Engineering	1675875
Study of interaction between pneumatic spray nozzle and bubbling gas fluidized bed using radioactive particle tracking (RPT) and $\gamma$ -ray densitometry	Dr. P. Tiwari	BRNS	Chemical Engineering	2278950
Quantum chemical understanding of solvent extraction mechanism of metal ions in novel ionic liquid medium	Dr. T. Banerjee	BRNS	Chemical Engineering	2109050
Centre of excellence on sustainable polymers	Dr. V. Katiyar	MoCP	Chemical Engineering	60000000
Studies on confinement -induced polymer crystallization by molecular simulation	Dr. A. K. Dasmahapatra	CSIR	Chemical Engineering	1207000

Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
Natural Gas Purification by CO <sub>2</sub> - Selective Silica Membrane`	Dr. B. Mandal	CSIR	Chemical Engineering	1942000
Development of solar powered microbial fuel cell (photo MFC) for integration with photo fermentative biohydrogen production for bioelectricity generation	Dr. A. Verma	DBT	Chemical Engineering	845000
Development of efficient bioleaching process for the metal recovery from spent catalysts (RGYI)	Dr. V. V. Goud	DBT	Chemical Engineering	894000
Utilization and synthesis of fly ash based bi-functional catalyst in bio-diesel production	Dr. M. K. Purkait	DST	Chemical Engineering	1965480
Concurrent electrochemical generation of hydroxyl radicals or its precursor H <sub>2</sub> O <sub>2</sub> both at anode and cathode surfaces and its utilization in pharmaceutical wastewater treatment	DR. A. K. Golder	SERB	Chemical Engineering	2620000
Experimental and numerical investigation of suspension flow in Microfluidic Bifurcation channels	Dr. Anugrah Singh	SERB	Chemical Engineering	3968000
Design and development of intelligent catalytic nanobots	Dr. D. Bandyopadhyay	SERB	Chemical Engineering	4136000
Drag and mass transfer phenomena of contaminated bubbles/ droplets in Non-Newtonian liquids	Dr. N. Kishor	SERB	Chemical Engineering	2104000
Identification of competent alkali- surfactant-polymer formulations for enhanced oil recovery of Assam crude oil	Dr. P. Tiwari	SERB	Chemical Engineering	924720
Ionic liquids supported thermal dehydrogenation of ammonia borane	Dr. T. Banerjee	SERB	Chemical Engineering	3476400
Arresting Pre Fibrillar Aggregates of Alzheimer's Amyloid by Synthetic Antibodies	Dr. Bhubaneswar Mandal	BCIL	Chemistry	3175000
Understanding the Interaction between Cocurbituril and Amphiphilic Molecules in Aqueous Medium to prepare Novel Self-assembled System	Dr. D. Das	BRNS	Chemistry	1993125
Interacting molecules and nanoscale materials	Dr. A. Chattopadhyay	CSIR	Chemistry	1692000
Peptide based soft-Nano Composites: Design, Synthesis and Potential Applications	Dr. D. Das	CSIR	Chemistry	1632000
Supramolecular self-assembly and anion coordination Chemistry of multidentate ligand	Dr. Gopal Das	CSIR	Chemistry	1542000
Supramolecular self-assemblies of peptide amphiphiles-design, synthesis, characterization and prospective applications	Dr. A. Dasgupta	DST	Chemistry	2010000
Application of smooth exterior scaling method	Dr. A. K. Gupta	SERB	Chemistry	3982400
Design and Synthesis of Polyohilic Discotic Liquid Crystals for the application in Organic Electronics	Dr. A. S. Achalkumar	SERB	Chemistry	4880000



Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
Development of Nitrobenzofurazan, Indazole, Trizole and Triazine derivatives as Potent and Selective Inhibitors of Indoleamine 2,3 Dioxygenase	Dr. D. Manna	SERB	Chemistry	2500000
Effect of electron donating and electron withdrawing substituents on single strand breaks in selected DNA fragment induced by low energy electron	Dr. M. Sarma	SERB	Chemistry	2946000
Self-Organization and filament Dynamics in Reaction- diffusion Systems	Dr. S. Dutta	SERB	Chemistry	3310000
Effect of osmolytes urea and trimethylamine-N-oxide on hydrophobicity and protein folding/ unfolding under confinement	Dr. S. Paul	SERB	Chemistry	2070000
Genotyping single nucleoside polymorphisms (SNPs) with fluorescently modified nucleoside/ oligonucleotide probes	Dr. S. S. Bag	DBT	Chemistry	8212000
Design and evaluation of closure cap system for near surface radioactive waste disposal facility	Dr. S. Sreedeeep	BRNS	Civil Engineering	2473613
Performance-Based Probabilistic Capacity Models for Concrete Structures subject to Blast loading	Dr. H. Sharma	DRDO	Civil Engineering	2156200
Evaluation and enhancement of seismic capacity of Assam type housing	Dr. H. B. Kausik	DST	Civil Engineering	3872500
Evaluation of the urban road network in terms of the traffic and road way conditions: a case study of Guwahati	Dr. Mallikarjuna C.	DST	Civil Engineering	2738164
Determining the suitability of Assam aggregates of different sources as ingredient for micro-surfacing	Dr. T. L. Rynthiang	DST	Civil Engineering	3997198
Innovation in Science Pursuit for Inspired Research (INSPIRE AWARD)	Dr. T. V. Bharat	DST	Civil Engineering	3500000
A study on feasibility of PPPs as mitigation strategy for climate change	Dr. L. Boeing Singh	HUDCO	Civil Engineering	1569264
Development of bio-reactor system for simultaneous removal of multi- pollutants such as iron, nitrate, arsenic and fluoride from ground water	Dr. P. K. Ghosh	MoDW	Civil Engineering	1408628
Development of hydrological module for different hill-slope processes	Dr. S. Dutta	SAC	Civil Engineering	290000
Study on lowering of mixing and compaction temperatures of bituminous mixes through warm through warm mix asphalt addition	Dr. R. Choudhury	SERB	Civil Engineering	5903100
Design and development of gesture user interface for developing regions	Dr. Keyur Sorathia	MRL	Design	211200
3D gesture control research collaboration	Dr. K. Sorathia	NOKIA	Design	837480

Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
Accessibility and user interface	Dr. K. Sorathia	SUM-SUNG	Design	
High performance computing using GPU	Dr. G. Trivedi	NVIDIA	Electronics and Electrical Engineering	\$2,500
Dual mechanical port motor based electric vehicle power train	Dr. P. Kumar	SERB	Electronics and Electrical Engineering	5499860
Optoelectronic and Transport Studies on Thin Silicon Films (nc-Si AND nc-Si/a--Si:H Superlattice) and Solar Cells	Dr. Pratima Agarwal	CSIR	Energy	2128000
Rural Hybrid energy- enterprise system	Dr. P. Mahanta	DST	Energy	8268382
Investigating the effect of co-digestion and advance sludge pretreatment methods on the anaerobic conversion potential of the organic waste (RGY)	Dr. V. V. Goud	DBT	Energy	689000
Laser based calibration methodology for thermal sensors in combustion measurements	Dr. N. Sahoo	DRDO	Energy	1240000
Development of a cost effective process for biodiesel production through direct transesterification of wet algal biomass from high density heterotrophic cultivation	Dr. D. Das	DST	Energy	5000000
Development of bioelectrodes for biofuel cell applications	Dr. P. Goswami	MNRE	Energy	3372600
Development of supported noble metal catalysts using surfactant assisted electroless plating process for the dehydrogenation of light alkanes	Dr. M. De	SERB	Energy	3934450
Exploration and Characterization of Seri- Bio Resources of North East India for Potential Textile and Non- Textile Applications'	Dr. U. Bora	DBT	Environment	15425000
A typological map of the language- cognition interface in the domain of conceptual metaphor	Dr. B. Som	DST	Humanities and Social Sciences	1355000
REM- Sleep dependent consolidation of prospective memory	Dr. N. Kashyap	DST	Humanities and Social Sciences	4410000
An ethnolinguistic account of sensory perception among the Bodos in North East India	Dr. B. Som	ICSSR	Humanities and Social Sciences	175225
Pottery Making And Its Prospect For Rural Employment: Kumar And Hira Communities	Dr. S. Sharma	ICSSR	Humanities and Social Sciences	700000
A broad Sociolinguistic Study of Vowel Variation in Assamese	Dr. P. Sarmah	SERB	Humanities and Social Sciences	1500000

Project Title	Principal Investigator	Funding Agency	Department/ Centre	Amount Sanctioned (Rs.)
INAE Chair Professorship	Dr. S. C. Mishra	INAE	Mechanical Engineering	460000
Improving productivity and product quality in machining of thin- walled components	Dr. S. K. Jhosi	SERB	Mechanical Engineering	3790000
Development of high performance computing tool for structure topology optimization using multi- objective evolutionary algorithm	Dr. D. Sharma	SERB	Mechanical Engineering	1212000
J. C. Bose Fellowship Award	Dr. G. Biswas	SERB	Mechanical Engineering	3958061
Nanofinishing of freedom surfaces using magnetorheological fluid based finishing process	Dr. Manas Das	SERB	Mechanical Engineering	4100000
Experimental investigation and numerical modeling of micro scale joining of similar and dissimilar materials	Dr. S. Bag	SERB	Mechanical Engineering	2220000
Centre for excellence in Research and Development of Nanoelectronics Theranostic Devices	Dr. A. Chattopadhyay	DIT	Nanotechnol-ogy	577500000
Development of Semiconductor Nanowire Based Advanced Bio-sensors for Biomedical Applications	Dr. P. K. Giri	CSIR	Physics	2192000
Fe Doped In <sub>2</sub> O <sub>3</sub> Thin Films: Growth optimization and Investigation of Electrical Transport, Magnetic and Optical Properties for Spintronics applications	Dr. S. Ravi	CSIR	Physics	1472000
Innovation in science pursuit for inspired research	Dr. S. M. Tripathy	DST	Physics	3500000
Innovation in Science Pursuit for inspired Research	Dr. S. Bhattacharya	SERB	Physics	3500000
Parity-time symmetry in nonlinear optics	Dr. A. K. Sarma	SERB	Physics	1447000
Magnetic and magneto resistance properties of multilayer structured CoFeB alloy films for spintronic applications	Dr. A. Perumal	SERB	Physics	3946000
Deposition and characterization of Ba <sub>5</sub> Nb <sub>4</sub> O <sub>15</sub> -BaWO <sub>4</sub> films for complementary metal oxide semiconductor applications	Dr. D. Pamu	SERB	Physics	1500000
Neutron power diffraction studies in transition element doped	Dr. S. Ravi	UGC-DAE	Physics	265400

### CONSULTANCY PROJECTS

The following consultancy projects were received during the year 2013-2014:

Project Title	Principal Investigator	Clients
Proof Consultancy for structural Design	Dr. A. Chakraborty	Mott MacDonald, Bellevue Mansion, Shillong-793001
Structural safety of ACR Constructed using PEB	Dr. A. Chakraborty	M/S AXOM Sarba Sikha Abhiyan Mission, Kahilipara, Guwahati-781019.

<b>Project Title</b>	<b>Principal Investigator</b>	<b>Clients</b>
Design Mix for Pavement Quality Concrete (PQC-45 kg/cm <sup>2</sup> ) and Investigation of materials: CESZ/MISM/04 of 2013-14: Construction of technical accommodation at Missamari	Dr. A. Chakraborty	AE (Civ), AGE B/R (P), Misamari.
Review of Design and Drawings of a curved box girder bridge in Kolkata	Dr. A. Dutta	M/s CDAC, 12, Lake West Road, Santoshpur, Kolkata-700075, India
Proof checking of Design and Drawing for Railway Over Bridge at Dhing Gate, Nagaon	Dr. A. Dutta	M/s D2S Infrastructures Pvt. Ltd., A.T. Road, Guwahati-781001
Proof checking of Horizontal deflection of G8 of Span P2-P3 of Vanivihar Flyover and Girder G5 of span P3- P4 of Phulnakra Flyover	Dr. A. Dutta	M/S Simplex Infrastructures Ltd, Kolkata
"Proof checking of design and drawings for bridge no.53 of N. F. Railway".	Dr. A. Dutta	M/S Stup Consultants Pvt. Ltd., P-11 Darga Road Kolkata- 700017.
Proof checking of design & drgs. Of bridge no.1/2 over river Aie at Chilapara, Kahibari Village	Dr. A. Dutta	Mr. Rudra Kumar Pathak, Abhayauri, Bongaigaon- 783384.
Mix Design of M-60 and Investigation of Construction materials	Dr. A. Dutta	Mr. P. C. Ray, Office of the SSE/CS/JID., N. F. Railway, Jagiroad.
Proof checking of design and drawings for Santragachi Station Development project for S. E. Railway	Dr. A. Dutta	M/S STUP Consultants Pvt. Ltd., Kolkata- 700017.
Proof checking of drawings and design of 70m span bow string girder across the Rly. Track	Dr. A. Dutta	M/S Rites Ltd, Regional Project Office, Kolkata- 700012.
Proof checking of detailed design and drawing for Construction of Bridge No.1/1 including approaches and protection work over at Jatinga at Borkhola on Mahasadak to Borkhola road under NLCPR in Cachar District	Dr. A. Dutta	M/S D2S Infrastructures Pvt. Ltd., H. No. 457, A. T. Road., Guwahati-781001 (Assam).
Concrete Mix Design M-25 with OPC 43 for construction of residential buildings for 4th Battalion and Sector Head Quarters- ITBP, Rangamati, Tezpur, Assam	Dr. A. Dutta	M/S Hindustan Steelworks Construction Ltd, Guwahati, Assam.
Proof checking of design and drawings of 40m Curved Composite Span of Flyover connection EM Bypass & Kavi Nazrul Islam Sarani, Kolkata for KMDA	Dr. A. Dutta	M/S STUP Consultants Pvt. Ltd., Park Circus, Kolkata 700017.
Concrete Mix Design M 30 for concrete Piling work and Investigation of Cement for Mounded Storage Vessel Project	Dr. A. Dutta	IOCL Indane LPG Botling Plant, North Guwahati.
Investigation of construction materials	Dr. A. Dutta	Mr. S. Majumder, Chief Manager (Vigilance), Oil India Ltd, Guwahati- 781171
Test of Bituminous cores to find out the bitumen content	Dr. A.K. Maurya	M/s National; Highways Authority of India, Silchar-788004
Flood and erosion Management Project for Assam considering climate change in association with ASDMA	Dr. A. K. Sarma	Assam State Disaster Management Authority, Guwahati.
Impact of climate change on precipitation pattern of Barak Basin	Dr. A. K. Sarma	NIT, Silchar- 788010

Project Title	Principal Investigator	Clients
Hydrological and Hydrodynamic model study of Brahmaputra River near Guwahati city in connection with the water supply project of North Guwahati	Dr. A. K. Sarma	JITF Water Infrastructure Ltd., Last Gate, Dispur, Guwahati- 781006.
Proof Checking of Ro-Ro Jetty at Dhubri in NW 2 at Brahmaputra	Dr. A. K. Sarma	Executive Engineer, Guwahati Central Division, CPWA, Guwahati- 21.
Construction of campus of National Institute of Pharmaceutical Education & Research at Changshari, Guwahati, Assam	Dr. A. K. Sarma	Mr. B. K. Bezbarua, The Project Director, NIPER, Guwahati
Determination of soil strength parameters	Dr. A. Murali Krishna	M/S J. P. Associates, Unnayan Super Market, A. T. Road, Jorhat
Concrete Mix Design M-25 and Investigation of Cement for establishing infrastructure facilities inside Air Force Complex at Tezpur, Assam	Dr. B. Pradhan	M/s Bharat Electronics Ltd., Bangalore
Proof checking of Design & drawings for open foundation at ROB, Changsari	M/S Punj Lloyd Ltd., Guwahati.	PLL/AS4/PFIN06/PLNG/A101/2180
Widening and strengthening of existing National Highway from 2 lane to 4 lane (Km.1040.300 to km 1013.00) Bijni to Nalbari section on east west corridor	Dr. B. Singh	M/S KMC Construction Ltd.
Proof check for temporary staging design for Major Bridge 184/1 (middle span)	Dr. B. Singh	M/S KMC Construction Ltd.
Investigation of Boulder Sample	Dr. C. Mahanta	Mr. L. Maheshwar Singh, Res. Engineer, SMEC International Pvt. Ltd., Lamding, Nagaon, Assam
Assessment of Rural Drinking Water Supply Services for the World Bank-assisted RWS-LIS project	Dr. C. Mahanta	Govt of Assam, PHE, Assam, Hengrabari, Guwahati-781036
Petrographic analysis of silt sample	Dr. C. Mahanta	Mr. J. Chaudhari, DGM (C) RHEP, NEEPCO Ltd, Arunachal Pradesh-791119.
Investigation of Construction materials	Dr. C. Mahanta	M/S Jaypee Meghalaya Power Ltd. Kynshi - II H. E. Projects, Ranikor, Meghalaya
Investigation of material testing for Hydro Electric Project in Arunachal Pradesh	Dr. C. Mahanta	M/S CEO, EDCL House, 1A, Elgin Road, Kolkata- 700020.
Critical Review of Seismic Hazard Input for Safety Evaluation of Lower Subansiri Dam	Dr. H. B. Kaushik	M/S NHPC Ltd., Dhemaji, Assam.
Proof checking consultancy of the structural drawings for the proposed development at Sahalimar, West Bengal	Dr. H. Sharma	M/S Consulting Engineering Services (India) Private Ltd, Salt Lake, Kolkata- 700091.
Concrete Mix Design M-25 with OPC 43 and Investigation of Cement (Dalmia & Adhunik)	Dr. H. Sharma	Mr.S. Aditya Arora, NBCC Ltd, H. No.242, 8th bye lane, Rajghar Road, Guwahati- 3.
Concrete mix Design M-25 with OPC	Dr. H. Sharma	M/S Ganesh Tamuli Engineering Pvt. Ltd., Silpukhuri, Guwahati-781003.

Project Title	Principal Investigator	Clients
Concrete Mix Design M-20 and Investigation of Cement	Dr. K. Dasgupta	M/S Sandip Nanavati Engineers & Contractors.
Investigation of Tensile Strength of HT Wire for Construction of Taplomachera Bridge (55 mtr span) at Ambassa in Tripura state	Dr. K.D. Singh	I.D. Prasad , AE(Civ), 78 Road Contr Coy (GREF), C/o 99 APO, Pin 930078
Physical and Chemical testing of Central Coil & Strip	Dr. K. D. Singh	Mr. P. Subramanian, AE(E/M), AGE (I) (AF) Digaru, Kamrup
Safety audit of Shillong Bypass connecting NH-40 and NH-41	Dr. C. Mallikarjuna	National Highways Authority of India, New Delhi-110075
Expert opinion on the revised profile of ROB 1 at km 79+830.45 of NH-31c section	Dr. C. Mallikarjuna	M/s Gayatri- ECI (JV), B-1., T. S. R. Towers, 6-3-1090, Hyderabad-500082.
Mix Designs of WMM, DAC II, DBM II	Dr. C. Mallikarjuna	M/s Assistant Garrison Engineer B/R-II, P. O. Panitola, Dist: Dibrugarh (Assam).
Assessment of water quality for drinking purpose	Dr. M. Jawed	Mr. Hiren Das, Maxim Infrastructure & Real Estate Pvt. Ltd.
Assessment of water quality for drinking purpose	Dr. M. Jawed	M/S Maxim Infrastructure & Real Estate Pvt. Ltd.
"Operation and maintenance services of sewage treatment plant including pumping station, rising mains and external sewerage lines at IITG Campus".	Dr. P. K. Ghosh	IIT Guwahati, Engineering Section (Maintenance Cell)
Mix Design concrete M-25 & M-30 for the work of construction of G+9 storied Research building complex at IIT Guwahati campus	Dr. Sandip Das	Executive Engineer, IIT Guwahati, Guwahati-781039
Design Mix for Pavement Quality Concrete (PQC - 45 kg/cm <sup>2</sup> ) and Investigation of materials: CESZ/DIN/29 of 2013-14: Extension of runway and dispersal area at Dinjan	Dr. S. Das	Mr. YMM Reddy, IDSE, AEE (civil), AGE B/R-II Dinjan, Panitola, Assam
Design Mix for Dry lean Concrete - 10 N/mm <sup>2</sup> at 28 days and Investigation of materials: CESZ/DIN/29 of 2013-14: extension of runway and dispersal area at Dinjan	Dr. S. Das	Mr. YMM Reddy, IDSE, AEE (civil), AGE B/R-II Dinjan, Panitola, Assam
Preparation of digital land use/ land cover maps for the project site and its influencing region	Dr. S. Dutta	M/S Lafarge Umiam Mining pvt. Limited, Shillong- 793112.
Proof checking of design for change of well foundation for major bridge at km. 189+102 and minor bridge at km.185+420	Dr. S. K. Deb	M/S NHAI, PIU Silchar.
Evaluation of soil sample for Mounded Bullet Project site at Sekmai BP, Imphal West, Manipur	Dr. S. Sreedeeep	M/S SPM, Manipur
Proof Checking of Truss (Arch type) bridge over River Siyon at Paya, Arunachal Pradesh	Dr. S. Talukdar	M/S PWD, Arunchal Pradesh-791001
Vetting of Design of 500kL capacity Crude Oil Storage Tank at Oil India Limited, Duliajan (Assam)	Dr. S. Talukdar	Managing Director, MECH TECHNIK (INDIA) PVT. LTD., Mani Ram Dewan Road, Guwahati.

Project Title	Principal Investigator	Clients
Conducting the reinforcement mapping of well cap w3 of Major river over Pahumara River at Ch-1025+507, NHDP Package No. EW-II (AS/7)"	Dr. S. Talukdar	M/S Simplex Infrastructure Ltd., Bethkuchi, Kamrup.
Proof Checking of Design of Pile, Pile Cap 7 Grade--- BG Line project	Dr. S. Talukder	M/S S. G. Construction, Hemram Bora Market complex, Guwahati-7
Proof Checking of Design and Drawings of Road Over Bridge on NH-154 at Chainage 50/881	Dr. S. Talukdar	M/S PWD (NH Work), Guwahati.
Evaluating the properties of CSS 1	Dr. T. L. Ryntathing	M/S Om Infracom Pvt. Ltd., Guwahati
Finding the Bitumen Content from Core Samples	Dr. T. L. Ryntathieng	M/S Central Vigilance Commission, GPO Complex INA, New Delhi- 110023.
Investigation of Motor making properties of Fine aggregates	Dr. B. Pradhan	M/S Manu Energy Systems Pvt. Ltd., Dikhu, Longleng, Nagaland.
Quality evaluation of prestressed porcupine members	Dr. H. B. Kaushik	M/S Flood & River Management Agency Assam, Beltola, Guwahati.
Video course development	Dr. A. K. Ghosal	Rajiv Gandhi University, Hyderabad
Development of Aluminum Degreaser and Shiner	Dr. A. Verma	M/S Motii Chem Center, Guwahati
Investigation of polymer samples for its properties	Dr. G. Pugazhenth	M/S Jyoti Laboratories Ltd., Guwahati
Video course development	Dr. R. Uppaluri	M/S Rajv Gandhi University, Hyderabad
Integrated Modern Software System	Dr. G. Barua	M/S IFFCO-TOKIO GENERAL INSURANCE, Gurgaon.
Inside View Technologies	Dr. V. V. Saradhi	
Bamboo Tools for UNIDO	Dr. A. Shende	United Nation Industrial Development Organization, Lodi Estate, New Delhi.
Design of Logo for Indian Institute of Information Technology, SriCity	Dr. U. Kumar	M/s Mentor Director, IIIT SriCity
Privacy Preserving Face-biometric Retrieval - phase 1: Algorithm Development	Dr. K. Karthik	M/S Bharat Electronics Limited, Central Research Laboratory, Bangalore- 560 013
Losses in Induction Machines	Dr. P. Kumar	M/S Toshiba Mitsubishi- Electric Industrial Systems Corporation, Japan
Review of course content of training themes for capacity building under R-APDRP	Dr. P. Tripathy	M/S Power Finance Corporation Ltd., New Delhi
Survey for quantification of awareness level of school children on wildlife conservation in three focus areas of Greater Manas	Dr. A. Barua	Mr. Bhaskar Choudhury, Regional Head, Assam. Wildlife Trust of India.
Feasibility study for Implementation HTS generator in place of conventional generator in a hydro- electric power plant for generation modernization to increase efficiency	Dr. K. Kalita	NEEPCO, Shillong

Project Title	Principal Investigator	Clients
Tensile testing of samples from steel hollow tubular sections	Dr. K. S. R. K. Murthy	M/S Regional Engg Deptt. Powergrid, NERTS, Lapalang Lower Nongrah, Shillong- 793006.
Root- cause Investigation & Rectification of an Industrial Fan Assembly Failure	Dr. R. Tiwary	Mr. Rajiv Paul, Production Manager, Radiant Manufactures RMPL, Khatkhati, Assam.
500 supervision consultancy of civil projects of 4-laningof civil contract package No. EW-II in the Assam on East West Corridor under phase II programme of NHDP. Contract package S-9 of East-West Corridor of NHAI-Testing of core cut concrete block M-40.....	Dr. H. B. Kaushik	Mr. A. K. Singha, Resident Engineer, SMEC International Pvt., Ltd., Opp. SBI, Lanka Road, Lumding, Nagaon-782447
Evaluating the properties of polymer modified bitumen PMB- 70	Dr. T. L. Ryntathing	M/S BCEOM Ind, Guwahati
"Widening & Strengthening of the existing NH-37 from 2lane to 4 lane from Km 230.500 to Km 205 pof Dharamtul to Jagiroad in Assam under East West corridor under phase II programme of NHDP"	Dr. T. V. Bharat	Mr. Koteswara Rao, IL & FS Engineering & Construction Company Ltd.



## Appendix-VI

# SUMMARY OF INSTITUTE ACCOUNTS

### Balance Sheet as on 31 March 2014

<b>Liabilities</b>	<b>Current Year</b> (Amount in Rs.)	<b>Previous Year</b> (Amount in Rs.)
<b>Capital Fund and Liabilities</b>		
Capital Fund	9,439,552,683	8,122,585,002
Earmarked/Endowment Funds	1,466,241,535	1,379,097,684
Unsecured Loans and Borrowings		-
Current Liabilities and Provisions	1,051,949,581	883,093,566
<b>Total</b>	<b>11,957,743,799</b>	<b>10,384,776,252</b>
<b>Assets</b>		
Fixed Assets	9,268,943,426	8,041,305,351
Investments - from Earmarked/Endowment Funds	715,659,793	588,085,239
Investments - Others	321,700,000	9,603,813
Current Assets, Loans and Advances etc.	1,651,440,580	1,745,781,850
Miscellaneous Expenditure		
<b>Total</b>	<b>11,957,743,799</b>	<b>10,384,776,252</b>

**Income and Expenditure Account for the year ended on 31 March 2014**

	<b>Current Year</b> (Amount in Rs.)	<b>Previous Year</b> (Amount in Rs.)
<b>Income</b>		
Grants/Subsidies	1,401,551,893	993,264,960
Fees/Subscriptions	177,787,131	130,251,198
Income from Investments (Income on Investment from earmarked/endowment, Funds transferred to Fund)	77,994,514	-
Interest Earned	254,821	4,942,528
Other Income	27,568,331	32,454,425
<b>Total (A)</b>	<b>1,685,156,690</b>	<b>1,160,913,111</b>
<b>Expenditure</b>		
Establishment Expenses	737,011,624	669,251,827
Other Administrative Expenses, etc.	695,173,549	568,859,785
Depreciation (Net Total at the year end)	272,457,444	243,320,593
<b>Total (B)</b>	<b>1,704,642,617</b>	<b>1,481,432,204</b>
Balance being excess of Expenditure over Income (A-B)		
<b>Balance being Surplus/(Deficit) for the year</b>	(97,480,441)	(320,519,093)
Prior Period Adjustments	(11,424,317)	683,370
<b>Balance being Surplus/(Deficit) carried to Capital Fund</b>	<b>(108,904,758)</b>	<b>(319,835,723)</b>

## Receipt and Payment Account for the Period Ended on 31 March 2014

RECEIPTS	AMOUNT (Rs.)	TOTAL (Rs.)	PAYMENTS	AMOUNT (Rs.)	TOTAL (Rs.)
I. Opening Balance :			I. Expenses :		
Cash in hand	134,037.00		a) Establishment Expenditure	681,544,985.00	
Cash at Banks - i) In Current A/C	339,482,374.78		b) Administrative Expenses	695,173,892.17	1,376,718,877.17
ii) In Deposit Accounts	703,625,488.05	1,043,241,899.83	II. Payments made against funds / various projects:		
II. Grants Received:			a) R&D Exps	484,971,432.27	
a) From Govt. of India	1,401,551,893.00		b) Scholarship- Other than Institute	16,159,440.00	
b) From Govt. of India	1,471,148,903.00		c) JEE/GATE/JAM	71,833,420.00	
c) From Govt of India Grants Receivable	286,512,000.00	3,159,212,796.00	d) QIP/Women Association & BPC/Rajiv Gandhi/Alumni	5,218,095.57	578,182,387.84
III. Income on Investment:			III. Investments and Deposits made		
A) Fixed Deposit		32,794,011.00	IV. Expenditure on Fixed Assets/others		
IV. Interest Received :			IIT (General)		1,494,195,746.57
a) On Bank deposits	6,521,290.00		V. Payments of Loans:		
b) Loans & Advances	5,112,488.00		VI. Financial Charges ( Interest) :		
V. Other Income :		11,633,778.00	VII. Other Payments ( Specify) :		
Fees & Subscription	177,787,131.35		a) Loans & Advances & Others /Current Assets		
Other Receipts	30,998,401.20		b) Deposit of Deductions from Salary :		
Int. on investment Ear Marked Fund	77,994,513.58		Against C.P.F. Subscription	1,516,728.00	
Other income	922,674.00	287,702,720.13	Against G.P.F. Subscription	7,627,243.00	
Others Receipts against Fund :			Against the CPS	28,141,425.00	
a) IITG Copus fund	771,028.00		Agains GPF/CPF Tier-II	3,020,600.00	
b) R&D Fund	437,843,385.31		Against GSLI, GIS & LIC & SSP	9,858,713.00	
c) CPF	3,110,147.00		Other Deductions	885,860.00	51,050,569.00
d) GPF	4,798,179.00		c) Caution Money		32,267,199.00
e) CPS	(1,444,571.00)				
f) GPF/CPF Voluntary Contribution	3,021,117.00				
g) Scholarship -other than Institute	10,322,014.00				
h) JEE/GATE/ JAM/QIP	80,940,734.00				
i) Rajiv Gandhi/ IITG alumni & External Relations	5,782,535.00	545,144,568.31			
VI. Amount Borrowed		5,079,729,773.27			4,076,057,694.24
C/F			C/F		

RECEIPTS	AMOUNT (Rs.)	TOTAL (Rs.)	PAYMENTS	AMOUNT (Rs.)	TOTAL (Rs.)
B/F		5,079,729,773.27	B/F		4,076,057,694.24
VII. Any Other Receipts			d) Deposit of deductions of Govt. Dues :		
a) Recovery of Loans and Adv /Current Assets:			Income tax	99,078,755.00	
b) Deduction from Salary :		514,223,618.40	Professional Tax	1,716,634.00	
Against C.P.F. Subscription	1,516,928.00		VAT	67,872,967.00	
Against G.P.F. Subscription	7,627,243.00		Forest Royalty	14,801,190.00	
Against CPS	28,141,425.00		Cess	12,862,653.00	
Against GPF/CPF Tier-II	3,020,600.00		IT/VAT, AGST, FR, etc. - R&D	13,172,267.00	209,504,466.00
Against GSLI, GIS, LIC & SSP	9,860,263.00		e) Payments of Outstanding Liabilities & Others:		
Against Other Deductions	884,760.00	51,051,219.00	Other Liabilities	305,804,576.14	
c) Caution Money Received		35,034,526.00	EMD	31,599,906.00	
d) Deduction of Govt. Dues :			Security Deposit - others	92,005,673.00	429,410,155.14
Income Tax	102,498,767.00		Investment (STDR)	2,100,139,439.00	
Professional Tax	1,716,634.00		Investment STDR (R&D)	50,603,000.00	
VAT	74,435,422.00		Loans & Adv & Others GPF/CPF/CPS	1,192,070.00	
Forest Royalty	9,731,278.00		LTDR (CPF & GPF & CPS)	52,218,388.00	
Cess	12,810,135.00		Investment STDR (JEE)	10,000,000.00	2,214,152,897.00
IT/VAT, AGST, FR, etc. - R&D	13,172,724.00	214,364,960.00	VIII. Closing Balance :		
e) Other Receipts:			Cash in hand	135,500.00	
Other Liabilities	320,168,665.45		Cash at Banks - i) In Current Accounts	525,384,545.34	
EMD	27,834,104.00		ii) In Savings Accounts	683,871,806.40	
Security Deposit - others	121,826,412.00	469,829,181.45			1,209,391,851.74
Investment (STDR)	1,720,727,037.00				
Loans & Adv & Others GPF/CPF/CPS	993,700.00				
LTDR (CPF & GPF & CPS)	32,563,049.00				
Investment STDR (R&D)	20,000,000.00	1,774,283,786.00			
TOTAL		8,138,517,064.12	TOTAL		8,138,517,064.12