

ANNUAL REPORT

2012 – 2013

**BENGAL ENGINEERING AND SCIENCE
UNIVERSITY, SHIBPUR
HOWRAH – 711 103**



Professor Ajoy Kumar Ray
Vice Chancellor



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I am happy to bring out the annual Report of our University for the year 2012-13 at the eve of its transformation to Indian Institute of Engineering Science and Technology, Shibpur which is expected to take place this year through enactment of the NITSER (Amendment) Act by the Parliament of India.

Excellence in research and development has always been the hallmark of this University. Across its academic departments, the University can boast of the commendable performance of its faculty members, particularly of their quality research output, which is evinced by nearly 850 publications in the last year alone in various peer reviewed national and international journals. The Ph.D program has also enhanced considerably. Presently there are 454 registered doctoral students with a fresh enrolment of 101 candidates last year.

A significant number of sponsored projects with substantial funding are being carried out. Presently 142 sponsored research projects are under operation with a financial outlay of about Rs. 74 crores. In the past one year 31 new projects worth nearly Rs. 7 crores have been sanctioned in favor of the University. They include projects on Development of Indian Highway Capacity Manual; Development of Model Synthetic Leaf to Harvest Light, Design and Development of Substrate Integrated Wave-guide based RF circuits, Guidance Control and Target Tracking Strategies for Precision Guidance missiles, Rapid assessment of Domestic Fluoride Removal Filters in Endemic Areas etc.

During the year, many of our Faculty members have won several awards and laurels for their excellence in academic pursuits. To name a few : Dr. Partha Bhattacharya from the Department of Electronics and Telecommunications has received the INSA Medal for Young Scientists 2012, the INAE Young Engineer award 2012 and had a biographical citation in Marquis Who's Who in the World 2013; Dr. M. Ray from the School of Materials Science and Engineering has received the G. C. Jain Award of MRSI for the best Ph.D. thesis, Prof. S. K. Saha has been elected Member of the Scientific Council Centre of Heat and Mass Transfer, Prof. A. K. Barua of the centre of Excellence for Green Energy and Sensor Systems has become the Chairman, MNRE, R&D Committee.

The University has witnessed notable augmentation in infrastructure for facilitating academic, research and administrative activities. Some of the steps in this direction are as follows : extensive laboratory infrastructure development has been undertaken in the Department of Electronics and Telecommunication in Microwave and MM wave laboratory, Nano Thin Film laboratory, Solid State Gas sensor Devices laboratory etc; In the Centre of Excellence in green energy and sensor systems state of art fabrication facility of crystalline and amorphous silicon solar cells have been established;

the advanced power Electronics laboratory in the Department of Electrical Engineering has been expanded; in the School of materials science and engineering a laboratory for Low dimensional Advanced Material synthesis has been created.

The facilities in the Central library have been significantly improved by way of introducing new electronic resources through UGC-Infonet Digital Library Consortium. The access of ASCE, ASME and IEL online available through the AICTE-INDEST consortium is continued. The library is now subscribing to selected subject collections of the Elsevier's Science Direct Database. The Central Library also organized a Book Fair in 2012 in which all the leading national publishers participated. Throughout the year, various academic events including workshops, seminars, short term courses, refresher courses etc. have been organized by various Departments. International Symposium on VLSI Design and Test, International Symposium on Electronic System Design, International Workshop on Recent Trends in Biomedical and Allied Engineering, National Workshop on Plasmonics and Nano structured Solar Cells, National Convention of Mining Engineers, Symposium on Higgs Boson etc. are some of such activities.

The University has been privileged to receive a good number of visitors from in-country and abroad. We had Prof. Rolf Drechsler of the University of Bremen, Prof. D. Michael Miller from the University of Victoria, Prof. Elena Pereloma from the University of Wollongong, Australia and many other such dignitaries.

During the period under review, there have been remarkable achievements by the students of the University. Aniket Datta has stood 1st among the 1 Lakh candidates in the GATE 2012 examination,. Debasruti Chowdhury from the Department of physics received the best oral paper award in the International Conference on Computers and Devices for Communication., Prasenjit Chanak from the Department of Information Technology received the Best paper Award in ACC 2012, Kochi.

Beyond the confinements of text books, our students are actively participating in various extra curricular activities. The Robotic Society organized the Annual Technical Festival INSTRUON 2012, the Dramatic Society held a week long festival to commemorate the demise of the great Dramatist Badal Sircar, and the Quiz Club, Music Society and Photographic Society have also been organizing programs at regular intervals.

The University is actively involved in social outreach programs. In 2012, the Garden Reach Shipbuilders and Engineers Ltd. entrusted the School of Community Science and Technology with a Govt. of India Corporate Social Responsibility Project to impart Skill Development/Vocational Training to the Unemployed Youth around Metiabruz area, Kolkata. The Department of Civil Engineering has made significant contribution in providing safe drinking water facilities to rural people. There has been a complete renovation of the Language laboratory through UGC funding undertaken by the Equal Opportunity Cell of the University which is also successfully running Remedial coaching, coaching for NET-SET and coaching for Entry into Services for the SC/ST/Minority and economically backward communities.

I express my sincere appreciation for all the stakeholders of the University for making a concerted effort in moving ahead towards achieving excellence. I would like to thank the people associated with publication of the Annual Report for their tireless work.

(Ajoy Kumar Ray)
Vice Chancellor

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Introductory note with a brief history of the University

- ❖ Bengal Engineering College, commonly known as B.E.College started its journey as the Civil Engineering College on 12th February 1856. During this long journey, this pioneering Engineering College achieved one milestone after another. Since 1856 a number of other Departments were gradually included which have produced many reputed Engineers.
- ❖ There are various phases through which this institution has passed, over the last 150 yrs
- ❖ On January 24, 1857 the faculty of Civil Engineering was formed with the establishment of Calcutta University.
- ❖ On May 2, 1857 the Civil Engineering College was affiliated to the University.
- ❖ In November 1864 the Civil Engineering College lost its separate entity and independent existence and the Civil Engineering College become the Civil Engineering Department of the Presidency College and remained attached to it as an adjunct till 1879.
- ❖ The Civil Engineering College become the Civil Engineering Department of the Presidency College and remained attached to it as an adjunct till 1879.
- ❖ In the year 1880 the College occupied the premises of the Bishop's College at Shibpur and from the 5th April 1880, the college under the name Government Engineering College, Howrah started functioning.
- ❖ On 18th May 1887, the name was changed to the Civil Engineering College Seebpore, gradually under went changes, namely, first Sibpur and then Shibpur.
- ❖ As a first step to reach the goal of including other Departments along with Civil Department the nomenclature of the college was changed from the 12th February 1920 to the Bengal Engineering College, Sibpur
- ❖ From March 24, 1921 in order to avoid postal delay the College was redesignated as the "Bengal Engineering College" which came to be popularly known as B.E.College.
- ❖ On 16.02.1993, the BE College was given the status of Deemed University and from October 1, 2004 the Director was designated as the Vice-Chancellor and the Deemed University was given the status of a full fledged State University under the name Bengal Engineering and Science University, Shibpur.

LIST OF ADMINISTRATIVE HEAD / GOVERNANCE

Shri M.K. Narayanan
Chancellor

Prof. Ajoy Kumar Ray
Vice Chancellor

Dean Faculty of Engg & Technology
Prof. Amit Kumar Das (18.12.2012)
Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013)
Prof. Partha Protim Chattopadhyay (18.04.2013-)

Dean Faculty of Basic & Applied Sciences
Prof. B. K. Guha (18.12.2012)
Prof. S. P. Goswami (19.12.2012- 17.04.2013)
Prof. Binayak S. Choudhury (18.04.2013-),

Dean Faculty of Social and Management Sciences
Prof. M. K. Sanyal (18.12.2012)
Prof. Anjan Kumar Ghosh (19.12.2012- 17.04.2013)
Prof. Madhumati Dutta (18.04.2013-),

Dean of Students (PICSA)
Prof. Anjan Kumar Ghosh
Prof. Aditya Bandyopadhyay

MEMBERS OF COURT

Name	Position	Address
Shri M. K. Narayanan Chancellor & Governor of West Bengal	Chairman	Raj Bhavan, Kolkata – 700001 Ph: 2200-1641 Fax: 033-22002444
Prof. Ajoy Kumar Ray Vice Chancellor	Vice Chairman	Bengal Engineering and Science University, Shibpur, Howrah Ph: 2668 2674, Fax : 2668 7575 E-mail : vc@becs.ac.in, ajoy_ray2004@yahoo.com
The Secretary, Higher Education Dept., Govt. of West Bengal, or his nominee	Member	Kolkata
Sri Dipankar Saha, W.B.C.S.(Exe.), Special Secretary, Finance Dept., Govt. of West Bengal	Member	Bikash Bhawan, Kolkata – 700 091 Writers' Building, Kolkata – 700 001

Prof. Binayak Kr. Dutta, The President, West Bengal Council of Higher Secondary Education	Member	Vidysagar Bhawan, 9/2, Block-DJ, Sector-11 Salt Lake, Kolkata – 700 091
Prof. Binoy Kumar Dutta Chairman, West Bengal Pollution Control Board	Member	Kolkata
Dean, Faculty in PG & UG Studies in Engineering and Technology Prof. Amit Kumar Das(- 18.12.2012) Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013) Prof. Partha Protim Chattopadhyay(18.04.2013-)	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dean, Faculty in PG & UG Studies in Basic and Applied Sciences Prof. B. K. Guha (- 18.12.2012) Prof. S. P. Goswami (19.12.2012- 17.04.2013) Prof. Binayak S. Choudhury(18.04.2013-)	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dean, Faculty in PG & UG Studies in Social and Management Sciences Prof. M. K. Sanyal(- 18.12.2012) Prof. Anjan Kumar Ghosh(19.12.2012- 17.04.2013) Prof. Madhumati Dutta (18.04.2013-)	Member	Bengal Engineering and Science University, Shibpur, Howrah
D. N. Mallick / Salil Halder Professor and Head of AEAM	Member	Bengal Engineering and Science University, Shibpur, Howrah
Souvanic Roy / <u>Arup Sarkar</u> Head of ARTP	Member	Bengal Engineering and Science University, Shibpur, Howrah
<u>Kalyan Kumar Bhar</u> Professor and Head, Department of Civil Engineering	Member	Bengal Engineering and Science University, Shibpur, Howrah
<u>Shyamal Kumar Chattopadhyay</u> Professor and Head, Department of Chemistry	Member	Bengal Engineering and Science University, Shibpur, Howrah
Susanta Chakraborty / <u>Sipra Das Bit</u> Professor & Head, Department of Computer Science and Technology	Member	Bengal Engineering and Science University, Shibpur, Howrah & Salt Lake, Kolkata

Debasis Sarkar / <u>Biswarup Basak</u> Professor and Head, Department of Electrical Engineering	Member	Bengal Engineering and Science University, Shibpur, Howrah
Arabinda Roy / <u>Monojit Mitra</u> Associate Professor & Head, Department of Electronics & Tele Communications	Member	Bengal Engineering and Science University, Shibpur, Howrah
Ananya Biswas / <u>Bhabani Prasad Mukhopadhyay</u> Professor and Head, Earth Sc. Department	Member	Bengal Engineering and Science University, Shibpur, Howrah
Manas Kumar Sanyal Professor & Head, Department of Human Resource Management	Member	Bengal Engineering and Science University, Shibpur, Howrah
Rupen Basu Mallik / <u>Mallika Ghosh Sarbadhikary</u> Associate Professor & Head, Humanities and Social Sciences Department	Member	Kolkata
<u>Santi Prasad Maity</u> Associate Professor & Head, Department of Information Technology	Member	Bengal Engineering and Science University, Shibpur, Howrah
<u>Murari Mitra</u> Professor and Head, Mathematics Department	Member	Bengal Engineering and Science University, Shibpur, Howrah
Debasis Dutta / <u>Sujoy Kumar Saha</u> Professor and Head, Department of Mechanical Engineering	Member	Bengal Engineering and Science University, Shibpur, Howrah
P.P. Chattopadhyay / <u>Sanjoy Sadhukhan</u> Associate Professor and Head, Department of Metallurgy And Materials Engineering	Member	Bengal Engineering and Science University, Shibpur, Howrah
Suranjan Sinha / <u>Prabir Kumar Paul</u> Professor & Head, Department of Mining Engineering	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mousumi Basu / <u>Sampad Mukherjee</u> Associate Professor and Head, Physics Department	Member	Bengal Engineering and Science University, Shibpur, Howrah
President , WB Madrasa Education Board	Member	Kolkata
President, WB Board of Secondary Education	Member	Kolkata

Members of the Executive Council

Name	Position	Address
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Engineering and Technology Prof. Amit Kumar Das(18.12.2012) Prof. Gautam Bandyopadhyay (19.12.2012-17.04.2013) Prof. Partha Protim Chattopadhyay(18.04.2013-)	Member	Bengal Engineering and Science University, Shibpur, Howrah

Basic and Applied Sciences Prof. B. K. Guha (18.12.2012) Prof. S. P. Goswami (19.12.2012- 17.04.2013) Prof. Binayak S. Choudhury(18.04.2013-),	Member	Bengal Engineering and Science University, Shibpur, Howrah
Social and Management Sciences Prof. M. K. Sanyal(18.12.2012) Prof. Anjan Kumar Ghosh(19.12.2012- 17.04.2013) Prof. Madhumati Dutta(18.04.2013-),	Member	Bengal Engineering and Science University, Shibpur, Howrah
Souvanic Roy / <u>Arup Sarkar</u> Professor and Head, Department of Architecture, Town and Regional Planning	Member	Bengal Engineering and Science University
Ananya Biswas / <u>Bhabani Prasad Mukhopadhyay</u> Professor and Head, Earth Sc Department	Member	Bengal Engineering and Science University
Debasis Sarkar / <u>Biswarup Basak</u> Professor and Head, Department of Electrical Engineering	Member	Bengal Engineering and Science University
<u>Kalyan Kumar Bhar</u> Professor and Head, Department of Civil Engineering	Member	Bengal Engineering and Science University
<u>Monojit Mitra</u> Associate Professor & Head, Department of Electronics & Tele Communications	Member	Bengal Engineering and Science University
<u>Salil Halder</u> Professor & Head, Department of Aerospace Engineering and Applied Mechanics	Member	Bengal Engineering and Science University
Shyamal Kumar Chattopadhyay Professor and Head, Department of Chemistry	Member	Bengal Engineering and Science University, Shibpur, Howrah
Manas Kumar Sanyal, Professor and Head, Department of Human Resource Management	Member	Salt Lake, Kolkata
Rupen Basu Mallik, Professor and Head, Department of Humanities and Social Sciences	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. S. P. Maity, Professor and Head, Department of Information Technology	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Murari Miltra, Professor and Head, Department of Mathematics	Member	Bengal Engineering and Science University, Shibpur, Howrah
Sushanta Chakraborty, / <u>Sipra Das Bit</u> Professor & Head, Department of Computer Science and Technology	Member	Salt Lake, Kolkata & Bengal Engineering and Science University, Shibpur, Howrah
Prof. Binoy Kr. Dutta Chairman, West Bengal Pollution Control Board	Member	Kolkata
Prof. M.M.Sharma Former Director, Institute of Chemical Technology, Mumbai	Member	Mumbai
Prof. Sekhar Chaudhuri Director, IIM, Calcutta	Member	Kolkata
Sri U. S. Mondal, Special Secretary Higher Education Dept., Govt. of West Bengal	Member	Kolkata

Sri Dipankar Saha W.B.C.S.(Exe.), Special Secretary Finance Department, Government of West Bengal		Kokata
Sri M. N. Sarkar, Finance officer	Invitee	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Nirmalya Kumar Bhattacharya, Controller of Exam.	Invitee	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Biman Bandyopadhyay, Registrar	Secretary	Bengal Engineering and Science University, Shibpur, Howrah

Members of the Faculty Council for PG and UG Studies in Engineering and Technology

Name	Position	Address
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Dean		
Prof. Amit Kumar Das (18.12.2012) Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013) Prof. Partha Protim Chattopadhyay(18.04.2013-)	Dean of Faculty Council for Post-graduate Studies in Engineering and Technology	Bengal Engineering and Science University, Shibpur, Howrah
The Head or Heads of the Department or Departments		
Aerospace Engineering & Applied Mechanics Prof. <u>Dwijendra Nath Mallick</u> / Salil Halder	Member	Bengal Engineering and Science University, Shibpur, Howrah
Architecture, Town & Regional Planning <u>Souvanic Roy</u>	Member	Bengal Engineering and Science University, Shibpur, Howrah
Civil Engineering Prof. K.K. Bhar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Computer Science & Technology Prof. <u>Susanta Chakraborty</u>	Member	Bengal Engineering and Science University, Shibpur, Howrah
Electrical Engineering Prof. <u>Debasis Sarkar</u>	Member	Bengal Engineering and Science University, Shibpur, Howrah
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Mining Engineering Prof. <u>Suranjan Sinha</u> / Prabir Kr. Paul	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mechanical Engineering Prof. Debasis Dutta	Member	Bengal Engineering and Science University, Shibpur, Howrah
The Directors of Schools		
School of Community Science & Technology Prof. N.R.Bandyopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of Ecology Infrastructure and Human Settlement Management Prof. Souvanic Roy	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of Disaster Mitigation Engineering Prof. Ambarish Ghosh	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of Material Science and Engineering Prof. N.R.Bandyopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of Mechatronics & Robotics Prof. P.K.Ray	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of Safety & Occupational Health Engineering Prof. B.K.Bhattacharyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
School of VLSI Technology Prof. Hafizur Rahaman	Member	Bengal Engineering and Science University, Shibpur, Howrah
Purabi Das School of Information Technology Prof. Arindam Biswas	Member	Bengal Engineering and Science University, Shibpur, Howrah
Professors of the Departments		
Aerospace Engineering & Applied Mechanics		
Prof. Sujay Kumar Mukherjea	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Mrityunjoy Chattopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah

Prof. <u>Dwijendra Nath Mallick</u> / Salil Halder	Member	Bengal Engineering and Science University, Shibpur, Howrah
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Prof. Arup Sarkar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Keya Mitra		
Civil Engineering		
Prof. Ambarish Ghosh	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Anirban Gupta	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Kalyan Kumar Chattopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Goutam Bhattacharya	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Subrata Chakraborty	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Sudip Kumar Roy	Member	Bengal Engineering and Science University, Shibpur, Howrah
Computer Science & Technology		
Prof. Amit Kumar Das	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Uma Bhattacharya	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Sipra Das Bit	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Jaya Sil	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Biplab Sikdar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Electrical Engineering		
Prof. Abhijit Chakraborty	Member	Bengal Engineering and Science University, Shibpur, Howrah

Prof. Ashoke Sutradhar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Biswarup Basak	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Gautam Bandy- opadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Jagadish Pal	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Prasid Syam	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Abdur Rouf	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Chandan Kumar Chanda	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Ashok Kumar Maitra	Member	Bengal Engineering and Science University, Shibpur, Howrah
Electronics & Telecommunication Engineering		
Prof. Baidyanath Roy	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Dipankar Mukherjee	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. S.R.Bhadra Chaudhuri	Member	Bengal Engineering and Science University, Shibpur, Howrah
Information Technology		
Prof. Hafizur Rahaman	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mechanical Engineering		
Prof. Apurba Kishore Dutta	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Sisir Kumar Guha	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. S. K. Karmakar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Bidyut Kumar Bhattacharyya	Member	Bengal Engineering and Science University, Shibpur, Howrah

Prof. Bijan Kumar Mandal	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Shyamal Chatterjee	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Sujoy Kumar Saha	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mining Engineering		
Prof. N.C.Dey	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. I.N. Sinha	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Prabir Kr. Pal	Member	Bengal Engineering and Science University, Shibpur, Howrah
Metallurgy & Materials Science Engineering		
Prof. Subrata Chatterjee	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Amitava Basu Mallick	Member	Bengal Engineering and Science University, Shibpur, Howrah
Nominee of the Vice Chancellor having special knowledge in the subject or subject concerned		
Prof. Mita Nasipuri	Member	Dept. of Computer Science & Engineering. Jadavpur University Kolkata – 700 032 Ph : 9831128131 (M) E-mail : mnasipuri@cscjdvu.ac.in
Prof. Niladri Chakraborty	Member	HOD, Power Engineering Jadavpur University, Kolkata – 700 032 Ph : 9830602872 (M) E-mail chakraborty_niladri2004@yahoo.com
Prof. S.K.Ray	Member	Advisor, HIDCO, Salt Lake Stadium Complex Gate No 3, Sector – III Kolkata – 700 091 Ph : 9830028022 (M)
Dr.Soumitra Tarafdar		Scientist 'F', Dy. Director, NML Jamshedpur – 831 007

Prof. Tapan Basu	Member	Advisor, Engg. And Science Aliah University, DN-41, Sector-V, Salt lake, Kol-91
Nominated by the Executive Council having special knowledge in the subject		
Vacant		
Prof. Sankhayan Chowdhury	Member	Dept of Computer Science & Engineering Calcutta University, Senate House 87/1, College Street, Kolkata – 700 073 Ph: 9433040414 (M), E-mail: sankhayan@gmail.com
Prof. Sivaji Chakraborti	Member	Dept of Electrical Engg, Jadavpur University, Kolkata – 700 032 Ph: (0)2414 6948, Email: sivaji@ee.jdvu.ac.in
Dr. Debasis Datta	Secretary to the Faculty Council	Secretary to Vice Chancellor E-mail address : secy2vc@yahoo.co.in

Members of the Faculty Council for PG and UG Studies in Basic & Applied Sciences

Name	Position	Address
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Dean		
Prof. B. K. Guha (18.12.2012) Prof. S. P. Goswami (19.12.2012- 17.04.2013) Prof. Binayak S. Choudhury(18.04.2013-)	Dean of Faculty Council for Post graduate studies in Basic and Applied Sciences	Ph. 033-26684561 to 63 Bengal Engineering and Science University, Shibpur, Howrah
The Head or Heads of the Department		
Chemistry Prof. Shyamal Kumar Chattopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mathematics Prof. Murari Mitra	Member	Bengal Engineering and Science University, Shibpur, Howrah
Physics	Member	Bengal Engineering and Science

Prof. Mousumi Basu		University, Shibpur, Howrah
Earth Sciences Prof. Anannya Biswas	Member	Bengal Engineering and Science University, Shibpur, Howrah
Professors of the Departments		
Chemistry		
Prof. Bibhutosh Adhikary	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Jayati Dutta	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Prasanta Nandi	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. S.P.Goswami	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Anup Mondal	Member	Bengal Engineering and Science University, Shibpur, Howrah
Earth Sciences		
Dr. B.P. Mikhopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
Mathematics		
Prof. B.Mukhopadhyay	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. B.Samaddar Chowdhury	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. T.K.Roy	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. S.K.Majumder	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Guruprasad Samanta	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Ashok Kr. Dhar	Member	Bengal Engineering and Science University, Shibpur, Howrah

Physics		
Dr. S.S. Sarkar	Member	Bengal Engineering and Science University, Shibpur, Howrah
Prof. Dipali Banerjee	Member	Bengal Engineering and Science University, Shibpur, Howrah
Earth Sciences		
Dr. Ananya Biswas	Member	Bengal Engineering and Science University, Shibpur, Howrah
Teachers Elected		
Dr. Mousumi Basu Dept. of Physics	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Pritha Das Dept. of Mathematics	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Sudip Kumar Chattopadhyay Dept. of Chemistry	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Syed Minhaz Hossain Dept. of Physics	Member	Bengal Engineering and Science University, Shibpur, Howrah
Dr. Tapan Kumar Kar Dept. of Mathematics	Member	Bengal Engineering and Science University, Shibpur, Howrah
Nominee of the Vice Chancellor		
Prof. A.Goswami	Member	Dept. of Mathematics, IIT Kharagpur Kharagpur – 721 302, West Bengal
Prof. Dipak Ghosh	Member	Dept. of Physics, Jadavpur University Kolkata – 700 032 Ph : 9831204247 (M)
Prof. Nibir Mondal	Member	Dept. of Earth Science, IISER Kolkata IIT Kharagpur Extension Centre Block – HC, Sector – III, Salt Lake City

		Kolkata – 700 106
Prof. Samaresh Bhattacharya	Member	Dept. of Chemistry, Jadavpur University Kolkata – 700 032
Prof. Sovakar Ganguly	Member	Dept. of Mathematics University of Calcutta, Kailaspuri South of Sethpukur, Barasat, 24pgns (North), Pin- 700124
Nominated by the Executive Council		
Prof. Arghya Deb	Member	Dept. of Physics, Jadavpur University Kolkata – 700 032 Ph : 9433426531 (M)
Prof. Jyoti Das	Member	Dept. of Mathematics, University of Calcutta 248B, B.B. Chatterjee Road, P.O.- Kasba, Kolkata-42
Prof. Pradip Mohapatra	Member	Dept. of Chemistry, Jadavpur University Kolkata – 700 032 Ph : 9433257808 (M) E-Mail : mppradip@hotmail.com
Shri S. N. Datta Ph : 2668 4561 (O) E-mail : dr@becs.ac.in	Secretary to the Faculty Council	Bengal Engineering and Science University, Shibpur, Howrah

Members of the Faculty Council for PG and UG Studies in Social and Management Sciences

Name	Position	Address
Prof. Ajoy Kumar Ray Vice Chancellor	<i>Chairman</i>	Ph: 2668 2674, Fax : 2668 7575 E-mail : vc@becs.ac.in, ajoy_ray2004@yahoo.com
Prof. M. K. Sanyal(18.12.2012) Prof. Anjan Kumar Ghosh(19.12.2012- 17.04.2013) Prof. Madhumati Dutta(18.04.2013-),	Dean of Faculty Council for Post graduate studies in Social and Management Sciences	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
The Head of the Departments		

Prof. M.K.Sanyal , HRM	Member	Bengal Engineering and Science University, Shibpur
Prof. M.Datta / Prof. Rupen Basu Mallik Humanities	Member	Bengal Engineering and Science University, Shibpur
The Director of Schools		
Prof. S.R.Bhadra Chaudhri, School of Management Science	Member	Bengal Engineering and Science University, Shibpur
The Professor or Professors of the Departments		
Prof. P.S.Roy, Humanities	Member	Bengal Engineering and Science University, Shibpur
Prof. M.Datta , Humanities	Member	Bengal Engineering and Science University, Shibpur
Lt. Col (Retd.) A.K.Ghosh, PICSA	Member	Bengal Engineering and Science University, Shibpur
Teachers Elected		
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Dr. Partha Sarathy Roy Dept. of Humanities	Member	Bengal Engineering and Science University, Shibpur
Sri Rupen Basu Mallik Dept. of Humanities	Member	Bengal Engineering and Science University, Ph : 9831313642 (M) E-mail : rbmallik@gmail.com
Sri Sandip Chattopadhyay Dept. of HRM	Member	Bengal Engineering and Science University, Ph : 9432183961 (M)
Dr. Zia-ul-Alam Dept. of HRM	Member	Bengal Engineering and Science University, Ph : 9433128404 (M)
Nominee of the Vice Chancellor		
Dr.A.K.Chakraborty Former Chairman, West Bengal School Service	Member	14/3B, Jadunath Ukil Road Kolkata – 700 041

Commission		
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Prof. Subir Chowdhury Ex-Director, IIMC	Member	50U, Garcha Road, Kolkata – 700 019
Nominated by the Executive Council		
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Prof. Nilanjana Gupta Dept. of English, Jadavpur University	Member	Jadavpur University Kolkata – 700 032 Ph : 9830543884 (M) E-mail : nilaguptaju@yahoo.com
Prof. Tarun Patra Vice Principal & HOD, Dept. of Commerce, Shibpur Dinabandhu Institution (College)	Member	Shibpur Dinabandhu Institution (College) Howrah Ph : 9830035346 (M)
Dr. Debasis Datta Sec. to Vice Chancellor	Secretary to the Faculty Council	Bengal Engineering and Science University, Shibpur, Ph. No.- 91-33-2668- 4561(extn. no.-212)

MEMBERS OF THE FINANCE COMMITTEE (From July 2012 to 04 September 2012)

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Vice Chancellor
Chairman

Sri Birenjit Kr. Pal
Former MD, WPDCL, Nominees of the Court

Dr. Bhaswati Mitra
Controller of Exam. Nominees of the Court

Prof. Bichitra Kr. Guha
Dean, Basic & Applied Sc., Nominees of the Executive Council

Sri Satyajit Barua
Office, Nominees of the Executive Council

The Secretary, Department of Higher Education, Govt. of West Bengal, or his nominee, not below the rank of a Deputy Secretary to the Govt. of West Bengal.

The Secretary, Department of Finance, Govt. of West Bengal, or his nominee, not below the rank of a Deputy Secretary to the Govt. of West Bengal

Dr.B.Bandyopadhyay, **Registrar**
One expert in the financial management, nominated by the State Govt.

Sri A.N.Mukherjee,
Accounts Officer (PAC)

Sri M. N. Sarkar,
Finance Officer
Secretary

MEMBERS OF THE PLANNING & MONITORING BOARD

Name	Position	Address
Prof. Ajoy Kumar Ray	Chairman	Ph: 2668 2674, Fax: 2668 7575 E-mail: vc@becs.ac.in, ajoy_ray2004@yahoo.com
Dean Faculty of Engg & Tech Prof. Amit Kumar Das(18.12.2012) Prof. Gautam Bandyopadhyay (19.12.2012-17.04.2013) Prof. Partha Protim Chattopadhyay(18.04.2013-)	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Dean Faculty of Basic & Applied Sc.s Prof. B. K. Guha (18.12.2012) Prof. S. P. Goswami (19.12.2012- 17.04.2013) Prof. Binayak S. Choudhury(18.04.2013-),	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Dean Faculty of Social and Management Sciences Prof. M. K. Sanyal(18.12.2012) Prof. Anjan Kumar Ghosh(19.12.2012-17.04.2013) Prof. Madhumati Dutta(18.04.2013-),	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Dr. Biman Das, Development Officer, Nominees of the Executive Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Prof. N. C. Dey, Dept. of Mining Engg, Nominees of the Executive Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Dr. N. R. Bandyopadhyay, School of Material Sc.& Engg, Nominees of the Executive Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Prof. Rupen Basu Mullick Dept. of Humanities, Nominees of the Faculty Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Prof. Souvonic Roy School of Eco. Infrastructure & Human Settlement Mgmt., Nominees of the Faculty Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Dr. Tapan Kumar Roy Dept. of Math, Nominees of the Faculty Council	Member	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Secretary, West Bengal State Council of Higher Education	Member	Kolkata
Sri Archan Kusum Majumdar Chairman, The Institution of Engineers (I),	Member	IIE, Kolkata

Alumni, nominated by the Court		
Sri S.P. Datta, Project Director PWD, Alumni, nominated by the Court	Member	Kolkata
One member nominated by the State Govt. Sri Bhaskar Sen Former President, BNCCI & Chairman, Senz Natural Food Pvt. Ltd	Member	Kolkata
Dr.B.Bandyopadhyay, Registrar	Convenor	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur
Shri Subrata Kar, University Engineer	Invitee	Phone: 26684561-63 Bengal Engineering and Science University, Shibpur

The Members of the Library Committee

The Vice Chancellor or his nominee - Chairman

The Deans of the Faculty Councils:

Dean Faculty of Engg & Tech

Prof. Amit Kumar Das(18.12.2012)

Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013)

Prof. Partha Protim Chattopadhyay (18.04.2013-)

Dean Faculty of Basic & Applied Sc.s

Prof. B. K. Guha (18.12.2012)

Prof. S. P. Goswami (19.12.2012- 17.04.2013)

Prof. Binayak S. Choudhury (18.04.2013-),

Dean Faculty of Social and Management Sciences

Prof. M. K. Sanyal (18.12.2012)

Prof. Anjan Kumar Ghosh (19.12.2012- 17.04.2013)

Prof. Madhumati Dutta (18.04.2013-)

Dr. Biman Bandyopadhyay - Member

Registrar

Three Professors of the University who are in the Executive Council :

(i) Prof. N. R. Bandyopadhyay - Member

(ii) Prof. Goutam Bandyopadhyay - Member

(iii) Prof. N. C. Dey - Member

Two representatives of the non-teaching employees in the Executive Council:

(i) Dr. Biman Das - Member

(ii). Shri Satyajit Barua - Member

Dr. Biplab Chakraborty - Member

Professor, Dept. of Library & Information Sc., C.U.

All Heads of Departments of the three Faculty Councils :

(i) Faculty Council for Engineering & Technology

- HOD of Civil Engineering - Member

- HOD of Mechanical Engineering - Member

- HOD of Electrical Engineering - Member
- HOD of Computer Sc. & Tech. - Member
- HOD of Information Technology - Member
- HOD of Architecture, T & RP - Member
- HOD of Aerospace & Applied Mechanics - Member
- HOD of Electronics & Telecommunication - Member
- HOD of Metallurgy & Materials Engineering - Member
- HOD of Mining Engineering - Member

(ii) Faculty Council for Basic & Applied Sciences

- HOD of Mathematics - Member
- HOD of Physics - Member
- HOD of Chemistry - Member
- HOD of Geology - Member

(iii) Faculty Council for Social & Management Sciences

- HOD of Humanities - Member
- HOD of Human Resource Management - Member

President of each of the Students' Union:

(i) President of UG Students' Union - Member

(ii) President of PG Students' Union - Member

Dr. H. P. Sharma - Secretary

Dy. Librarian, in charge of Library

Students' Welfare Board

(a) Prof. Ajoy Kumar Ray - Chairman
Vice Chancellor

(b) The Deans of the Faculty Councils:

Dean Faculty of Engg & Tech

Prof. Amit Kumar Das (18.12.2012)

Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013)

Prof. Partha Protim Chattopadhyay (18.04.2013-)

Dean Faculty of Basic & Applied Sc.s

Prof. B. K. Guha (18.12.2012)

Prof. S. P. Goswami (19.12.2012- 17.04.2013)

Prof. Binayak S. Choudhury (18.04.2013-),

Dean Faculty of Social and Management Sciences

Prof. M. K. Sanyal (18.12.2012)

Prof. Anjan Kumar Ghosh (19.12.2012- 17.04.2013)

Prof. Madhumati Dutta (18.04.2013-till),

(c) The Professor of Training and Placement - Member

(d) Three Superintendents of Hostels nominated by the Vice Chancellor:

- (i) Prof. Subrata Chatterjee - Member
- (ii) Prof. Bhabani Prasad Mukhopadhyay - Member
- (iii) Prof. Santanu Kumar Karmakar - Member

(e) President of each of the Students' Union :

- (i) President of UG Students' Union - Member
- (ii) President of PG Students' Union - Member

(f) One alumnus nominated by the Executive Council:

Shri Asish Sen - Member

Plant Superintendent, Padmapukur Water Treatment Plant, Howrah

(g) Prof. Anjan Kumar Ghosh (07.12.1999- 30.04.2013)

Prof. Aditya Bandyopadhyay (01.05.2013-)

Secretary

Professor-in-charge of Students' Activities

Students' Sports Board

(a) Prof. Ajoy Kumar Ray - Chairman

Vice Chancellor

(b) The Deans of the Faculty Councils:

Dean Faculty of Engg & Tech

Prof. Amit Kumar Das (18.12.2012)

Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013)

Prof. Partha Protim Chattopadhyay (18.04.2013-)

Dean Faculty of Basic & Applied Sc.s

Prof. B. K. Guha (18.12.2012)

Prof. S. P. Goswami (19.12.2012- 17.04.2013)

Prof. Binayak S. Choudhury (18.04.2013-),

Dean Faculty of Social and Management Sciences

Prof. M. K. Sanyal (18.12.2012)

Prof. Anjan Kumar Ghosh (19.12.2012- 17.04.2013)

Prof. Madhumati Dutta (18.04.2013-),

(c) The Professor of Training and Placement - Member

(d) Three Superintendents of Hostels nominated by the Vice Chancellor:

- (i) Prof. Aditya Bandyopadhyay - Member
- (ii) Prof. Anindita Sengupta - Member
- (iii) Prof. Nityananda Nandi – Member

(e) Two Physical Instructors :

- (i) Dr. Zia-Ul-Alam - Member
- (ii) Shri Sandip Chattopadhyay - Member

- (f) President of each of the Students' Union :
 (i) President of UG Students' Union - Member
 (ii) President of PG Students' Union - Member

(g) One alumnus nominated by the Executive Council:
 Shri Asish Sen - Member
 Plant Superintendent, Padmapukur Water Treatment Plant, Howrah

(h) Prof. Anjan Kumar Ghosh (07.12.1999- 30.04.2013)
 Prof. Aditya Bandyopadhyay (01.05.2013-)
 - Secretary
 Professor-in-charge of Students' Activities

Name of Dept., Centers and Schools, Heads of the Dept. and Professor-in-charge

Name of Departments

1. Aerospace Engineering and Applied Mechanics
2. Architecture, Town and Regional Planning
3. Chemistry
4. Civil Engineering
5. Computer Science & Technology
6. Electrical Engineering
7. Electronics & Tele Communication
8. Earth Sciences
9. Humanities and Social Sciences
10. Human Resource Management
11. Information Technology
12. Mathematics
13. Mechanical Engineering
14. Metallurgy And Materials Engineering
15. Mining Engineering
16. Physics
17. Dept. of Students' Activities

Name of the Schools

1. Purabi Das School of Information Technology (PDSIT)
2. School of Materials Science & Engineering (SMSE)
3. School of Management Sciences (SOMS)
4. School of Community Science and Technology (SOCSAT)
5. School of Disaster Mitigation Engineering (SDME)
6. School of Ecology, Infrastructure & Human Settlement Management (SEIHSM)
7. School of Mechatronics & Robotics (SM&R)
8. School of Safety & Occupational Health Engineering (SSOH)
9. School Of VLSI Technology (SOVLSIT)

The Center in the university

1. Computer Centre
2. Video Conferencing Facility
3. Centre of Excellence

Centre of Excellence

1. Health Care Science and Technology
Coordinator - Professor Jayanta Chakraborty
2. Green Energy and Sensor Systems
Coordinator - Professor Hiranmoy Saha

Name of the Heads of Departments

1. Aerospace Engineering and Applied Mechanics – Prof. Dwijendra Nath Mallick /Prof. Salil Halder
2. Architecture, Town and Regional Planning - Prof. Souvanic Roy
3. Chemistry - Prof. Shyamal Kumar Chattopadhyay
4. Civil Engineering - Prof. Kalyan Kr. Bhar
5. Computer Science & Technology - Prof. Susanta Chakraborty
6. Electrical Engineering - Prof. Debasish Sarkar
7. Electronics & Tele Communication - Arabinda Ray
8. Geology - Prof Ananya Biswas
9. Humanities and Social Sciences - Prof. Madhumati Dutta / Prof. Rupen Basu Mallick
10. Human Resource Management - Prof. Manas Kumar Sanyal
11. Information Technology - Prof. S.P. Maity
12. Mathematics - Prof. Murari Mitra
13. Mechanical Engineering - Prof. Debasish Datta
14. Metallurgy And Materials Engineering - Prof. P.P. Chattopadhyay /Prof. Sanjoy Sadhukhan
15. Mining Engineering - Prof. Suranjan Sinha/ Prof. Prabir Kumar Paul
16. Physics - Prof. Mousumi Basu /Prof. Sampad Mukherjee
17. Dept. of Students' Activities – Lt. Col. A. K. Ghosh/ Prof. Aditya Bandyopadhyay

Name of the Directors / Professor-in –charge of Schools

1. Purabi Das School of Information Technology - Prof. Arindam Biswas
2. School of Materials Science & Engineering - Prof. N.R.Bandyopadhyay /Prof. Subrata Chatterjee
3. School of Management Sciences - Prof. S.R. Bhadra Chaudhuri
4. School of Community Science and Technology - Prof. N.R.Bandyopadhyay /Prof. Sujay Mukherjee
5. School of Disaster Mitigation Engineering - Prof. Ambarish Ghosh
6. School of Ecology, Infrastructure & Human Settlement Management - Prof. Sudip Kumar Roy
7. School of Mechatronics & Robotics –Prof. Arabinda Roy
8. School of Safety & Occupational Health Engineering - Prof. B.K.Bhattacharya
9. School Of VLSI Technology - Prof. Hafizur Rahman
10. Director of Research and Consultancy – Prof. S. Chatterjee

Distinguished Professors who have joined this University in recent period:

1. Steel Chair Professor
Dr. (Prof.) Subir Kumar Bhattacharyya
Department : Metallurgy And Materials Engineering
2. Bijoy Ashu Chair Professor

Prof. Madhujit Mukhopadhyay
Department : Civil Engineering
Ph. No. : 033 2422 8047 (Ext. No.-371), (M)-9831171782
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3. Honorary Emeritus Scientist
Prof. Chitta Ranjan Mahata
4. Honorary Distinguished Professor
Prof. Amitabha Ghosh
Former Director, IIT Kharagpur,
Senior Scientist, Indian National Science Academy, BESUS
and Honorary Distinguished Professor, IIT Kanpur
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e-mail address : amitabha@iitk.ac.in
5. Honorary Distinguished Professor
Prof. Asok Kumar Mallik
Former Professor, IIT Kanpur
6. Metalogic Systems Emeritus Chair of the Centre of Excellence-in memory of Professor Sankar Sebak Baral
Prof. Hiranmoy Saha
1. Prof. C.R. Mahata
Honorary Emeritus Scientist, BESUS
2. Dr. Nikhilesh Bandyopadhyay
Former HOD, Coated Product Group, Tata Steel, Jamshedpur
As Tata Steel Chair Professor, Dept. of Metallurgy and Materials Engineering, BESUS
3. Prof. Sabyasachi Sarkar
Former Professor of Chemistry, IIT, Kanpur
As Honorary Emeritus Professor, BESUS
4. Dr. Dipankar Chakraborty
Former Professor and HOD, Dept. of Electronic and Telecommunication Engineering, BESUS
As Adjunct Professor, Centre for Health Care Science and Technology
5. Prof. Shankar lall Maskara
Former HOD, Dept. of E & TC, IIT, Kharagpur
As Adjunct Professor, Department of E & TC , BESUS
6. Prof. Achintya Halder
Professor of Civil Engineering and EM & da Vinci Fellow
University of Arizona, Tuscon, USA
As Honorary Distinguished Visiting Professor of BESUS
7. Prof. Srikumar Mallick
Former HoD of Electrical Engineering
As Adjunct Professor of Electrical Engineering Department of BESUS
8. Prof. U. K. Chatterjee
As Adjunct Professor, Department of Metallurgy and Materials Engineering of BESUS
9. Prof. Jayanta Kumar Chakraborty
Former Professor of AE & AM, BESUS

10. Dr. S. P. Gon Chaudhuri
Former Director of Institute of Cultivation of Science
As Adjunct Professor of CEGESS, BESUS

Professor-in-Charge

1. International Relations and Alumni Affairs of the university : Prof. Santanu Karmakar
2. Computer Networking : Prof. Manas Hira
3. Library : Prof. Sudip Kumar Chattopadhyay
4. Furniture: Prof. Sudipta Mukhopadhyay

Dean

- Dean of Faculty of Engg. and Technology
Prof. Amit Kumar Das (18.12.2012)
Prof. Gautam Bandyopadhyay (19.12.2012- 17.04.2013)
Prof. Partha Protim Chattopadhyay (18.04.2013-)
- Dean of Faculty of Basic and Applied Sciences
Prof. B. K. Guha (18.12.2012)
Prof. S. P. Goswami (19.12.2012- 17.04.2013)
Prof. Binayak S. Choudhury (18.04.2013-),
- Dean of Faculty of Social and Management Sciences
Prof. M. K. Sanyal (18.12.2012)
Prof. Anjan Kumar Ghosh (19.12.2012- 17.04.2013)
Prof. Madhumati Dutta (18.04.2013-),

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Prof. Ajoy Kumar Ray

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Deputy Controller of Examinations

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Executive Secretary to V.C.

Dr. Devasis Datta

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Assistant Proctor

Shri Alok Kr Mitra

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Assistant Registrar

Shri Shib Sankar Basak.

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Assistant Registrar

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Shri Alok kr.Maity

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Accounts Officer

Shri Kartick Samanta

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Assistant Training Officer

Shri Usha Shankar Bhattacharyya

Ph.No. - 91-33-2668-4561(extn. no.-268)

Assistant Librarian

Smt. Subhra Bose

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Assistant Librarian

Shri Sushil Kumar Barman

Ph. No.- 91-33-2668-4561,(extn. no.-291)

Assistant Librarian

Smt. Sushmita Chakraborty

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E-mail address : susmitachakraborty94@gmail.com

Assistant Librarian

Sri Abani Oraon

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E-mail address : abani,oraon@yahoo.co.in

Assistant Controller

Sri Dipankar Chakraborty

Ph.No. - 91-33-2668-4561(extn. no.-640), Mob. No. : 91-9830182266

E-mail address : dcasd@yahoo.co.in

Professor-in-Charge of Students' Activities

Prof. Anjan Kumar Ghosh (07.12.1999- 30.04.2013)

Prof. Aditya Bandyopadhyay (01.05.2013-)

Ph.No. - 91-33-2668-4561(extn. no.-276),

***Department of Aerospace Engineering
& Applied Mechanics***

About the department

The department of Applied Mechanics was established as a separate major engineering department in 1947 and subsequently the Drawing Section was attached to it in late fifties. Over the years the department garnered enough human resources in the areas of fluid mechanics and structures. With effect from 2008 the department has been renamed as the department of Aerospace Engineering and Applied Mechanics. The department runs regular postgraduate programme in engineering mechanics and started undergraduate programme in aerospace engineering from academic session 2010 – 11 with an approved intake of 30 students.

Academic Programmes:

Undergraduate Level :

- i. Degree offered : B.E. in Aerospace Engineering
- ii. Sanctioned students intake : 30

Postgraduate Level :

- i. Degree offered : M.E. in Engineering Mechanics
- ii. Sanctioned students intake : 54
- iii. Specialisations in : Solid Mechanics and Fluid Mechanics.

Doctoral Level :

- i. Degree offered : Ph.D.
- ii. No. of candidates enrolled : 2
- Registered : 7

Faculty position :

Sanctioned faculty post : 27 Vacant post : 8

(a) Faculty Profile :

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Dr. B.N. Datta	Professor (Re-employed)	Ph.D.	FM, Hyd. Machines, FPE	2668-9782 bndatta2004@yahoo.com
Dr. J.K. Chakraborty	Professor (Re-employed)	Ph.D.	Biomech., Solid Mech.	9831540074 Jayantakrchakraborty@yahoo.com
Dr. S.K. Mukherjea	Professor	Ph.D.	FM, CFD	9831209985 mksujay@gmail.com mksujay@lycos.com skmukherjea@apnmec.h.becs.ac.in

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Dr. D.N. Mallick	Professor	Ph.D.	FPC & Heat Transfer	9903857124 me.dwijen@gmail.com
Dr. S. Halder	Professor	Ph.D.	Solid Mech., FEM	9830671153 salilhaldar@lycos.com
Dr. A.K. Mazumdar	Professor	Ph.D.	EM & Heat Transfer	9830651360 ashis.mazumder@rediffmail.com
Dr. A.K. Bhattacharya	Associate Professor	Ph.D.	Hyd. , Water Resources Engg.	9831046091 amartyakumar@yahoo.co.in
Dr. B. Bhattacharya	Associate Professor	Ph.D.	Numerical Methods, Biomech.	9433235720 basubec@yahoo.com
Dr. S. Bhaumik	Associate Professor	Ph.D.	Robotics, Mechatronics	9836044278 sbhaumik@lycos.com
Dr. M.C. Manna	Associate Professor	Ph.D.	Vibration, Dynamics	9433228694 mcmbeedu@lycos.com
Dr. A. Roychowdhury	Associate Professor	Ph.D.	Biomech., Solid Mech., FEA	9830465710 arc_98@rediffmail.com
Dr. N. Nandi	Associate Professor	Ph.D.	Hyd. , Water Resources Engg.	9830354744 nityananda@mailcity.com
Dr. K. Debnath	Associate Professor	Ph.D.	Fluid Dynamics, Hyd.	9830434409 debnath_koustuv@yahoo.com
Dr. P.K. Das	Associate Professor	Ph.D.	Earthquake Engg, Struc. Dyn.	9433429156 drpkdbesu@gmail.com
Dr. S. Majumder	Associate Professor	Ph.D.	Biomechanics	9833477867 majumder.santanu@gmail.com
Dr. S. Basak	Associate Professor	Ph.D.	Geotech., Gr.water Hyd., Hydro.	9830846295 basackdrs@hotmail.com
Dr. R. Roy	Associate Professor	Ph.D.	Earthquake Engg, Soilstructure interaction	9433154976 rroybec@yahoo.com
Sri N. Khutia	Assistant Professor	M.E.	FE, Frac.Mech., FPC	9883263316 niloy@mailcity.com
Sri D. Pal	Assistant Professor	M.E.	Fluid Mech., CFD, Microfluidics, FTE	9432136913 debashispal_2000@yahoo.com

Awards and Laurels :

Faculty members have received the following awards :

Fellowship of the Institution of Engineers (India).

Post Doctoral Fellow on the Research assignment in the University of Wollongong, Australia.

International Travel Grant

Invited and acted as external examiner of Ph.D. thesis by University of Technology, Sydney, Australia and

Acted as Reviewer of technical articles in reputed international journals.

Research Area :

- a. Analysis of structures under different loading :
 Applications of Finite Element Method
- b. Biomechanics
- c. Robotics and Mechatronics
- d. Earthquake Engineering, Dynamic Soil-structure interaction.
- e. Dynamics of Structures

Research facilities:

- i. Material Testing using UTM
- ii. Implant Testing using Knee Joint Simulator
- iii. Dynamic Analysis of Gait using Kistler Force Platform & Barograph
- iv. Dynamic Model Testing using Shaker Table
- v. Aerodynamic Model Testing using Wind Tunnel.
- vi. Tilting Flume.
- vii. Micro-Acoustic Doppler Velocimeter (16 MHz).
- viii. Compressible Flow Bench
- ix. Nozzle Pressure Distribution Measuring Setup
- x. Nozzle Performance Experimental Setup.
- xi. Multifinger Dexterous Robot Hand
- xii. Data Glove
- xiii. Grip Pressure Sensor

Name of the Laboratories :

1	Strength of Materials Lab		
2	Fluid Mechanics & Hydraulics Lab		
3	Biomechanics Lab		
4	CAD Lab		
5	Mechatronics and Robotics Lab		
6	Viscous Fluid Flow Lab	:	Est. in 2011
7	Low Speed Aerodynamics Lab	:	Est. in 2012
8	Aerospace Structure Lab	:	Est. in 2012
9	Thermodynamics Lab	:	Est. in 2013
10	Propulsion Lab	:	Proposed
11	High Speed Aerodynamics Lab	:	Proposed
12	Jet Propulsion Lab	:	Proposed
13	Mechanical Vibration Lab	:	Est. in 2012
14	Stability and Control Lab	:	Proposed
15	Computation Lab	:	Proposed

Consultancy Work:

Design of two chimneys of 40 m and 75 m height, of DESCON Consultancy Services.

Project on Entrepreneurship Development Cell (along with HRM Deptt.) (Sponsoring Agency – AICTE).

Project on Centre for green TBI (Sponsoring Agency - NSTEDB, DST, Govt. of India).

Support staff position :**Sanctioned technical post :**

Technical Assistant – 7 (vacant – 6)

Laboratory Assistant – 3

Instrument Mechanic – 1

Mechanic – 1

Draughtsman – 1 (vacant)

Technical staff profile

Name	Designation	Highest Qualification	Contact No.	E-mail
Asis Ghosh	Laboratory Assistant	B. Sc.	9433477829	
Arun Kr. Nandi	Laboratory Assistant	B. Sc.	9433452131	
Sharmila Sengupta	Laboratory Assistant	M. Sc.	9836031804	ssg1956@gmail.com
Amalendu Sahoo	Technical Assistant I	M. E.	9432647772	
Jayanta Kundu	Instrument Mechanic	H.S. (Sc. & Tech.)	9830456467	
Narayan Ch. Ghosal	Sr. Mechanic	Upto Class X	9051426136	

Sponsored Research:

Sl. No.	Title of Research Project	Sponsoring Agency	Amount sanctioned Rs. in lakhs
1	DST-FIST Project	DST	98.5
2	Analysis of Interface Stress in Implant – bone configuration	AICTE	5
3	Development of a Sensor Integrated Servo Controlled Hydraulic Robot with Stewart Platform Based Anthropomorphic Multi Degrees of Freedom Dexterous Hand	AICTE	7.50
4	Evaluation of Seismic Torsional Ductility Demand in Structural Elements of Reinforced Concrete Buildings with Asymmetry	DST	1.92
5	Study of Improved Design Methodology of Strip Footings of Multistorey Frames	UGC	4.64
6	Inelastic Response of Reinforced Concrete Structures during Severe Earthquake	BRNS, BRC Mumbai	7.14
7	Effect of Soil-structure Interaction on Dynamic Behaviour of Reinforced Concrete Elevated Water Tanks	DST, W.B.	2.75
8	Development of a Mobile Robot for Stair Navigation	DST, N. Delhi	12.00
9	Design, Analysis and Simulation of Micro-electromechanical Robotic Systems Integrated with Mechatronics Sensors, Actuators and Control (PI)	AICTE	10
10	Computer Aided Design, Analysis and Development of Patient Specific Prosthesis for different Human Joints, specially Hip Joint on Indian Perspective		6.9
11	Guideline Development for Bridge Pier Scour in Cohesive Bedded Rivers	DST, N. Delhi	24

No. of publications :

Journal : 27

Conference : 20

Seminar/ Workshops/ Conferences/ Training programme organized by the department

Workshop on “Industry Institute Interaction” held on October, 2012 in the department of Aerospace engineering and Applied Mechanics, BESUS, Howrah.

Publications :**Journal :**

1. Biswas, J.K., Karmnagar, S.K., **Majumder, S.**, Banerjee, P.S., Saha S., **Roychowdhury, A.** (Accepted 2012). Optimization of Spinal Implant Screw for Lower Vertebra through Finite Element Study. Journal of Long-Term Effects of Medical Implants (Beggel House).
2. Dutta, S.C. and **Roy, R.** 2012. Performance of Seismically Designed Buildings under Blast Loadings. Iranian Journal of Science and Technology, Transaction B, Engineering, Vol. 36, No. C2, pp. 149 – 166.
3. Chatterjee, P. and **Nandi, N.**, 2012. Study of unsteady laminar fluid flow past a square cylinder in viscous media. International Journal of Fluids Engineering (ISSN 09743138), Vol. 4, No. 3, pp. 105 – 110.
4. Dilip K. Biswas, **Subhasish Bhaumik**, Jyotirmoy Saha (2012), “Kinematic Navigation of Modular Robot”, International Journal of Engineering and Innovative Technology (IJEIT), Vol. 2, Issue 6, December 2012, pp. 27 – 37.
5. Biswas, J.K., Karmnagar, S.K., **Majumder, S.**, **Roychowdhury, A.**, 2012. A finite element study of spinal implant (pedicle screw) design for lumber (L3 - L5) vertebra. Indian Journal of Biomechanics (ISB), 3 (1-2), 50 – 60.
6. Maji, P., **Roychowdhury, A.**, Datta, D. , 2012. “Investigating the morphology of the proximal femur of the Indian population towards designing more suitable THR implants”, Journal of the long term effects of medical implants, 22(10.1615), 49-64.

7. Biswas, J.K., Karmakar, S.K., **Majumder, S.**, Banerjee, P.S., Saha, S. and **Roychowdhury, A.**, (Accepted in Sept. 19, 2012). “Optimization of spinal implant screw for lower vertebra through finite element studies”, Journal of the long term effects of medical implants.
8. Mandal, B., **Roy, R.** and Dutta, S.C. 2012. Lateral Capacity of Piles in Layered Soil : A Simple Approach. Structural Engineering and Mechanics, Techno Press, Vol. 44, No. 5, pp. 571 – 584.
9. Dutta, S.C. and **Roy, R.** 2012. Seismic Demand of Low-rise Multistorey Systems with General Asymmetry. Journal of Engineering Mechanics, ASCE, Vol. 138, No. 1, pp. 1 – 11.
10. Banerjee, P.P., Karmakar, S., **Roy Chowdhury, A.** “Biomechanical remedies for degeneration of cervical spine – a review of literature”. Journal of medical imaging & health Informatics. (Accepted, going to in December issue).
11. Banerjee, P.P., Karmakar, S., **Roy Chowdhury, A.**, 2012. “Measurement and Analysis of Morphological data of Cervical Spine for Indian population”, Journal of Medical and Allied Sciences, Vol. 2, Issue – 2, pp. 66 – 76.
12. **Debashis Pal** and Suman Chakraborty, 2012. “Spatially uniform microflows induced by thermoviscous expansion along a traveling temperature wave: Analogies with electro-osmotic transport”, Physical Review E 86, 016321 (2012).
13. **Debanth, K.**, Manik, M.K., Mazumder, B.S. (2012), “Turbulence Statistics of flow over scoured cohesive sediment bed around circular cylinder”, Advances in Water Resources, Elsevier, 41, pp. 18 – 28.
14. **Debanth, K.** and Chaudhury, S. (2012), “Local scour around non-circular piers in clay-sand mixed cohesive sediment beds”, Engineering Geology, Elsevier, 151, pp. 1 – 14.
15. **Khutia N.**, Dey P.P., Paul Surajit, Tarafder S., (2013) Development of Non Masing Characteristic Model for LCF and Ratcheting Fatigue Simulation of SA333 C-Mn Steel, Mechanics of Materials, Elsevier, 65, 88-102, 2013. D.O.I. Information: 10.1016/j.mechmat.2013.05.016.
16. **Debanth, K.** and Chaudhury, S. (2013), “Observations on initiation of pier scour and equilibrium scour hole profiles in cohesive sediments”, ISH Journal of Hydraulic Engineering, Taylor and Francis, 19:1, pp. 27 – 37.
17. **Roy, R.** and Mahato, S. 2013. Equivalent Lateral Force Method for Buildings with Setback : Adequacy in Elastic Range. Earthquakes and Structures, Techno Press, Vol. 4, No. 6, pp. 685 – 710.

18. **Roy, R.** and Chakrovorty, S. 2013. Seismic Demand of Plan-asymmetric Structures : A Re-visit. Earthquakes and Engineering Vibration, Springer, Vol. 4, No. 1, pp. 99 – 117.
19. Roy, S., Panda, D., Deb, A., **Bhowmick, S. Khutia, N., Roy Chowdhury, A.** “Optimization of Effective Modulus and stress concentration for different Pore geometries of Titanium Materials”, The Indian Journal of Biomechanics, 2013, Vol. 2, Issue – 1.
20. Fatahi, B., **Basack, S.**, Khabbaz, H. and Premenenda, S. (2012), “Analysis of Young’s Modulus, Dilatancy Angle and Ground Settlement of Stone Column Reinforced Soft Ground”, Australian Journal of Civil Engineering, 10 (1), 67-79.
21. **Basack, S.** and Dey, S. (2012), “Influence of Relative Stiffness and Load Eccentricity on Single Pile Response to Lateral Cyclic Loading in Sand”, Geotechnical and Geological Engineering, An International Journal, Springer, 30 (2), 737-751.
22. **Basack, S.** and Sen, S. (2013), “A Numerical Solution for Pile subjected to Pure Torsion”, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, doi:10.1061/(ASCE)GT.1943-5606.0000964.
23. **Basack, S.** and Sen, S. (2013), “A Numerical Solution for Pile subjected to Simultaneous Torsional and Axial Loads”, International Journal of Geomechanics, ASCE, doi: 10.1061/(ASCE)GM.1943-5622.0000325.
24. Indraratna, B., **Basack, S.** and Rujikiatkamjorn, C. (2013), “Numerical Solution to Stone Column Reinforced Soft Ground considering Arching, Clogging and Smear Effects”, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 139 (3), 377-394.
25. **Basack, S., Bhattacharya, A. K.** and Maity, P. (2013), “A Coastal Groundwater Management Model with Indian Case Study”, Water Management, Proceedings of ICE, <http://dx.doi.org/10.1680/wama.12.00008>.
26. **Basack, S.** (2013), “Design Recommendations for Piles subjected to Cyclic Load”, Marine Georesources and Geotechnology, Taylor and Francis, doi: full/10.1080/ 1064119X.2013. 778378#.UdIdItiX_Fw.
27. Fatahi, B., **Basack, S.**, Patrick, R. and Khabbaz, H. (2013), “Influence of Soil and Soil-Pile Interface Parameters on Performance of Laterally Loaded Piles”, Geotechnical and Geological Engineering, An International Journal, Springer (under review).

Conference Publications :

1. Chatterjee, S., Ghosh, U.B., **Majumder, S., Roychowdhury, A.**, 2012. Optimization of design & material property of customized hip replacement prosthesis. In proceedings : 57th Congress of Indian Society of Theoretical and Applied Mechanics, Defence Institute of Advanced Technology (DIAT), Girinagar, Pune, 17 – 20 December, 2012, pp. 163 – 168.
2. Biswas, J.K., Karmnakar, S.K., **Majumder, S., Roychowdhury, A.**, 2012. Spinal implant design for lower vertebra through finite element studies. . In proceedings : 57th Congress of Indian Society of Theoretical and Applied Mechanics, Defence Institute of Advanced Technology (DIAT), Girinagar, Pune, 17 – 20 December, 2012, pp. 97 – 104.
3. Dey, S., Biswas, J., Chatterjee, S., **Majumder, S., Roychowdhury, A.**, 2012. Design & Simulation of Lumber Artificial Intervertebral Disc. In Proceedings : International Conference on Advances in Mechanical

Engineering and its Interdisciplinary Areas, College of Engineering and Management, Kolaghat, West Bengal, 27 – 28 December, 2012, pp. 414 – 420.

4. Thakur, P., **Roy, R.** and Chakrovorty, S. 2012. Suitability of UHS and CMS for Scaling of Ground Motions : Implications to Seismic Response. Accepted in International Congress on Computational Mechanics and Simulation (ICCMS), IIT Hyderabad, December 9 – 12.
5. Mahato, S., Chakraborty, P. and **Roy, R.** 2012. Uncertainty of Code-torsional Provisions to Mitigate Seismic Hazards of Buildings with Setback. Proceedings of International Symposium on Engineering under Uncertainty : Safety Assessment and Management (ISEUSAM).
6. Panda, D., Bhowmick, S and **Roy, R.**, 2013. Impedance of Circular Foundations in Dynamic SSI Analysis : A Distributed Approach. Proceedings of Symposium on Sustainable Infrastructure Development (SID), Indian Institute of Technology, Bhubaneswar, Odisha, India.
7. Sinha, P., Sarkar, K., Pandey, B. and **Nandi, N.**, 2012. An experimental study on vortex motion. International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI), 27 – 28 December, 2012, pp. 122 – 129 (ISBN 9789382062790).
8. Mahapatra, P., Saha, S., Roy, S. and **Nandi, N.**, 2012. Experimental study on flow characteristics and Froude number with the help of a flow visualization experiment. International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI), 27 – 28 December, 2012, pp. 130 - 134 (ISBN 9789382062790).
9. O. Mazumder, A. Sankar Kundu and **S. Bhaumik** (2012), “Development of Wireless Insole Foot Pressure Data Acquisition Device”, 2012 International Conference on Communications, Devices and Intelligent Systems (CODIS), Jadavpur University, 978-1-4673-4700-6/12/@2012 IEEE Explorer, pp. 302 - 305.
10. Soumya Kanti Manna and **Subhasis Bhaumik** (2012), “Exorn – A Portable Exoskeleton Device for Rehabilitation of Human Arm”, International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI), College of Engineering & Management Kolaghat, December 2012, ISBN : 978-93-82062-79-0, pp. 367 – 376.
11. Roy, S., Chatterjee, S., Kundu, M., **Roy Choudhury, A.** “Design of Subject Specific Dental Implants”, In Proceedings : International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas, College of Engineering and Management, Kolaghat, West Bengal, 27 – 28 December, 2012, pp. 291 - 295.
12. Roy, S., **Khutia, N., Roy Choudhury, A.** “Weight and Natural Frequency Optimization of Automotive Engine Oil Sump Using Fibre Reinforced Composite Laminates”, Third Asian Conference on Mechanics of Functional Materials and Structures – 2012 (ACMFMS) held at Delhi.
13. Roy, S., Panda, P., Deb, A., Bhowmick, S., **Khutia, N., Roy Choudhury, A.** “Response of the effective modulus for different percentage of pore volume and pore size”, Indian Society of Theoretical and Applied Mechanics – 2012 (ISTAM 2012) held at DIAT, Pune.
14. **Basack, S.** and Sen, S. (2012), “A Boundary Element Solution for Single Pile subjected to Combined Axial and Torsional Loadings”, Proceedings, Indian Geotechnical Conference, IIT Delhi, New Delhi, India, 648-650.

15. **Basack, S., Bhattacharya, A. K.** and Maity, P. (2012), “Hydrogeological Investigation on Saline Water Intrusion into a Coastal Aquifer of West Bengal, India”, Proceedings, Indian Geotechnical Conference, IIT Delhi, New Delhi, India, 254-257.
16. Sinha, P., Sarkar, K., Pandey, B. and **Nandi, N.** 2013. On a few aspects of vortex motion. International Conference on Advanced Engineering and Technology (ICAET), 27th January, 2013, Mysore, pp. 80 – 85 (ISBN 9789381693885), published by Institute for Research and Development India (IRD India).
17. Sandipan Roy, Jayanta Biswas, Debojyoti Panda, Arunava Deb, Sauradeep Bhowmik, **Niloy Khutia, Amit Roy Chowdhury**, “Finite element study on crack development of titanium alloy (Ti6Al4V) specimen”, Indian Conference on Applied Mechanics, INCAM-2013, 4th -6th July, IIT Madras.
18. Saha, S., Biswas, J.K., Karmnagar, S., **Majumder, S.**, Banerjee, P.S., **Roychowdhury, A.**, “Finite Element analysis of spinal implant for different bone conditions, screw dimensions and materials”, Presented at the 29th Southern Biomedical Engineering Conference, Miami, Florida, USA, 3 – 5 May, 2013. Abstract in the Proceedings of the SBEC 2013, pp. 61.
19. **Basack, S.** (2013), “Degradation of Strength and Stiffness of Railroad Ballast under Cyclic Stress --- A Brief Review”, INDOROCK-2013, JUIT, Wajnaghat, Himachal Pradesh.
20. **Basack, S.** (2013), “Tension Test of Metals in Plastic Zone”, Proceedings, National Conference on Emerging Trends in Physics of Solids and Fluids, Jadavpur University, Kolkata, India, 57.

*Department of
Architecture, Town and Regional
Planning*

About the Department:

Bengal Engineering College was established in 1856. Later it was conferred the status of A Deemed University in 1993 and then became a full-fledged university under UGC Act from 2006. The Department of Architecture, Town & Regional Planning was established in 1949 as a constituent department of the Bengal Engineering College, and it was the first B.Arch. Degree awarding institution in the country. PG diploma in Town Planning was also started, as a part time course from 1949 and subsequently it became a full time course in Master of Town and Regional Planning from 1976 abolishing the part-time course. Since then it has produced about one thousand Under Graduate Students and three hundred Post Graduate students.

The vision of our Department is to carry forward our legacy that aims in making a student aware of the cultural, social, historical and technological aspects of design from the micro to the global scale with the aim to enhance quality of life on individuals and communities through a sustainable and humane approach to the profession, rooted in responsible use of resources and sensitive to ethno-cultural diversity of human kind.

Our mission is to engage our students in an exemplary architectural education program that has as its backbone a diversified and comprehensive curriculum that encourages independent innovative thinking through teaching, research and service in an unprejudiced and ethical academic environment reverent to history, culture and heritage and dynamic enough to embrace the challenges of the future.

Academic Programs

Undergraduate Level

Degree offered:	Bachelor of Architecture (B.Arch)
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Sanctioned student intake:	24
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Additional intake through lateral entry in 3rd semester: Not applicable as per Council of Architecture (COA) Norms

Post-Graduate Level

Degree offered:	Master of Town and Regional Planning (MTRP)
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Sanctioned student intake:	16
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Additional intake through other programs (i.e. QIP)	As per rule
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Specializations in	Town and Regional Planning
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Doctoral Level

Degree offered	PhD
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No. of candidates enrolled, registered and awarded	Enrolled: 5 Registered: 9 Awarded: 0
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Faculty position

Sanctioned faculty post: 13

Vacant post: 4 (1 occupied by superannuated faculty)

Faculty profile (in following table)

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Aditya Bandyopadhyay	Professor	Doctorate	Mathematical Models in Urban Planning, Regional Planning	bandyopadhyay.aditya@gmail.com
Souvanic Roy	Professor and Head	Doctorate	Spatial and Environmental Planning, Alternative Technology and Green Building Techniques, Community Based Natural Resource Management	souvanic_roy@yahoo.co.in
Arup Sarkar	Professor	Doctorate	GIS, Urban and Regional Planning	arupsarkar.ar@gmail.com
Swati Saha	Professor	M.C.P.	Urban and Regional Planning	swatisaha04@yahoo.com
Keya Mitra	Professor	Doctorate	Seismic Evaluation, Disaster Risk Mitigation and Management, Cultural heritage seismic risk mitigation, Urban Design	keyamitra@gmail.com
Parthasarathi Mukhopadhyay	Associate Professor	M. Arch.	Disaster Resistant Architecture, Urban Design, Technical Education, Visual Design	(+91) 98312 76459 parthasm@gmail.com
Amitava Roy	Associate Professor	Doctorate	Energy and Architecture	r.amitava@gmail.com
Subrata Kumar Paul	Assistant Professor	Doctorate	Transport Planning, Urban and Regional Planning	subrata2412@gmail.com
Soumen Mitra	Assistant Professor	M.T.R.P.	GIS, Urban and Regional Planning	mitrasmen@yahoo.co.in
Sibabrata Halder (Superannuated)	Professor	Doctorate	Housing, Urban and Regional Planning	halder.sibabrata@gmail.com

Awards and Laurel

Parthasarathi Mukhopadhyay, Associate Professor

Selected as one of the Top 50 innovators under the DST – Lockheed Martin India Innovation Growth Programme 2013 for the entry “Engineered Bamboo Houses: A cost-effective low-embodied energy disaster-resistant solution.”

Dr. Keya Mitra, Professor was awarded a Post Doctoral Fellowship under the Erasmus Mundus Project Eurasian Universities Network for International Cooperation in Earthquakes (EUNICE) at Dipartimento di Ingegneria Strutturale e Geotecnica, Sapienza Università di Roma.

Dr Keya Mitra, Professor participated as a team member for Initial Seismic Vulnerability Assessment of Equipment, Utilities, Architectural Shell and Contents in 3 hospitals in the Kathmandu Valley, Kingdom of Nepal, during May/June 2013. The visit was supported by World Health Organization Regional Office for South-East Asia.

Research Area

1. Architecture and Built form.
2. Computer Aided Architecture.
3. Vernacular and Rural Architecture
4. Energy and Building.
5. Urban Design.
6. Architectural Conservation.
7. Housing and Human Settlement Planning.
8. Transportation Planning.
9. Remote Sensing and Geographical Information System.
10. Environmental Planning and Management.
11. Rural Planning and Development.
12. Regional Planning and Development.
13. Earthquake resilient Buildings and Builtform.
14. Urban Planning/ Town Planning.
15. Regional Planning.
16. Urban administration, management and finance.
17. Climate Change and Human Settlements.

Research Facilities (name specific equipment / picture etc.)

1. Computer facilities for Remote Sensing and GIS
2. CAD Simulation Laboratory

Name of the laboratories

Material Museum is used for permanent display of samples of building materials for acquaintance of the students.
Construction Yard demonstrates various techniques of construction.
Computer Aided Architectural Design Laboratory is used for learning and practice of CAD for the students and Multimedia Simulation Laboratory for Research and Development.
Remote Sensing and GIS Laboratory facilitates training for the students of Town and Regional Planning in GIS, GPS and Remote Sensing technologies.

Consultancy Work

Parthasarathi Mukhopadhyay, Associate Professor, and Soumen Mitra, Assistant Professor, were appointed Honorary Consultants for Proposed Lab Size Rolling Mill Shed at SMSE, BESU, Shibpur under invitation from the Director, Dr. M. N. Dastur School of Materials Science & Engineering, BESU, Shibpur in 2012.

Support Staff position

Sanctioned Technical Post: 3

Technical Staff Profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Anjana Sengupta	Technical Assistant (Gr. I)	M. E. (Civil Engg.)	+913326684561-63 (Extension 401)	anjanasenguptaa@yahoo.com,
Keya Rani Mandal	Technical Assistant (Gr. II)	I.I.A. Examination Passed (equivalent to B. Arch.)		rani_mandal@rediffmail.com
Sarbani Sarkar	Technical Assistant (Gr. II)	I.I.A. Examination Passed (equivalent to B. Arch.)		sarkar_sarbani@rediffmail.com

No. of Publications (This year only)

Journal 15
Conference 2
Books / Monographs 2

Seminar / Workshop / Conference / Training Program organized by the Department last year

Seminar on World Habitat Day held on October 11, 2012
Convener: Prof. Arup Sarkar

List of Publications by faculty members during 2012-2013

Journals

1. Das, B. & **Bandyopadhyay, A.** 2012. Perspective of Watershed Management in our Modern Society. International Journal of Computational Engineering Research (IJCER), November, 2012.
2. Das, B. & **Bandyopadhyay, A.** 2012. A Model Of Watershed Management Process A Case Study Of Rarh Region In Gangetic Delta. International Journal of Engineering Research and Development, IJERD, November, 2012.
3. Das, B. & **Bandyopadhyay, A.** 2012. The Challenge Of Slum Development In India A Case Study Of Melatala- Dasnagar Slum Area Of Howrah Municipal Corporation", International Journal of Advanced System and Social Engineering Research, IJASSER, November, 2012.
4. Das, B. & **Bandyopadhyay, A.** 2012. Agradweep -A Sectoral Place Changing Location by Bhagirathi's River Bank Erosion. International Journal of Scientific and Research Publications, Volume 2, Issue 10, October 2012 1 ISSN 2250-3153.
5. Das, B., **Bandyopadhyay, A.** & Sen, J. 2012. Industrial Based Migration In India A Case Study Of Dumdum Dunlop Industrial Zone. IJoART Vol. 1, Issue 5, October 2012.

6. Das, B. & **Bandyopadhyay, A.** 2012. Causes Of Flood By Indian River A Case Study Of Transboundary River Icchamati In Gangetic Delta. International Journal of Advanced Research in Computer Science and Electronics Engineering (IJARCSEE), Volume 1, Issue 7, September 2012.
7. Das, B. & **Bandyopadhyay, A.** 2012. Geo-Environmental Problems Of Flood By Bhagirathi River A Case Study Of Agradweep Of Bardhawan District In Gangetic Delta. IJSETR, Volume1, Issue 5, September, 2012.
8. Das, B. & **Bandyopadhyay, A.** 2012. Climate Change And Environmental Problem In World -- A General Overview. Volume1 Issue 6 of IJSETR, October, 2012.
9. Das, B. & **Bandyopadhyay, A.** 2012. Risk Reduction Management Of Flood By Bhagirathi River A Case Study Of Agradweep Of Bardhawan District In Gangetic Delta. Volume1 Issue 5 of IJSETR, November, 2012.
10. **Roy, S.** 2012. Evolving Role of Aboriginal People in Planning and Governance of Protected Areas in Canada through the Lens of Protected Area Governance in India: Lessons for Policy Advocacy and Action Research. In Proceedings of the International Conference on “Engaging Canada: Emerging Priorities for Sustainable Partnerships” published by Shastri Indo- Canadian Institute, New Delhi, pp 19-33
11. **Roy, S.** 2012. Visual Perception of Urban Place: Issues Need Attention in Kolkata. Journal of Indian Institute of Architects 78(07), pp 49-54.
12. Murty, C.V.R., Rai, D.C., Kumar, H., **Mitra, K.**, Bose, A.K., Kaushik, H.B., Kumar, R.P., Jaiswal, A. 2012. A Methodology for documenting Housing Typologies in the Moderate-Severe Seismic Zones. Proceedings of the 15th World Conference on Earthquake Engineering. Lisbon, Portugal, September 24-28, 2012.
13. **Mukhopadhyay, P.**, and Dutta, S. C. 2012. “Strongest Cyclone of the New Millennium in the Bay of Bengal: Strategy of RVS for Nonengineered Structures.” Natural Hazards Review, ASCE, 13(2), 97-105, 10.1061/(ASCE)NH.1527-6996.0000057 (May 26, 2011), ISSN: 1527-6998
14. Biswas S., Chowdhury D., **Roy A.**, Yohanis Y.G., Neogi S. 2013. Thermal Performance of a Multistoried Residential Apartment in Winter Season at Kolkata, International Journal of Emerging Technology and Advanced Engineering, Volume 3, Special Issue 3: ICERTSD 2013, Feb 2013, pages 321-328, An ISO 9001:2008 certified Int. Journal, ISSN 2250-2459, available online at www.ijetae.com
15. Mukhopadhyay B.P., Roy S., Chaudhuri S., **Mitra S.** 2012. Influence of Geological Parameters on Landslide Vulnerability Zonation of Darjeeling Town, in Eastern Himalayas, Asian Journal of Environment and Disaster Management (AJEDM), Volume 4, No. 2, 2012, pp-145-164,
16. **Mitra S.**, Guha Niyogi J., A Quick Assessment Technique to Determine Profitability in Private City-Bus-Services - Case Study Kolkata-Howrah Urban Area, India, International Journal of Research in Management and Technology, ISSN: 2249-9563, Vol. 2, No. 4, 2012, pp-383-389
17. Mamun A., **Mitra S.**, A Methodology for Assessing Tourism Potential: Case Study Murshidabad District, West Bengal, India, International Journal of Scientific and Research Publication, Vol. 2, Issue 9., 2012, pp - 1-8

Books and Monographs

1. Dutta, S. C., and **Mukhopadhyay, P.** 2012. *Improving earthquake and cyclone resistance of structures: Guidelines for the Indian subcontinent*, TERI, New Delhi, ISBN: 978-81-7993-302-2
2. **Roy, S.** 2012. Analyzing the Impact of JnNURM Funded Slum Redevelopment Projects on Children Across India, 2012. Research Monograph published by Bernard Van Leer Foundation, Netherlands and Action for Children's Environments (ACE), India

Participation in International/national conferences/seminars during 2012-2013

International

Professor Keya Mitra attended the following international conferences during her visit to Sapienza University, Rome, Italy.

1. 6th International Conference on FRP Composites in Civil Engineering, Rome, Italy, June 13-15, 2012
2. Open Sees Days Rome, Italy, May 24-25, 2012
3. Governare Il Rischio Rome, Italy May 14, 2012

National

Professor Parthasarathi Mukhopadhyay, Associate Professor delivered a lecture on “Bamboo – The Versatile Green Building Material” on Jul 20, 2012 during a session of *Conference on GREEN BUILDINGS, Ushering a Green Movement in West Bengal* held under the aegis of the Confederation of Indian Industry (CII) and Indian Green Building Council (IGBC) at the Oberoi Grand, Kolkata.

Soumyendu Biswas, Research Scholar in the Department of Architecture, T & RP presented a paper titled “Thermal Performance of a Multistoried Residential Apartment in Winter Season at Kolkata” co authored with Dr. Amitava Roy, Associate Professor at the International Conference on Energy Resources & Technologies for Sustainable Development (ICERTSD 2013) at BESU, Shibpur, INDIA from 7th-9th Feb 2013.

Dr Keya Mitra, Professor, delivered a lecture on Disasters in College and University-Preparedness and Response on April 19, 2013 during a session at the One Day Orientation Programme for students and faculty at Rajabazar Science College, an initiative of the Urban Risk Reduction Program (URRP) for colleges under the jurisdiction of Kolkata Municipal Corporation towards preparation of Disaster Preparedness Plan.

Department of Civil Engineering

About the Department

The University started its journey with the Department of Civil Engineering in 1856. Civil Engineering College, as the University was known at that time, began with ten students and two teachers in Civil Engineering with the objective of producing finest Civil Engineers in the country. Now, more than 157 years' old, Department of Civil Engineering remains the premiere department of this University. During these years, the department has produced Civil Engineers who contributed immensely in shaping the pre- and post-independence India. Feeling the need of research and development, it started Master of Engineering in Civil Engineering programme in 1954. Currently it offers Master of Engineering and PhD programmes in five specializations: Environmental Engineering, Geotechnical Engineering, Structural Engineering, Highway and Traffic Engineering and Water Resources Engineering. Apart from teaching and research it is also actively engaged sponsored projects and industrial consultancy at national and international levels. At the societal level, the department has developed and successfully implemented technology solutions that helped thousands of rural people in getting pollution free water and thus living safely.

Academic Programmes

Undergraduate Level

- i. Degree offered: B.E.
- ii. Students' intake: 100
- iii. Additional intake through lateral entry in 3rd Semester : 10

Postgraduate Level (Regular)

- i. Degree offered: M.E.
- ii. Students' intake: 38 (GATE)

Specializations: Environmental Engineering, Geotechnical Engineering, Highway and Traffic Engineering, Structural Engineering and Water Resources Engineering

Postgraduate Level (Part time)

- i. Degrees offered: M.E. in Environmental Engineering,

M.E. in Geotechnical Engineering

M.E. in Structural Engineering,

M.E. in Transportation Engineering,

M.E. in Water Resources Engineering

- ii. Students' intake: 39

Doctoral Level

- i. Degree offered: Ph.D.
- ii. No. of candidates: Enrolled: 10; Registered: 6, Submitted: 02, Awarded: 02

Faculty position

Sanctioned: 34

Vacant: 7

Faculty profile (in the following table)

SL No.	Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
01	Madhujit Mukhopadhyay	Bijoy – Ashu Chair Professor	Ph.D.	Structural Engg.	2668-4561 (Extn. 679)
02	Saibal Kumar Ghosh	Professor	Ph.D.	Structural Engg., Conc. Tech.	2668-4561 (Extn. 659)
03	Gautam Bhattacharya	Professor	Ph.D.	Geotech. & Highway Engg.	2668-4561 (Extn. 281)
04	Kalyan Kumar Chattopadhyay	Professor	Ph.D.	Geotech. & Structural Engg.	2668-4561 (Extn. 660)
05	Ajit Lal Guha	Professor	Ph.D.	Structural Engg. & Mgmt.	2668-4561 (Extn. 678)
06	Kalyan Kumar Bhar	Professor & Head	Ph.D.	Water Resources Engg.	2668-4561 (Extn. 674)
07	Subrata Chakraborty	Professor	Ph.D.	Structural Engg., Conc. Tech.	2668-4561 (Extn. 673)
08	Anirban Gupta	Professor	Ph.D.	Environmental Engg.	2668-4561 (Extn. 675)
09	Sudip Kumar Roy	Professor	Ph.D.	Transportation Engg.	2668-4561 (Extn. 666)
10	Ambarish Ghosh	Professor	Ph.D.	Geotechnical Engg.	2668-4561 (Extn. 653)
11	Sugato Pal	Associate Professor	M.E.	Structural Engg.	2668-4561 (Extn. 714)
12	Debashis Moitra	Associate Professor	M.E.	Geotechnical Engg.	2668-4561 (Extn. 711)
13	Chaitali Ray	Associate Professor	Ph.D.	Structural Engg.	2668-4561 (Extn. 661)
14	Pratip Bandyopadhyay	Associate Professor	M.E.	Environmental Engg.	2668-4561 (Extn. 657)
15	Arun Kumar Chakraborty	Associate Professor	MTRP	Structural Engg., Conc. Tech.	2668-4561 (Extn. 645)
16	Aparna (Dey) Ghosh	Associate Professor	Ph.D.	Structural Engg.	2668-4561 (Extn. 663)
17	Pranab Kumar Lai	Associate Professor	M.E.	Water Resources Engg.	2668-4561 (Extn. 667)
18	Debabrata Mazumber	Associate Professor	Ph.D.	Environmental Engg.	2668-4561 (Extn. 654)
19	Prasanta Chakraborty	Asst. Professor	M.E.	Structural Engg.	2668-4561 (Extn. 715)
20	Ashis Kumar Bera	Asst. Professor	Ph.D.	Geotechnical Engg.	2668-4561 (Extn. 655)
21	Sujata Biswas	Asst. Professor	Ph.D.	Water Resources Engg.	2668-4561 (Extn. 662)
22	Tapash Kumar Roy	Asst. Professor	Ph.D.	Geotechnical & Transportation Engg.	2668-4561 (Extn. 668)
23	Chanchal Majumder	Asst. Professor	M.E.	Environmental Engg.	2668-4561 (Extn. 661)
24	Soumya Bhattacharjya	Asst. Professor	Ph.D.	Structural Engg.	2668-4561 (Extn. 715)
25	Sandip Chakraborty	Asst. Professor	M.E.	Transportation Engg.	2668-4561 (Extn. 672)
26	Asok Adak	Asst. Professor	Ph.D.	Environmental Engg.	2668-4561 (Extn. 658)
27	Sujit Kumar Dalui	Asst. Professor	Ph.D.	Structural Engg.	2668-4561 (Extn. 822)

Awards and laurels

- (a) Prof. Subrata Chakraborty became the Guest editor of SRESA Int. Journal of Life Cycle Reliability and Safety Engineering, Vol. 1 Issue 3 and 4, 2012
- (b) Prof. Arun Chakraborty won the prestigious National Award for Teachers
- (c) Prof. Subrata Chakraborty became the Associate Editor of the Journal of the Institution of Engineers (India): Series A, Civil, Architectural, Environmental and Agricultural Engineering, Springer, from April 2012
- (d) Prof. Subrata Chakraborty became the Member of the Editorial Board of International Journal of Control Engineering and Technology(IJCET)

Research area (only mention broad titles without description in detail)

Environmental Engineering

- (a) Development of Domestic and Community-based Arsenic Removal Units and Installation at Arsenic-contaminated areas
- (b) Testing and standardizing a low-cost domestic water filter for iron and arsenic removal
- (c) Screening of public water sources for arsenic contamination
- (d) Rapid assessment for fluoride contamination in West Bengal
- (e) Development of new materials for arsenic removal
- (f) Water treatment for surface water at village-level
- (g) Technology for treatment of septic tank effluent
- (h) Characterization of and energy recovery from municipal solid waste

Geotechnical Engineering

- (a) Application of stone columns as cost effective foundation system in soft soil
- (b) Application of Jute Geotextiles in Civil Engineering
- (c) Application of Geotube in Civil Engineering Construction
- (d) Reliability in Geotechnical Engineering
- (e) Analysis & Design of waste containment liner design for containment transport modeling
- (f) Risk evaluation of pile foundation in liquefiable soil
- (g) Study on liquefaction of soil for mutation and of mitigation strategy with special emphasis to microzonation of Kolkata
- (h) Use of waste materials for Road Construction
- (i) Behaviour of piles under complex loading

Structural Engineering

- (a) Fibre Reinforced Composite Structures
- (b) Concrete Technology (High performance concrete, Lightweight concrete, Geopolymer concrete, High-volume fly ash concrete, Self compacting concrete etc.)
- (c) Reliability Analysis of Structures
- (d) Structural Dynamics and Earthquake Engineering
- (e) Finite Element/Boundary element based analysis
- (f) Structural Health Monitoring
- (g) Corrosion of steel in concrete
- (h) Passive vibration control of structures

Transportation Engineering

- (a) Highway Capacity and Level of Service
- (b) Traffic Congestion Analysis
- (c) Alternate Pavement Material
- (d) Public Transport System Planning
- (e) Road Safety
- (f) Design and Management of Rural Roads
- (g) Rigid Pavement Design
- (h) Pavement Distresses and Maintenance Management

Water Resources Engineering

- (a) Water Resources Planning and Management
- (b) Flood Hazard Mitigation
- (c) Reservoir operation
- (d) Stochastic Hydrology
- (e) Storm Water Management
- (f) River Hydraulics and Modeling
- (g) Watershed Management
- (h) Remote Sensing and GIS Applications
- (i) ANN Applications in Water Resources Systems

Research Facilities: (Major equipment / picture etc.)

Environmental Engineering

Atomic Absorption Spectrometer
Gas Chromatography



Atomic Absorption Spectrometer

Geotechnical Engineering

Pile Integrity Testing Setup
Digital Triaxial Testing Setup
Seismic Down Hole Testing System



Digital Triaxial Testing Setup

Structural Engineering

Modal Testing Set-up
Automatic Compression Testing Machine
Corrosion Analysis Instrument



Automatic Compression Testing Machine

Transportation Engineering

Field Asphalt Content Tester
 Hand-held Falling Weight Deflectometer
 V Box
 Digital Camera for traffic survey
 Laser Distometer



Field Asphalt Content Tester

Water Resources Engineering

Remote Sensing and GIS Setup
 High-performance Computing



Remote Sensing and GIS Setup

Laboratories

Name of the Laboratory	Purpose
1. Computer Lab	<p>To conduct regular laboratory classes according to undergraduate and postgraduate curricula</p> <p>To provide testing facilities to outside agencies.</p> <p>To undertake research work</p>
2. Concrete Technology Lab	
3. Environmental Engineering Lab	
4. GIS Lab	
5. Geotechnical Engineering Lab	
6. Geotextile Engineering Lab	
7. Model Analysis Lab	
8. Structural Engineering Lab	
9. Structural Dynamics Lab	
10. Surveying Lab	
11. Transportation Engineering Lab	
12. Water Resources Engineering Lab	

Consultancy work:

Title	Principal Investigator	Funding Agency	Amount (Rs. In Lakhs)
Inspection work of Vidyasagar Setu along with approach viaducts and interchanges under BESU cell of HRBC.	Saibal Ghosh, Kalyan Kumar Chattopadhyay, Subrata Chakraborty	HRBC	540.0
State Technical Agency, PMGSY	Sudip Kumar Roy Gautam Bhattacharya Tapas Kumar Roy Sandip Chakraborty	PMGSY	6.0
Finding of causes for Distress Signs at various locations of the Buildings of the Primary Health Centre at Lakhuria, Burdwan and recommendations for remedial	Sudip Kumar Roy Ambarish Ghosh	Bardhaman Zilla Parishad	2.4
Design of Kannur Airport Pavement	Sudip Kumar Roy Sandip Chakraborty	ITD-Cementation	4.5

Support staff position:

- i) Sanctioned technical post: 13
- ii) Technical staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No./ E-mail
Shri Tinkari Patra	Superintendent (Tech)	B.Sc. DCE	2668-4561(Extn.769)
Shri Dipak Kumar Roy	Superintendent (Tech)	B.Sc. DCE	2668-4561(Extn.283)
Shri Ranjan Kumar Biswas	Superintendent (Tech)	B.Sc. DCE	2668-4561(Extn.283)
Shri Swapan Kumar Roy	Lab. Asst.	B.Sc.	2668-4561(Extn.254)
Shri Indranath Chakraborty	Jr. Superintendent	DCE	2668-4561(Extn.665)
Shri Sajal Kumar Chakraborty	Tech. Asst. I	B.Sc. (Hons.)	2668-4561(Extn.283)
Mrs. Amrita Bandyopadhyay	Tech. Asst. I	B.Sc. (Hons.), MCA	2668-4561(Extn.677)
Shri Amar Tarafder	Tech. Asst. II	DCE	2668-4561(Extn.282)
Shri Mohini Mohan Debsharma	Tech. Asst. II	DCE	2668-4561(Extn.282)
Md. Shafiul Alam	Tech. Asst. II	B.E. (C.E.)	2668-4561(Extn.761)
Shri Swarup Shovan Mukherjee	Tech. Asst. II	DCE	2668-4561(Extn.282)

Sponsored Research (Ongoing):

Title	Principal Investigator	Funding Agency	Amount (Rs. In Lakhs)
<i>International</i>			
Assessment of effects of arsenic pollution on health in rural Bengal and development and implementation of sustainable technology solution.	Kalyan Kumar Bhar	UKIERI (UK-India Education and Research Initiative)	£ 40000
Provision of safe water and appropriate sanitation in schools	Anirban Gupta	Water For People	US\$106374.44
Safe Water and Sanitation in Schools, Communities and Clinics.	Anirban Gupta	Water For People, USA	US\$ 43693
Development and Application of Potentially Important Jute Geo-Textiles	Ambarish Ghosh, Sudip Kumar Roy Asish Kumar Bera Sandip Chakraborty	CFC, The Netherlands	Rs. 40 Lakhs
<i>National</i>			
Development of Indian Highway Capacity Manual (Indo-HCM)	Sudip Kumar Roy Sandip Chakraborty Tapas Kumar Roy	CSIR-CRRI	Rs. 100.45 Lakhs
Hydrogeological study of sub-surface water flow/storage characteristics for creation of sustainable source on rain fed river for semi-arid and fluoride affected six blocks in connection with comprehensive water security plan for Damodar & Kangsabati River under Bankura district.	Kalyan Kumar Bhar	PHED (West Bengal)	Rs. 63.0 Lakhs
Static and Dynamic failure analysis of laminated composite stiffened plates for marine structures	Chaitali Roy	Ministry of shipping	Rs. 40.0 Lakhs
Geometric nonlinear thermo-mechanical analysis of FRP bridge deck	Chaitali Roy	DST, New Delhi	Rs. 18.0 Lakhs
Preparation of Ganga River Basin Environmental Management Plan, in partnership with IIT Consortium	Anirban Gupta	MoEF, GoI	Rs. 4.0 Lakhs (for first 3 quarters)
Passive control of seismically excited short period structures by the compliant liquid column damper	Aparna (Dey) Ghosh	DST	36 Lacs
Rural road pavement performance study	Sudip Kumar Roy	NRRDA, Govt. of India	Rs. 4.0 Lakhs
Technology Development of high performance fibre reinforced concrete composites for different applications	Arun Kumar Chakraborty	Tata Steel	Rs. 17.5 Lakhs
Details study on performance of concrete mixes made with ACC cement vis-a-vis than other cement Brand	Arun Kumar Chakraborty	ACC Cement	Rs. 2.25 Lakhs

Household Arsenic Mitigation Programme in Raichur, Karnataka	Anirban Gupta	UNICEF	Rs. 17.64 Lakhs
Integrated Fluoride Mitigation in Purulia District	Anirban Gupta	UNICEF	Rs. 10.5 Lakhs
Development of a Novel Nondestructive Robust Structural Health Assessment Technique with Minimum Noise Contaminated Information	Subrata Chakraborty	DST, Govt. of India	Rs. 6.2 Lakhs
Seismic Hazard Assessment, Microzonation and Evaluation of Vulnerability, Risk and Socio Economic Impacts for the City of Kolkata	Ambarish Ghosh	Ministry of Earth Science, Govt. of India	Rs. 8.0 Lakhs
Utilization of alternative materials for construction of subgrade and sub base layer of flexible pavements	Tapas Kumar Roy Sudip Kumar Roy	UGC	Rs. 7.0 Lakhs
Wind effects on Irregular Plan Shape Tall Buildings	Sujit Kumar Dalui	DST, New Delhi	Rs. 3.6 Lakhs
Factorial design approach to investigate the model parameters for prediction of arsenic removal by electrocoagulation using solar energy	Chanchal Majumder	UGC	Rs. 2.0 Lakhs

Industry Institution Interaction

Refresher Courses

Refresher course organized by Prof. Chaitali Roy for the Officers of M/s Larsen and Toubro Construction - EDRC Kolkata on Advanced Civil Engineering, at BESUS from 21st May to 2nd June 2012.

Visits

Departmental Faculty Members

- Prof. Kalyan Kumar Bhar and Prof. Chanchal Majumder visited Queen's University, Belfast, UK, during 28th June to 5th July 2012.
- Prof. Ambarish Ghosh attended the 14th Asian Conference on Soil Mechanics and Geotechnical Engineering held at Hong Kong Polytechnic University, Hong Kong, China during 23-27 May, 2012.
- Prof. Aparna (Dey) Ghosh visited Lisbon, Portugal to present a paper at the 15th World Conference on Earthquake Engineering during 24th to 28th September 2012.

ii) External Visitors

- Professor Kumares C Sinha, Edgar B. & Hedwig M. Olson Distinguished Research Professor of Civil Engineering at Purdue University visiting the Department on February 15, 2012
- Professor Sriman Kumar Bhattacharyya, Director CBRI Roorkee, visited the Department during 24th and 25th May 2012
- Professor V. Kalyanraman, Professor of IIT Madras visited the Department on 25th June 2012

- Professor S. L. Dhingra, Institute Chair Professor, Transportation Systems Engineering of Department of Civil Engineering, Indian Institute of Technology, Bombay, visited the Department on 7th September 2012
- Prof. Bhaskar Sengupta, Queen's University, Belfast visited the Department on 23rd December, 2012
- Prof. S.S. Chakraborty, Fellow, Indian National Academy of Engineering and the Chairman-cum-Managing Director, Consulting Engineering Services (India) Pvt. Ltd. visited the Department on January 10, 2013.

Invited Lectures

- Prof. Sudip Kumar Roy delivered invited lecture on "Urban Transportation Infrastructure Development" organized by Narula Institute of Technology, Kolkata, Aug.8, 2012.
- Prof. Kalyan Kumar Bhar delivered invited lecture on "GIS and Flood Management" organized by Budge Budge Institute of Technology, Kolkata, Oct.6, 2012.
- Prof. Subrata Chakraborty delivered invited lecture on "Disaster Mitigation: A Paradigm Shifts from Relief and Response to Preparedness", organized by Budge Budge Institute of Technology, Kolkata, Oct.6, 2012
- Prof. Subrata Chakraborty delivered invited lecture on "Robust Optimization of Structures under Uncertainty" in Reactor Group Colloquium under BARC Visiting Scientist Scheme, RRS Division, BARC Mumbai Nov.1, 2012.

No. of publications:

Journal Publication: 18

Conference Publication: 27

List of Publications

Journals

1. S. Chakraborty, S. Bhattacharjya and A. Halder: Sensitivity Importance-Based Robust Optimization of Structures. *Int J. Num. Methods in Engng.* 90(10), 1207 - 1220, 2012, DOI: 10.1002/nme.3360.
2. Bijan K Roy and Subrata Chakraborty , Robust Optimum Design of Tuned Mass Damper In Seismic Vibration Control Of Structures Under Uncertain Bounded System Parameters, *Int. J. of Life Cycle Reliability and Safety Engineering.* 1(3), 8-15, 2012
3. Subrata Chakraborty, Rama Debbarma, *Giuseppe Carlo Marano*, Optimal Performance of Tuned Liquid Column Dampers Considering Maximum liquid Motion in Seismic Vibration Control of structures, *Journal of Sound and Vibration* 331,2012, 1519–1531.
4. Ajoy K Das, Achintya Halder and S Chakraborty, Health Assessment of Large Two Dimensional Structures using Minimum Information – Recent Advances, *Advances in Civil Engineering* 2012, Article ID 582472, 16 pages doi:10.1155/2012/582472.
5. Subrata Chakraborty, Efficient robust optimization of structures, *ANNALS of INAE*, Vol IX, 2012,151-160.
6. Saha, P., Sarkar, A. K. & Pal, M. (2012). Speed Distribution of Heterogeneous Traffic on a Two-lane Highway Passing through Peri-urban Area. *International Journal of Applied Engineering Research*, 7(10), 1115-1121.

7. Biswas, S.(2012), “Estimation of Soil Erosion using Remote Sensing and GIS and Prioritization of Catchments”, *International Journal of Emerging Technology and Advanced Engineering*, Vol 2, Issue 7, July 2012, pp 124-128.
8. Metya, S. and Bhattacharya, G, (2012), “Slope Reliability Analysis using the First Order Reliability Method”, *SRESA Journal of Life Cycle Reliability and Safety Engineering*, Vol. 1, Issue No. 3, pp. 1-7.
9. Chowdhury, R., Flentje, P. and Bhattacharya, G, (2012), “Geotechnics in the 21st Century, Uncertainties and other Challenges with Particular Reference to Landslide Hazard and Risk Assessment”, *SRESA Journal of Life Cycle Reliability and Safety Engineering*, Vol. 1, Issue No. 2, pp. 27-43.
10. Ashis Kumar Bera and Arindom Roy (2012) Jute geotextile and its efficacy to the consolidation of soil of fine grained soil., *Electronic Journal of Geotechnical Engineering*, (ISSN: 1089-3032), USA, Vol. 17, Bundle R, pp. 2631-2645.
11. Bagui,S.K. and Ghosh,A. (2012). “Uses of Anti-Glare Screen Barrier in Economic, Financial Analysis and Determination of Optimal Debt Capacity Ratio for a Road Project, *Korean Society of Civil Engineering*,16(7),1104-1114
12. Bagui,S.K. and Ghosh,A. (2012). “Evaluation of NPV at Risk.” *Jordan Journal of Civil Engineering*, 6(2),243-254.
13. Swapan Kumar Bagui and Ambarish Ghosh (2012), Economic and financial analysis for polymer modified bitumen, *Malaysian Journal of Civil Engineering* 24(1), pp. 96-106.
14. Chakraborty, Ritwik and Ghosh, Ambarish. (2012). “Analysis of 1D contaminant migration through saturated soil media underlying aquifer using FDM.” *Journal of Hazardous, Toxic, and Radioactive Waste Mgmt.*, ASCE, 16(3), 229-242.
15. Koner, S., Pal, A. and Adak, A., “Use of surface modified silica gel factory waste for removal of 2,4-D pesticide from agricultural wastewater: a case study”, *Int. J. Environ. Res.*, Vol. 6, No. 4, October, 2012, pp. 995-1006.
16. Subrata Hait and Debabrata Mazumder (2012); Performance evaluation of a shaft–type hybrid bioreactor for the removal of carbonaceous organic matter; *International Journal of Environmental Engineering*, 4; 337-351.
17. Banerjee, R., Dutta, M., Roy, S. K., and Sinha, S.,(2012) “Evaluating the health cost of transport pollution”, *International Journal of Physical and Social Sciences* pp. 81-96, October 2012.
18. Debabrata Mazumder (2013); Scope of BOD, Nitrogen and Phosphorous Removal through Plant-Soil Interaction in the Wetland; *International Journal of Environmental Science and Engineering*; 7; 2; 833-842.

Conferences

1. Ghosh, A. (D.), Saha, P. C. and Basu, B. (2012). "Study of a tank-pipe damper system for seismic vibration control of structures." *Proc. 15th World Conference on Earthquake Engineering (15WCEE)*, Lisbon, Portugal.
2. Roy, A. and Ghosh, A. (D.) (2012). "Design of a tuned liquid damper system for seismic vibration control of elevated water tanks." *Proc. International Symposium on Engineering under Uncertainty (ISEUSAM)*, Bengal Engineering and Science University, Shibpur, India.
3. Mondal, P. (D.), Ghosh, A. (D.) and Chakraborty, S. (2012). "Performance of N-Z base isolation system for structures subjected to underground blast." *Proc. International Symposium on Engineering under Uncertainty (ISEUSAM)*, Bengal Engineering and Science University, Shibpur, India.
4. Bhattacharya, S. and Ghosh, A. (D.) (2012). "A frequency domain study on the seismic response mitigation of elevated water tanks by multiple tuned liquid dampers." *Proc. International Symposium on Engineering under Uncertainty (ISEUSAM)*, Bengal Engineering and Science University, Shibpur, India.
5. Bhattacharya S. and Ghosh, A. (D.) (2012). "Seismic vibration control of elevated water tanks by multiple tuned liquid dampers." *Proc. ISET Golden Jubilee Symposium, Indian Society of Earthquake Technology*, IIT, Roorkee, India.
6. Nilanjana Sen and Chaitali Ray (2012). Thermal buckling safety assessment of laminated plates with optimum fibre weight fraction. *International Symposium on Engineering under Uncertainty: Safety Assessment and Management*. January 4 to 6.
7. Bibekananda Mandal and Chaitali Ray (2012). Shear buckling capacity of laminated stiffened plates with diverse stiffener configurations" *Proceedings 57th ISTAM Congress (An International meet)* at Pune, December 17 to 20.
8. Somnath Majumder, Bibekananda Mandal, Sriparna Dey and Chaitali Ray (2012). Static and free vibration analysis of laminated orthotropic plates using FEM and B3 spline finite strip method" *Proceedings 57th ISTAM Congress (An International meet)* at Pune, December 17 to 20, 2012.
9. S K Mishra, S Chakraborty, Optimal performance of buildings isolated by Shape-Memory-Alloy-Rubber-Bearing (SMARB) subjected to random earthquakes, *ICCMS 2012*, Hyderabad
10. S Chakraborty, S Bhattacharjya, An improved robust multi-objective optimization of structure characterized with random parameters, *6th Int ASRANet Conf.*, London, Croydon 2-4 July 2012
11. Rama Debbarma, S Chakraborty Constrained Optimum Design of Liquid Column Vibration Absorber in Seismic Vibration Control, *15th World Conf on Earthquake Engineering*, Lisbon, 2012.
12. Bijan Kumar Roy, Subrata Chakraborty Rama Debbarma, Robust optimum design of tuned mass damper in seismic vibration control of structures, *15th World Conf on Earthq Engg*, Lisbon, 2012.
13. S K Mishra, S Chakraborty, Reliability based optimization of base isolated structure under parametric uncertainty subjected to random earthquakes, *15th World Conf on Earthq Engineering*, Lisbon, 2012.

14. Papiya D. Mondal, Aparna (D.) Ghosh and Subrata Chakraborty' Performance of N-Z Base Isolation System For Structures Subject To Underground Blast *ISEUSAM*, 2012.
15. Rama Debbarma, Subrata Chakraborty and Saibal Ghosh, Reliability Based Design Of Liquid Column Vibration Absorber Under Stochastic Earthquake Load Considering System Parameter Uncertainties *ISEUSAM*, 2012.
16. Bijan Kumar Roy and Subrata Chakraborty, Robust Optimum Design Of Tuned Mass Damper In Seismic Vibration Control Of Structures Under Uncertain Bounded System Parameters, *ISEUSAM*, 2012.
17. Bhattacharjya S., "Design of compression members", *National Workshop on 'Recent Trends in Design of Steel Structures'*, Bengal Engineering and Science University, Shibpur, July 25 to 27, 2012.
18. Bhattacharjya, S. "Design of steel beam-column and column-base", Short term refresher course on '*Advanced Civil Engineering* for the Officers of M/s Larsen and Toubro Construction- EDRC Kolkata (MMH-IC), Bengal Engineering and Science University, Shibpur, 21st May to 2nd June, 2012.
19. Saha, P., Sarkar, A. K. & Pal, M. (2012). Study of traffic characteristic on a National Highway passing through peri-urban area in Agartala, Tripura. *Proc. National Conf. on Urban Mobility-Challenges, Solutions and Prospects, IIT Madras*, 84-86.
20. Saha, P., Pal. M. & Sarkar, A. K. (2012). Study on percent time-spent following: a performance measure for two-lane highways. *2nd International Conference on Civil Engineering and Building Materials (CEBM 2012)* in Hong Kong.
21. Biswas, S., Roy, S. and Sarkar, S., "Drought Risk Assessment using GIS and Remote Sensing", *Proceedings of the International Symposium on Engineering under Uncertainty: Safety, Assessment and Management*, Department of Civil Engineering, Bengal Engineering and Science University, Shibpur, 2012, pp 849-857.
22. Murmu, S. and Biswas, S. "Application of Remote Sensing and GIS technique in Runoff estimation of a catchment using SCS model", *Proceedings of the Regional Conference of the INWES*, New Delhi, 2012.
23. Biswas, S. "Application of Space Technology in Disaster Mitigation", *National Symposium on Space Technology for Food & Environmental Security and Annual Conventions of Indian Society of Remote Sensing and Indian Society of Geomatics*, New Delhi, 2012.
24. Ashis Kumar Bera and Samrat Ghose (2012). Effect of position of ties and vertical spacing on uplift capacity of anchor with ties on sand, *IGC Delhi* Pp.560-563.
25. Ashis Kumar Bera, Prithwish Bhattacharya, and Amalendu Ghosh, (2012). Effect of jute geotextile on consolidation properties of soil, *Procedings of National Conference on Pervasive Computing and Communications*, Budge Budge, Calcutta, pp.111-114.

26. Chanchal Majumder. “A systematic study and statistical inferences on electrocoagulation design parameters with reference to arsenic removal. *International symposium on Engineering under Uncertainty: Safety Assessment and Management*”. BESU Shibpur, Howrah, West Bengal, January 4-6, 2012
27. Roy, T.K. (2012), “Performance of sediment of water treatment plant on Compaction and Strength Properties of sandy Soil” *Proceedings of the Indian Geotechnical Conference (IGC)*, Cochin University of Sc. and Technology.
28. Roy, T.K., Roy, S.K. and Kuity, A. (2013) “Prediction of Soaked CBR for subgrade layer by using Artificial Neural network model”, *Proceedings of the International Symposium on Engineering under uncertainty: Safety Assessment and Management*, Springer, India
29. Koner, S. and Adak, A., “Adsorption of Cationic Surfactant and Subsequent Adsolubilization of Organics on Silica Gel Waste”, *Proceedings of Conference on Technological Advancements in Chemical and Environmental Engineering*, BITS, Pilani, Rajasthan, India, March, 2012.

Books and Book Chapters

1. Gautam Bhattacharya and Sukanta Dey (2012): ME Thesis of Sukanta Dey published as a book titled: “Reliability Evaluation of Earth Slopes using First Order Reliability Method”; Publisher: LAP Lambert Academic Publishing, Germany; ISBN: 978-3-8484-9607-5; Published on 2012-04-04; Pages: 92
2. S Bhattacharjya, S Chakraborty, Sensitivity Importance-Based Robust Optimization of Structures with incomplete probabilistic information In *Structural Seismic Design Optimization and Earthquake Engineering: Formulations and Applications* Eds. Plevris V, Mitropoulou, C Lagaros, ND, IGI Global, Hershey PA, USA, ISBN 978-1-4666-1640-0 (hardcover)-ISBN978-1-4666-1641-7(ebook), 2012, 05-127.
3. Chakraborty, Subrata; Bhattacharya, Gautam (Eds.), *Proceedings of the International Symposium on Engineering under Uncertainty: Safety Assessment and Management (ISEUSAM - 2012)*, Springer, ISBN 978-81-322-0756-6.
4. Chaitali Roy, Contribution to the International Edition of the Book "Introduction to Finite elements in Engineering, by T. Chandrupatla and A. D. Belegundu, 4th edition, Pearson Publishing Co. 2012.

Journals Reviewed by the Faculty Members

- Journal of Materials in Civil Engineering, ASCE
- Journal of Bridge Engineering, ASCE
- Journal of Engineering Mechanics, ASCE
- Earthquake Spectra, EERI, Cal Tech, USA
- Canadian Geotechnical Journal, Canadian Society of Civil Engineers
- Journal of Computer Methods in Applied Mechanics and Engineering, Elsevier
- Journal of Sound and Vibration, Elsevier
- Journal of Finite Element in Analysis and Design, Elsevier

- Probabilistic Engineering Mechanics, Elsevier
- Structural Safety, Elsevier
- Computers and Structures, Elsevier
- Engineering Structures, Elsevier
- Journal of Hazardous Materials, Elsevier
- Journal of Geotextiles and Geomembranes, Elsevier
- Structural & Multidisciplinary Optimization, Springer
- Journal of Vibration and Control, SAGE
- International Journal of Structural Health Monitoring, SAGE
- International Journal of Materials and Structural Integrity
- Structural Engineering and Mechanics, Korea, Techno Press
- Journal of Zhejiang University Science, China
- Journal of Civil Engineering and Management, BENTHAM
- Journal of Structural Engineering, SERC, Chennai
- Indian Geotechnical Journal
- ISET Journal of Earthquake Technology
- Journal of Institution of Engineers (India), Civil Engineering Division

Seminar / Workshops / Conferences / Training programme organized by the Department

- Training program for the Officers of M/s Larsen and Toubro Construction-EDRC Kolkata, 21st May-2nd June 2012
- National Workshop on Recent Trends in Design of Steel Structures during 25 July to 27 July 2012
- Workshop on Arsenic contamination: source, effects and mitigation, June 13, 2011

Technology Developed and Innovation

- Development and Installation of a Highly Successful and Socially Accepted “Amal Arsenic Filter” at several Arsenic affected Villages in West Bengal.
- Development of High Strength High Volume Fly Ash Concrete (1st time in India)
- Technology development for high performance Steel Fibre Reinforced Concrete.

Others

Milestones

- Started as Civil Engineering College on 24th November 1856, in the premises of the Writers’ Buildings, Calcutta
- First Degree Examination in 1864
- First Post Graduate Course introduced in 1954 (first time in India)
- Faculty exchange program with University of Wisconsin in 1954
- Had the distinction of having pioneers in Engineering like Prof. Gerald Pickette, Prof. James R. Villemonte, Prof. Paul Anderson, Prof. R.L. Daugherty, Prof. A.C. Ingersoll, as visiting faculty members under the TMC scheme with USA
- Selected as Teachers’ Training Institute Centre in 1959
- First PhD in Engineering in 1962

- QIP Centre for M.E. (Civil) in 1990
- QIP Centre for PhD (Civil) in 2006
- In 2005 the Department was recognized as one of the State Technical Agencies (STA) under the Pradhan Mantri Gram Sadak Yojana
- In 2007 the Department celebrated its 150th Anniversary by organizing an International Conference on Civil Engineering in the New Millennium: Opportunities and Challenges.
- In 2008 the School of Disaster Mitigation Engineering was established with initiative from this Department.
- In 2008 the Advanced Centre for Environment and Water Resources Engineering was established in collaboration with Queen's University, Belfast.

Illustrious Alumni

- Rai Bahadur Anukul Ch. Mitra (1900) Engineering In-charge of construction of Victoria Memorial Hall, Calcutta.
- Rai Bahadur Girish Ch. Da (1891) Engg. In Charge, High Court Building, Calcutta.
- Dr. Fazlur Rahaman Khan, Pioneer in Structural Engineering
- Dr. Kajal Gupta, Chief Technologist, NASA-DFRC, USA.
- Dr. B.C.Ganguly, Former Chairman, Indian Railway Board
- Dr. P.K. Basu, Former Chair, C.E. Department, Vanderbilt University
- Shri Amrit Das, Founder Chairman, Research Engineers Inc. USA
- Dr. Sriman Kumar Bhattacharya, Director, Central Building Research Institute
- Dr. Subhomay Gangopadhyay, Director, Central Road Research Institute.

Department of Chemistry

About the Department:

The more than hundred years old department has a glorious past. At present the faculty members are involved in research in the frontier areas of Chemistry and Chemical Physics, which include Coordination & Bioinorganic Chemistry, Crystal Engineering, Carbohydrate Chemistry, Electrochemistry & Corrosion Science, Fuel Cell Technology, Molecular Recognition & Supramolecular Chemistry, Synthetic Organic & Organometallic Chemistry, Thin Film Semiconductor, Solar Photo-voltaic & Photo-electrochemical Solar Cells, Non-linear Optical Phenomena: Modeling & Computing, Non-equilibrium Statistical Mechanics, Relativistic & non-relativistic Electronic Structure Theory. The two year four semesters M. Sc. Course in Applied Chemistry offered by the department is designed to satisfy the needs of academia and industries. The department is endowed with a number of research projects sponsored by various funding agencies. The department has also been selected for MHRD special grant and DST-FIST and UGC-SAP programme.

Academic Programmes:

(a) Post graduate level:

- (i) Degree offered: M. Sc
- (ii) Student's Intake: 25
- (iii) Specialization in

(b) Doctoral Level

(i) Degree offered: **Ph.D.**

(ii) No. of candidates enrolled:

Registered / Enrolled: **43**

Awarded: **09**

(c) **Post. Doc:** 3 (D S Kothari/UGC)

Faculty position

Sanctioned Faculty Position: **15 Vacant Posts: 03**

(a) Faculty profile (in the following table)

Name	Designation	Highest Qualification	Specialization/ Research Area	Contact No. E.mail
Dr. S. P. Goswami	Professor	Ph.D.	Molecular Recognition and Supramolecular Chemistry	9433301414 spgoswamical@yahoo.com
Dr. B. Adhikary	Professor	Ph.D.	Nanomaterials and Co-ordination Chemistry	033 25385701 adhikarybibhu@yahoo.com

Dr. (Mrs.) J. Dutta	Professor	Ph.D.	Electrochemical Nanoscience, Fuel Cells, Solar Cells	09830029798 jayati_datta@rediffmail.com
Dr. A. Mondal	Professor & Head	Ph.D.	Thin film semiconductors and solar cells	9681420714 anupmondal2000@yahoo.co.in
Dr. S. K. Chattopadhyay	Professor	Ph.D.	Coordination Chemistry, Bioinorganic Chemistry	9874339079 shyamalchattopadhyay@gmail.com
Dr. P. K. Nandi	Professor	Ph.D.	NonLinear Optics: Modeling and Computation	9432177021 Nandi_pk@yahoo.co.in
Dr. B. K. Ghorai	Associate Professor	Ph.D.	Synthetic Organic, Organometallic and Materials chemistry	9433843142 bkghorai@yahoo.co.in
Dr. Sudip Kr. Chattopadhyay	Associate Professor	Ph.D.	Theoretical Molecular Sciences	9433144725 sudip_chattopadhyay@rediffmail.com
Dr. A. K. Mahapatra	Associate Professor	Ph.D.	Design, Synthesis and Recognition of Bio-active Molecules	9434508013 akmahapatra@rediffmail.com
Dr. (Mrs.) J. Ganguly	Assistant Professor	Ph.D.	Carbohydrate Chemistry	gangulyjhuma@yahoo.com
Dr. C. Bhattacharya	Assistant Professor	Ph.D.	Photoelectrochemical Solar Cells, Conducting Polymers, Corrosion Science	09433639041 c.bhattacharya@rediffmail.com
Dr. P. Biswas	Assistant Professor	Ph.D.	Coordination and Bioinorganic Chemistry, catalysis, nanomaterials	09433135103 biswaspapu@rediffmail.com
Prof. Sabyasachi Sarkar	Honorary Emeritus Professor	Ph.D.	Inorganic Chemistry and Bioinorganic /Biophysical Chemistry, Chemical Darwinism, Analytical and Environmental, Energy, Nano Science, Theoretical Chemistry, Spectroscopies and X-ray Crystallography	+91-8902499683 abya@iitk.ac.in, protozyme@gmail.com, sabby@chem.becs.ac.in

Awards and Laurels:

1. Prof. S. Sarkar awarded Professor Priyadarajan Ray Memorial Award, by Council of the Indian Chemical Society (2012) in 2013 .
2. Prof. S. Sarkar nominated as Distinguished Professor in the Faculty of Science, Department of Chemistry, Banaras Hindu University, Varanasi by its Academic Council from Dec.2012
3. Prof. S. Sarkar honored by the establishment of an annual ‘Professor Sabyasachi Sarkar endowment lecture series’ at R.K.Mission Vidyamandira, Belurmath Howrah and delivered its first Lecture in October,2013.
4. Prof. S. Sarkar awarded by Raja Rammana Fellowship by Department of Science and Technology, Govt. of India, New Delhi in 2012.

International Visit:

Invited speaker , The sixth International composites conference, **ACUN-6**, Monash University, Melbourne, Australia, **14 Nov., 2012**

- Prof. S. Sarkar chaired an academic session on theoretical studies held during July 16-July 19, 2013 on molybdenum and tungsten enzymes conference at Sintra Portugal, Lisbon.
- Prof. S. Sarkar visited and discussed with Prof. Wayne Marasco, MD, PhD , Harvard Medical School ,Dan Farber Laboratory on May 29,2013 for a possible collaboration with anti-cancer drug delivery using water soluble carbon nano onion as vehicle.
- Prof. S. Sarkar visited and discussed with Prof. A. Mueller of the University of Bielefeld during 22nd July - 25th July, 2013 on the aspect of Chemical Darwinism and model reaction study which was initiated by a joint funding of DFG-DST project during 2008-2010.

Research Area (only mention broad titles without description in detail):

1. Coordination & Bioinorganic Chemistry
2. Glycobiology
3. Electrochemistry, Non-conventional Energy, Fuel Cell, Corrosion Science.
4. Molecular Recognition & Organic Synthesis
5. Synthetic Organic, Organometallic and Materials Chemistry
6. Thin Film Semiconductors, Solar Photo-voltaic, Photo-electrochemical Solar Cells
7. Theoretical and Computational Chemistry, Theoretical Molecular Sciences
8. Conducting Polymers & Photoelectrochemical Solar Cell
9. Inorganic Chemistry and Bioinorganic /Biophysical Chemistry, Chemical Darwinism, Analytical and Environmental, Energy, Nano Science, Theoretical Chemistry, Spectroscopies and X-ray Crystallography

Research Facilities: (name specific equipment / picture etc.)

1. Spectrofluorimeter
2. Luminescence Spectrometer
3. Atomic Absorption Spectrophotometer
4. Potentiostat – Galvanostat
5. Optical Microscope with image analyzer
6. TG-DTA-cum-DSC System
7. Vacuum Coating unit
8. Electrochemical Quartz Crystal Microbalance System
9. FTIR with FT-Raman Spectrophotometer
10. Analytical cum Preparative HPLC with Mass Detector
11. Microwave Synthesizer
12. Chemisorption and Physisorption Measuring Unit
13. Fuel Cell / Solar Characterization System
14. Semiconductor Characterization System
15. Monochromator / Radiometer
16. UV-Visible Spectrophotometer
17. Hall Effect Setup
18. Ion-Chromatograph
19. PGSTAT 12 with Frequency Response Analyzer
20. AUTOLAB 30 Potentiostat/Galvanostat
21. PAR Versastat-II Potentiostat and electrochemistry system
22. Precision L-C-R Meter

Name of the Laboratories:

1. Coordination & Bioinorganic Chemistry
2. Glycobiology
3. Electrochemical Nano Science, Fuel Cell and Solar Cells.
4. Molecular Recognition & Organic Synthesis
5. Synthetic Organic and Organometallic Chemistry
6. Thin Film Semiconductors & Solar cells
7. Theoretical and Computational Chemistry
8. Theoretical Molecular Sciences
9. Conducting Polymers & Photoelectrochemical Solar Cell
10. Nano Imaging and Artificial photo synthesis

Consultancy work:

Development of nanotechnology for the de-salination of sea water “- a consultancy project from DESNOZ Inc., Raleigh, NC, USA (project cost: 4.84840 Lakhs) (S Sarkar)

Supporting Staff position:

(i) Sanctioned technical Post: 08

(ii) Technical staff profile (in the following table):

Name	Designation	Highest Qualification	Contact No.	E. mail
S. Munshi	Technical Assistant- II	M.Sc.	9432307325	
R. Halder	Technical Assistant - II	B.Sc. (2 years)	9547215236	
A. Das	U.D.C.	B.A.; L.L.B.	9432432241	
B. Das	Sore Helper	Madhyamik	9674774122	
B.Dey	Group-D	Class-VIII	9339637595	
J. Ali	Group-D	Madhyamik	9733930005	
S. Mahato	Group-D	Class-VIII	9231897280	

Sponsored Research: (mention area)

Ongoing (Prop value) in Lakhs	Sponsoring agencies
71	CSIR
33	UGC
176	DST
225	DST-SERI
38.00	MNRE
14.73	DST (W.B.)
46	DBT

Industry – Institute Interaction:

Development of nanotechnology for the de-salination of sea water “- a consultancy project from DESNOZ Inc., Raleigh, NC, USA

No. of publications: (2012 - 13)

Journal: 119

Conference: 17

Books/Monographs: 1(article)

(List to be included)

Kajoler Chausotti kola published in Bengali Magazine 'Desh' on 2nd July 2013 written by Prof. S. Sarkar

Technology Developed/ Innovations:

Patents:

1. Carbon nano powder resist the life cycle of pathogen bearing mosquitoes without disturbing to the environment, Indian Pat. Appl. (2012), IN 2011KO00204 A 20121026.
2. Water filtration system using hybrid nano carbon, silver, iron and aluminium oxide
 - a) U.S. Pat. Appl. Publ. (2012), US 20120012522 A1 20120119.
 - b) Chinese Patent Application for Invention No. **201310218809.7 (2012)**
 - c) Indian Patent to this also submitted (2012)
3. US patent approved: Water Soluble Fluorescent Quantum Carbon Dots, Patent Number: US 8357507B2 (approved on January 22, 2013)

Others:

(I) In the year of 2012, Dr. Sudip Kumar CHattopadhyay of the Department of Chemistry has contributed invited paper for *Chem. Phys.* **401**, 15 (Special Issue on “Recent advances in electron correlation methods and applications”).

(II) In the year of 2013, Dr. Sudip Kumar Chattopadhyay of the Department of Chemistry has contributed invited papers for the upcoming special issues of the *Journal of Physical Chemistry A* (ACS) entitled

- (1) “Oka Festschrift: Celebrating 45 years of Astrochemistry”
- (2) “Structure and Dynamics: ESDMC”

(III) Seminar lecture delivered (April 2012- March 2013):

1. Prof. S. P. Goswami delivered an invited talk at the International Symposium on *Facets of Weak Interactions in Chemistry at University of Calcutta, held during 13th-15th January, 2011.*
2. J. Datta, S. Bandyopadhyay “Electrochemical Corrosion of Aluminum Metal Matrix Composites: A Review” Composite & Nano composites in Civil offshore and Mining Infrastructure **The sixth International composites conference**, ACUN-6, UNSW, Australia, **14 Nov., 2012**
3. J. Datta, S. Sinha and C. Bhattacharaya, “The accelerate and inhibited corrosion behaviour of Al₂O₃ reinforced 6061 Al metal...neutral solution” **Sixteenth National congress on Corrosion Control**, Confederation of Indian Industry Suresh Neotia for Excellence, Kolkata, **23-25 Aug., 2012**
4. Workshop on Engaging academia with DRDO technology Vision, Jadavpur University, Kolkata, 2013
5. **Tenth International Symposium on Advances in Electrochemical Science and Technology, Chennai, Jan, 28-30, 2013.**
6. Dr. J.Ganguly: Invited Lecture: Sweet world of Bacteria, 17th October, 2012 at Uluberia College, Howrah
 7. Prof. S. Sarkar delivered a lecture on “হারিয়ে যাওয়া উৎসের সন্ধান” 2nd March, 2013, Bengali Science Congress, BESU.
 8. Prof. S. Sarkar delivered a lecture on “Progenote”, Ramakrishna Mission Institute of Culture, Golpark, 29th July, 2013.

9. Prof. S. Sarkar delivered a lecture on “Theoretical Studies of Molybdenum and Tungsten Enzymes”, 17th July, 2013, Sintra, Lisbon, Portugal.
10. Prof. S. Sarkar delivered a lecture on “Chemical Darwinism”, IIT Roorkee.
11. Prof. S. Sarkar delivered a lecture on “Chemistry, the central theme of Science”, Birbhum Institute of technology and science.
12. Prof. S. Sarkar delivered a lecture on “Artificial green house, Silk Cocoon”, University of Bhagalpur.

List of details of publications of each faculty member:

Dr. Sudip Kumar Chattopadhyay

Electronic Structure Theory (Relativistic and Nonrelativistic):

1. **Chattopadhyay, S., Mahapatra, U. S. and Chaudhuri, R. K., (2012) *Chem. Phys.* **401**, 15. Invited Article for Special Issue on “Recent advances in electron correlation methods and applications”.**
2. Mahapatra, U. S and **Chattopadhyay, S. (2012) *Mol. Phys.* **110**, 75.**
3. **Chattopadhyay, S., Mahapatra, U. S. and Chaudhuri, R. K. (2012) *Theo. Chem. Acc.* **131**, 1213.**
4. Mahapatra, U. S and **Chattopadhyay, S. (2012) *J. Com. Chem.* **33**, 1285.**
5. Das, M., Chaudhuri, R. K., **Chattopadhyay, S.,** and Mahapatra, U. S (2012) *Phys. Rev. A* **85**, 042506.
6. Chaudhuri, R. K., **Chattopadhyay, S.,** Freed K. F., U. S. Mahapatra (2012) *EuroPhysics Lett.* **98**, 23002.
7. Chaudhuri, R. K., **Chattopadhyay, S.,** Freed K. F., U. S. Mahapatra (2012) *Phys. Plasmas* **19**, 082701
8. K. Adhikari, **S. Chattopadhyay,** B. K. De, A. Sharma, R. K. Nath, and D. Sinha (2013) *J. Comp. Chem.* **34**, 1291.
9. Chaudhuri, R. K., **Chattopadhyay, S.,** Freed K. F., U. S. Mahapatra (2013) *J. Phys. Chem. A (Invited Article)*. Appeared in the *Oka Festschrift: Celebrating 45 Years of Astrochemistry*.
10. Mohan, P. Mangalam, A. **Chattopadhyay, S., (2013) “Parametric models of the periodogram” *J. Astrophys. Astr.* (Accepted).**
11. Chaudhuri, R. K. **Chattopadhyay, S.,** and Mahapatra, U. S. (2013) *J. Phys. Chem. A (Invited Article)*. Appeared in the special Issue: “Structure and Dynamics: ESDMC”

Statistical Mechanics (Equilibrium and Non- equilibrium Aspects)

12. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *Chem. Phys.* **397**, 48.

13. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *Europhys Letters* **97**, 40006
14. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *Chaos* **22**, 013131.
15. Ghosh P, **Chattopadhyay, S.**, and Ray Chaudhuri, J (2012) *Chem. Phys.* **402**, 48
16. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *Phys. Rev. E* **85**, 051102.
17. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *Chem. Phys. Lett.* **543**, 173.
18. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2012) *J. Chem. Phys.* **136**, 234506
19. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2013) *Eur. J. Phys. B* **86**, 23.
20. Shit, A., **Chattopadhyay, S.** and Ray Chaudhuri, J. (2013) *J. Phys. Chem. A (Invited Article)*. Appeared in the special Issue: “*Structure and Dynamics: ESDMC*”

Dr. Papu Biswas
2013

1. Sudipto Das, Suvendu Samanta, Swarup Kumar Maji, Partha Kumar Samanta, Amit Kumar Dutta, Divesh N. Srivastava, Bibhotosh Adhikary, **Papu Biswas**, *Tetrahedron Letters*, 54 (2013) 1090–1096.
2. Amit Kumar Dutta, Swarup Kumar Maji, **Papu Biswas**, Bibhotosh Adhikary, *Sensors and Actuators B*, 177 (2013) 676– 683.
3. Pradip Bag, Swarup Kumar Maji, **Papu Biswas**, Ulrich Flörke, Kamalaksha Nag. *Polyhedron*, 52 (2013) 976– 985. (*Special Issue dedicated to Sir Alfred Warner*)
4. Amit Kumar Dutta, Sudipto Das, Suvendu Samanta, Partha Kumar Samanta, Bibhotosh Adhikary, **Papu Biswas**, *Talanta*, 107 (2013) 361–367.

2012

5. Amit Kumar Dutta, Swarup Kumar Maji, Divesh N. Srivastava, Anup Mondal, **Papu Biswas**, Parimal Paul, Bibhotosh Adhikary, *Journal of Molecular Catalysis A: Chemical*, 360 (2012) 71– 77.
6. S. K. Maji, A. K. Dutta., **Papu Biswas**, D N. Srivastava, P. Paul, A. Mondal, B. Adhikary, *ACS Applied Materials and Interfaces*, 2012, 4, 1919–1927.
7. S. Dutta and **Papu Biswas**, *Polyhedron*, 40 (2012) 72–80.
8. S. K. Maji, A. K. Dutta, **Papu Biswas**, B. Karmakar, A. Mondal, B. Adhikar. *Sensors and Actuators B: Chemical*, 166– 167 (2012) 726– 732.
9. Amit Kumar Dutta, Swarup Kumar Maji, Anup Mondal, Basudeb Karmakar, **Papu Biswas**, Bibhotosh Adhikary. *Sensors and Actuators B*, 173 (2012) 724– 731.
10. S. K. Maji, A. K. Dutta., **Papu Biswas**, D N. Srivastava, P. Paul, A. Mondal, B. Adhikary, *Applied Catalysis A: General*, 2012, 419– 420, 170– 177.

11. P. Bag, S. Dutta, **Papu Biswas**, S. K. Maji, U. Flörke and K. Nag, *Dalton. Trans.*, 2012, **41**, 3414-3423.
12. S. Dutta and **Papu Biswas**, *Polyhedron*, 2012, **31**, 110–117.

Dr. Binay K. Ghorai

1. P. Roy, **B. K. Ghorai**, *Tetrahedron Lett.* **2012**, *53*, 235–238.
2. D. Jana, **B. K. Ghorai**, *Tetrahedron Lett.* **2012**, *53*, 1798–1801.
3. D. Jana, **B. K. Ghorai**, *Tetrahedron* **2012**, *68*, 7309–7316.
4. D. Jana, **B. K. Ghorai**, *Tetrahedron Lett.* **2012**, *53*, 6838–6842.
5. P. Roy, **B. K. Ghorai**, *Tetrahedron Lett.* **2013**, *54*, 1440–1443.

Dr. Prasanta K. Nandi

1. K. Hatua, **P. K. Nandi**, *Comp. and Theo. Chem.* **2012**, *996*, 82 – 90.
2. A. K. Mahapatra, R. Maji, P. Sahoo, **P. K. Nandi**, S.K. Mukhopadhyay, A. Banik **2012**, *Tetrahedron Letters*, *53*, 7031 – 7035.
3. K. Hatua, **P. K. Nandi**, *J. Theor. Comput. Chem.* **2013**, *12*, 1250099 – 25.
4. S. Goswami, A. Manna, S. Paul, A. K. Das, K. Aich, **P.K. Nandi**, *Chem. Commun.* **2013**, *49*, 2912 – 2914.
5. K. Hatua, **P. K. Nandi**, *J. Theor. Comput. Chem.* **2013**, DOI: 10.1142/S0219633613500466.
6. A. K. Mahapatra, K. Maiti, P. Sahoo, **P. K. Nandi**, *Journal of Luminescence*, **2013**, *143*, 349-354.

Dr. A. K. Mahapatra

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Dr. B. Adhikary

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Dr. C. Bhattacharya

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Prof. J. Datta

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Prof. A. Mondal

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Prof. Shyamal Kumar Chattopadhyay

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Prof. Shyamaprosad Goswami

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Dr. J. Ganguly

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Prof. Sabyasachi Sarkar

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30. Science article (on Carbon) in Bengali Magazine, **DESH**, ABP publication, Kolkata, July 2 issue, 2013

*Department of
Computer Science and Technology
Department*

About the department

Department of Computer Science and Technology (CST), established in 1982, is the 2nd youngest of the ten Engineering departments in the one and half century old Bengal Engineering College (DU). The CST department, since its inception, has maintained a steady growth in every sphere of its activities and played an important role in bringing a vibrant and forward looking academic environment within the University. It is a premier institution offering high quality undergraduate and postgraduate engineering courses as well as providing an excellent infrastructure and facilities for advanced research and consultancy.

The importance of introducing a separate discipline on Computer Science and Technology was felt back in mid 70s. To serve the growing need of manpower with specialisation in Computer Design and Applications a proposal to start the new discipline was submitted to MHRD and the approval was obtained in 1981. The new department started functioning from within the Electrical Engineering department and admitted the first batch of Bachelor of Engineering (BE) students in July 1982 and a separate CST department came into existence in August 1984. In January 1988 Master of Computer Application (MCA) course was introduced; the first in Eastern region. The full time Master of Engineering (ME) course in Computer Science and Technology started from July 1992. The department conferred its first Ph D degree in January 1999.

This department has been accredited by the **National Board of Accreditation (NBA)** as 'A' grade department for 5 years (1999-2004). The department is also acquired **ISO 9000** certification in 1999-2000.

Academic Programmes:

Undergraduate Level

Degree Offered : Bachelors of Engineering (BE)
Sanctioned students' intake : 60
Additional intake through lateral entry in 3rd Semester : 6

Postgraduate Level

Degree offered : **Master of Engineering (M.E.)** Postgraduate Degree Course
Sanctioned students intake : 16 (GATE)
Specialisations in : INFORMATION TECHNOLOGY &
ENGINEERING

Doctoral Level

- i. Degree offered : **Ph.D.** program in Computer Engineering
- ii. No of candidates enrolled: 08 (July 2013), Registered: 11

Faculty position: Sanctioned faculty post...20.... Vacant Post ...6...,

Faculty profile

Name	Designation	Highest Qualification	Specialisation / Research Area	Contact No.
Dr. Amit Kr. Das	Professor	PhD	Image Processing	(033) 2668 4561 / 2 / 3, Extn. 281 amit@cs.becs.ac.in
Dr. Uma Bhattacharya	Professor	PhD	Broadband computing, Fault tolerance, interconnection network	(033) 2668 4561 / 2 / 3 Extn. 575 ub@cs.becs.ac.in ; uma_bh2000@yahoo.co.in
Dr. Jaya Sil,	Professor	PhD	Image Processing, Bio-informatics, Pattern Recognition	(033) 2668 4561 / 2 / 3 Extn. 227 js@cs.becs.ac.in
Dr. Susanta Chakraborty	Professor	PhD	Testing Synthesis and placement of Bio-chip, Testing and Synthesis of Quantum Circuit and Nano-Circuit , Low Power Design, Synthesis and Testing of VLSI Circuits.	(+91) 9433503748, Extn. 600/ 602 susanta.chak@gmail.com sc@cs.becs.ac.in
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Dr.Biplab Kr. Sikdar	Professor	PhD	Computer Science and Engg./Cellular Automata	(033) 2668 4561 / 2 / 3, Extn. 606 biplab@cs.becs.ac.in
Manas Hira	Associate Professor	M.Tech.	Temporal Logic & Circuit Verification.	(033) 2668 4561 / 2 / 3, Extn.578, manas@cs.becs.ac.in , manashira2002@yahoo.com
Somnath Pal	Associate Professor	M.E.	Data Mining & Knowledge Discovery, Chemo informatics	(033) 2668 4561 / 2 / 3, Extn. 582, sp@cs.becs.ac.in
Dr. Sulata Mitra	Associate Professor	PhD	Mobile Computing, Wireless Communication	(033) 2668 4561 / 2 / 3, Extn. 599, sulata@cs.becs.ac.in
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Saptarshi Ghosh	Asst. Professor	M.Tech.	Data Mining, Social Network	(033) 2668 4561 / 2 / 3, Extn 595 sghosh@cs.becs.ac.in

Awards and Laurels:

Prof. Susanta Chakraborty	4.Publicity Chair & Program Committee member of 3 rd IEEE International workshop on Reliability Aware system Design and Test(RASDAT), January, India, 2012
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Research Area (only mention broad titles without description in detail)

- i. VLSI Design and Testing for Sub-micron Technology
- ii. Mixed Signal Design and Testing
- iii. Theory and Applications of Cellular Automata in Diverse Fields
- iv. Database Verification / Consistency Checking and Data Mining
- v. Information System for Control and Management Applications
- vi. Mobile Computing
- vii. Testing of Quantum circuit, Reversible Circuit and Nano-Circuit.
- viii. Testing and Placement of Bio-Chip
- ix. Broadband Computing
- x. Image Processing including Document Image Processing and CBIR
- xi. Soft computing
- xii. Computational geometry
- xiii. Data mining
- xiv. Wireless sensor network

Research facilities: (name of specific equipment / picture etc.)

Sl. No.	EQUIPMENT	
	Name	Make/Spec
1	Function Generator	Yokogawa/ FC-300(15MHZ), Synthesized Function Generator
2	Digital Signal Oscilloscope(DSO)	Yokogawa/ DL-9505L 5GS/S 500MHZ
3	Labview(Software)	National Instrument/ NI-DAQMX for Windows Vista, Vista X64 Edition, XP/2000.Also includes: Labview Signal Express

4	P/C with Robot Interface	Parallax Boe –Bot Robot Kit , Hex- Crawler Kit, Robot Arm
5	FPGA	Xilinx Altera
6	Microcontroller	KEIL
7	Cluster and Distributed Computing Platform	IBM,Intel
8	Storage and Network	IBM
9	Wireless Explore Kit(WEK)	IEEE 802.15.4 Standard

Name of the Laboratories:

■ Software Laboratories	■ Hardware Laboratories
Resources: PC'S: 150 Servers : 20 OS : Linux, Windows, Unix Software: Oracle 9i, matlab, CASE Tool, VLSI etc. Supporting the following courses: <ul style="list-style-type: none"> i)Data Structure ii)Object Oriented Technology iii)Discrete Structures iv)Operating Systems v)Algorithm vi)Analysis, Design & Management of Information Systems vii) Database Management System vii)Computer Networks viii)Systems Programming ix)Computer Graphics x)Compiler Design xi)Symbolic Logic & Artificial Intelligence xii)Software Engineering 	Digital Circuit Experimentation Kit, Microprocessor S/W Development Kits, Embedded System Design Kits, Programmable Logic Controller, GPS Receiver Unit, RFID Reader. Supporting the following courses: <ul style="list-style-type: none"> i)Digital Logic ii)Computer Organization iii)Microprocessor Based System Design iv)Digital Systems Design v)Embedded System vi) Computer Control of Industrial Process

\xiii) VLSI Design	
xiv)Electronic Design & Automation	

Consultancy Work: Automation of Assessment and Billing activities of Howrah Municipal Corporation.

Support staff position:

- (a) Sanctioned technical post....:- 8
(b) Vacant Post: 1

Technical staff profile (in the following table)

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PRADIP KUMAR ROY	TECH.ASST. - I	LEE	2668 4561 / 2 /3 Extn. 576	pkrr@cs.becs.ac.in
SUMITRA BAGCHI	TECH.ASST. - II	MCA, B. Sc (Physics)	2668 4561 / 2 /3 Extn. 584	bagchi@cs.becs.ac.in
SARBANI BARARI	TECH.ASST. - II	Diploma in Electronics & Telecommunication Engineering, B. Sc	2668 4561 / 2 /3 Extn. 577	sarbani@cs.becs.ac.in
SUJATA MISRA	TECH.ASST. - II	Diploma in Computer Science & Technology, B. Sc	2668 4561 / 2 /3 Extn. 576	sujata@cs.becs.ac.in
RUMELI BOSE	TECH.ASST. - II	M.Tech	2668 4561 / 2 /3 Extn. 611	rumeli@cs.becs.ac.in

Sponsored Research:

Name of PI / Co-PIs	Title Of the project	Funding Agency	Total Quantum support	Status
Dr. Abhik Mukherjee	Conceptual design of NGC loop for PGM's	DRDO(RCI)	10 lacs	Completed
Dr. Abhik Mukherjee	Alignment and Ejection studies of PGM	DRDO(RCI)	8 Lacs	Continued
Dr. Abhik Mukherjee	Guidance, Control &Target Tracking strategies for a PGM	DRDO(RCI)	22 Lacs	Continued

PUBLICATIONS 2012-2013

Dr. Amit Kr. Das	International Conference : 6
Dr. Uma Bhattacharya	International Journal:4 International Conference: 5
Dr. Jaya Sil,	International Journal: 8 International Conference: 5 Books/Monograms:
Dr. Susanta Chakraborty	International Journal: International Conference : 2 Books/Monograms:
Dr. Sipra Das Bit	International Journal: 3 International Conference :6 Books/Monograms:
Dr.Biplab Kr. Sikdar	International Journal: International Conference : Books/Monograms:
Somnath Pal	International Journal: 2 International Conference : Books/Monograms:
Dr. Sulata Mitra	International Journal: 4 International Conference :7 Books/Monograms:
Dr. Abhik Mukherjee	International Journal: 4 International Conference: 2
Dr. Sekhar Mondal	International Journal: International Conference:
Dr Asit Kr. Das	International Journal: 5 International Conference: 11 Books/Monograms:
Saptarshi Ghosh	International Journal: 2 International Conference :4 Books/Monograms:

Prof. Somnath Pal

List of Papers:

- Sanjay Ram and Somnath Pal, An Efficient Algorithm for Automating Classification of Chemical Reactions into Classes in Ugi's Scheme, International Journal of Chemoinformatics and Chemical Engineering, 2(2), 1-14, 2012.
- Sourav Mandal and Somnath Pal, A Three-Pass Algorithm for Generation of BE-Matrices from IUPAC Names, Accepted to be published in International Journal of Chemoinformatics and Chemical Engineering, 3(2), 2013.

International Journal/Book-series

1. Ditipriya Sinha, Uma Bhattacharya and Rituparna Chaki, "A CRT based encryption methodology for secure communication in MANET", published in International Journal of Computer Applications (IJCA) Vol.39, No.-16, 2012. DOI number is 10.5120/4904-7406.
2. M. Chatterjee, S. Sanyal, M. Nasipuri, U. Bhattacharya, "A wavelength assignment algorithm for de Bruijn WDM networks", accepted for publication in 2012 in International Journal of Parallel, Emergent and Distributed Systems (IJPED), Taylor & Francis, UK
3. Ditipriya Sinha, Uma Bhattacharya and Rituparna Chaki, "CLAR: A novel cluster oriented agent based routing protocol for MANET", published in Foundations of Computing and Decision Sciences International Journal Vol. 38, No. 1, 2013. DOI number is [10.2478/v10209-011-0018-5](https://doi.org/10.2478/v10209-011-0018-5).
4. M.Chatterjee, A.Sharma and U.Bhattacharya, "Fault Tolerant Routing for Minimizing Congestion in WDM Optical Networks Based on de Bruijn Graph", The Mediterranean Journal of Computers and Networks, SoftMotor Ltd., U.K. (accepted for publication, 2013)

International Conferences

- Ditipriya Sinha, Uma Bhattacharya And Rituparna Chaki "A Secure Routing Scheme in MANET with CRT based Secret Sharing", in Proceedings of 15th International Conference of Computer and Information Technology, 2012 (ICCIT 2012), paper to be included in IEEE Xplore.

ABHIJIT SHARMA, Uma Bhattacharya, "An Efficient Scheme to Reduce Call Blocking in Cellular Networks", IEEE 1st International Conference on Mobile Services (IEEE MS 2012), Hawaii, 2012. (ACCEPTED)

ABHIJIT SHARMA, Uma Bhattacharya, "An Efficient Call Admission Control Scheme to Reduce Call Blocking in Mobile Cellular Systems", IEEE International Conference on Communication, Networks and Satellite (ComNetSat), 2012. (ACCEPTED)
- ABHIJIT SHARMA, Avijit Roy, Suman Ghosal, Rituparna Chaki, Uma Bhattacharya, "Load Balancing in Cellular network: A Review", 3rd International Conference on Computing Communication & Networking Technologies (ICCCNT), Coimbatore

- ABHIJIT SHARMA, Uma Bhattacharya, “Load Balancing Scheme for Wireless Cellular Networks”, 7th International Conference on Ubiquitous Information Management and Communication (ICUIMC), Kota Kinabalu, Malaysia, 2013.

Member of Program committee: CSNDSP 2010, ICPDGC 2010

Dr. Jaya Sil:

Journals

1. Santi P. Maity, Seba Maity, Jaya Sil and Claude Delpha, Optimized Spread spectrum watermarking for fading-like collusion attack with improved detection, Special Issue on Wireless Personal Communications Journal, Springer Verlag, vol. 69, no. 4, April (II), 2013.
2. Nandita Sengupta, Jaydeep Sen, Jaya Sil and Moumita Saha, Designing of On Line Intrusion Detection System Using Rough Set Theory and Q Learning Algorithm, Elsevier Neurocomputing Journal, vol. 111, 161-168, July, 2013
3. Santi P. Maity, Seba Maity, Jaya Sil and Claude Delpha Perceptually Adaptive MC-SS Image Watermarking using GA-NN Hybridization in Fading Gain, Accepted (minor revision is going on) in Elsevier, International Scientific Journal Engineering Applications of Artificial Intelligence, 2013
4. Ranita Biswas and Jaya Sil, An Improved Canny Edge Detection Algorithm Based on Type-2 Fuzzy Sets, Procedia Technology, Elsevier, 4 (2012) 820 – 824
5. Indrajit De and Jaya Sil, Entropy based fuzzy classification of images on quality assessment, Journal of King Saud University – Computer and Information Sciences, Elsevier, (2012) 24, 165–173.
6. Santi P. Maity, Seba Maity, Jaya Sil and Claude Delpha, Optimized Spread spectrum watermarking for fading-like collusion attack with improved detection, Special Issue on Wireless Personal Communications Journal, Springer Verlag, vol. 69, no. 4, April (II), 2013.
7. Santi P. Maity, Seba Maity, Jaya Sil, Claude Delpha, Collusion resilient spread spectrum watermarking in M-band wavelets using GA-fuzzy Hybridization, The Journal of Systems and Software, Elsevier Science Direct, vol. 86, pp47-59, 2013.
8. Santanu Phadikar, Jaya Sil, Asit Kumar Das, Rice diseases classification using feature selection and rule generation techniques, Computers and Electronics in Agriculture, pp 76-85, vol. 90, 2013.

Conferences:

1. P. Konar, M. Saha, J. Sil and P. Chattopadhyay Fault Diagnosis of Induction Motor Using CWT and Rough-Set Theory, 2013 IEEE Symposium on Computational Intelligence in Control and Automation (CICA), pp. 9-15, 16 – 19 April 2013

2. P. Konar, S. Bhawal, M. Saha, J. Sil and P. Chattopadhyay, Rough set based multi-class fault diagnosis of induction motor using Hilbert Transform, *2012 International Conference on Communications, Devices and Intelligent Systems (CODIS)*, pp-337-340, Dec, 2012
3. Maity, Santi P. Maity, Seba ; Sil, Jaya ; Delpha, Claude, Dynamic allocation for watermark payload in MC-CDMA system under fading attack, *Communications (NCC)*, 2013 National Conference on, 978-1-4673-5952-8/13/\$31.00 c 2013 IEEE
4. Amit Paul and Jaya Sil, "Gene Selection for Classifying Patients using Fuzzy Importance Factor", *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, Hyderabad, India, 2013
5. D. Dutta, P. Dutta, and J. Sil, "Simultaneous continuous feature selection and K -clustering by multi objective genetic algorithm," in *Proc. of the 3rd IEEE Int. Advance Computing Conf. (IACC 2013)*, IEEE Press, Ghaziabad, UP, India, Feb. 2013, pp. 937–942, doi: 10.1109/IAdCC.2013.6514352.

Ph.D Awarded:

1. Data Mining Algorithms in Intrusion Detection
2. Intelligent Algorithms for Classification of Crop Diseases. (jointly with Dr. Asit K Das)

International Conference Paper:

Dr. Susanta Chakraborty:

Publications:

International Conference Proceedings

- Biswanath Chakraborty, Siddhartha Bhattacharyya and Susanta Chakraborty, "An unsupervised approach to video shot boundary detection using higher order and probabilistic fuzzy entropy measures", *Applied Soft Computing* (Communicated)
- Pradyut Sarkar and Susanta Chakraborty, "Test set Compaction for Bridging Faults Detection in Reversible Circuits" (To be submitted)

Conferences Attended:

- 3rd IEEE workshop on Reliability Aware System Design and Test (RASDAT) 2012 Hyderabad, India
- 2nd International Conference on computing and systems, March 19 – 20, 2012, New-Delhi, India

Dr. S. Das Bit:

Journal

- A. Ghosal, S. Halder and S. DasBit, 'A Dynamic TDMA Based Scheme for Securing Query Processing in WSN', *Wireless Networks*, Springer, Vol.18, no. 2, pp165-184, 2012.

- Subir Halder and Sipra DasBit, "Enhancement of Wireless Sensor Network Lifetime by Deploying Heterogeneous Nodes" Journal of Network and Computer Applications, Elsevier Science (to appear), 2013.
- Amrita Ghosal, Sipra Das Bit, "A Jamming Attack Defending Data Forwarding Scheme Based on Channel Surfing in Wireless Sensor Networks", Journal of Security and Communication Networks, Wiley (to appear), 2013.

Refereed Conference Proceedings

- I. Dutta, R. Banerjee, S. DasBit, 'Energy Efficient Audio Compression Scheme Based on Red Black Wavelet Lifting for Wireless Multimedia Sensor Network' Int. Conf. on Advances in Computing, Communications and Informatics (ICACCI), IEEE Xplore (to appear), 2013.
- A. Ghosal, Aadirupa Saha, S. DasBit '*Energy Saving Replay Attack Prevention in Clustered Wireless Sensor Networks*', Pacific Asia Workshop on Intelligence and Security Informatics, LNCS (to appear), 2013.
- A. Ghosal, S. Sur, and S. DasBit, ' *μ Sec: A Security Protocol for Unicast Communication in Wireless Sensor Networks*', Int. Workshop on Autonomous and Spontaneous Security (SETOP) held in conjunction with European Symposium on Research in Computer Security (ESORICS), LNCS, Springer-Verlag, vol 7731, pp 258-273, Sept 2012.
- S. Halder, S. DasBit, '*A Lifetime Enhancing Node Deployment Strategy using Heterogeneous Nodes in WSNs for Coal Mine Monitoring*', ACM MSWiM, pp 117-124, Oct 2012.
- I. Dutta, R. Banerjee, T. Acharya, S. DasBit, '*An Energy Efficient Audio Compression Scheme Using Wavelet with Dynamic Difference Detection Technique*' Int. Conf. ICACCI, ACM digital library, pp 360-366, 2012.
- S. Chaurasia, J. Sen, S. Chatterjee, S. DasBit, '*An Energy-Balanced Lifetime Enhancing Clustering for WSN (EBLEC)*', Int. Conf. ICACT 2012, IEEE Xplore, pp 189-194, Feb 2012.

Dr. Sulata Mitra

Journal:

- S.Mitra and T.Ghosh, "Congestion Control and Revocation of Misbehaving Vehicles in VANET", Journal of Network and Innovative Computing, vol.1, 2013.

- S.Mitra, “Bandwidth Allocation for Vehicle Based Nodes in Heterogeneous Wireless Networks”, International Journal of Sensors, Wireless Communication and Control, 2013.
- S. Mitra, “Seamless Mobility Management – A need for next generation all-IP wireless networks”, of the book “Security, Privacy, Trust, and Resource Management in Mobile and Wireless Communications”, IGI-Global: 701 E. Chocolate Avenue, Suite 200, Hershey PA 17033-1240, USA, 2013 (to be appeared).
- S. Mitra, “Bandwidth Allocation for Vehicle Based Nodes in Heterogeneous Networks”, Bentham Science Publishers International Journal of Sensors, Wireless Communications and Control, BSP-IJSWCC-2013-16, 2013.

Conference:

- A.Mondal and S.Mitra, “Identification, Authentication and Tracking Algorithm for Vehicles using VIN in Centralized VANET”, International conference of Communication, Network and Computing, proceedings published by Springer LNICST, vol.108, 2012.
- S.Mitra and A.Mondal, “Identification, Authentication and Tracking Algorithm for Vehicles using VIN in Distributed VANET”, International Conference on Advances in Computing, Communications and Informatics, proceedings published in ACM digital library, pp.279-286, 2012.
- T. Ghosh and S.Mitra, Congestion Control by Dynamic Sharing of Bandwidth among Vehicles in VANET, 2012 12th International Conference on Intelligent Systems Design and Applications, pp. 291-296.
- S.Mitra, “Dynamic Bandwidth Allocation among Authentic Mobile nodes in Heterogeneous Wireless Networks”, International Conference on Emerging Trends in Engineering and Technology, 2012.
- S.Mitra and A.Mondal, “Identification, Authentication and Tracking Algorithm for Vehicles using VIN in Distributed VANET”, International Conference on Advances in Computing, Communications and Informatics, proceedings published in ACM digital library, pp.279-286, 2012.
- T. Ghosh and S.Mitra, Congestion Control by Dynamic Sharing of Bandwidth among Vehicles in VANET, 12th International Conference on Intelligent Systems Design and Applications, pp. 291-296, 2012.
- S. Mitra, “Secure Vehicular Communication – A Database Approach”, International Conference on Computing and Systems (to be appeared), 2013.

Conference attended

International Conference on Advances in Computing, Communications and Informatics, 3 – 5 August 2012.

Training courses attended

1. Summer School on Network and Information Security (NIS’13), May 20 – 31, 2013.
2. Social Media Analysis and Data Mining, June 10 – 14, 2013.
3. Soft Computing Approach in Cryptography, June 17 – 28, 2013.

Dr. Abhik Mukherjee

Journals:

- Jagadish Kundu and Abhik Mukherjee; Pricing model for eliminating productivity concerns of outsourced software maintenance service; Int. J. Industrial and Systems Engineering, accepted.
- Prabir Dhar, Durjoy Majumder and Abhik Mukherjee; Difference delay equation based analytical model of hematopoiesis'; accepted in Automatic Control of Physiological State and Function, 2012.
- Jagadish Kundu and Abhik Mukherjee; Pricing model for eliminating productivity concerns of outsourced software maintenance services; Int. Journal of Industrial and Systems Engineering; Vol. 11, Nos. 1/2; pp. 167-178; 2012.
- Sreemoyee Roy and Abhik Mukherjee; Exploring the dynamics of capped inversion from sodar data; Fluctuation and Noise Letters; Volume 11, Issue 04, 1250025 (10 pages), December 2012.

Conferences:

- Sreemoyee Roy and Abhik Mukherjee; Design of Air Quality Information Systems: Gaps and Prospects; presented and extended abstract published at the Seminar on “Research and Application of Environment-friendly Solutions for Metallurgical Industries”, BESU, Shibpur; Jan 2012.
- Sreemoyee Roy and Abhik Mukherjee; Information system analysis for monitoring of air quality in peri-urban Howrah; Third International Conference on Emerging Applications of Information Technology (EAIT), Dec 2012. **Page(s):** 231 - 234, available in IEEEExplore.

Dr. Asit Kr. Das

International Journal:

1. Soumen Kumar Pati and Asit Kumar Das, “*Mining of Important Informative Genes and Classifier construction for cancer dataset*”, International Journal on Soft Computing (IJSC), ISSN: 2229-6735, vol. 3, no. 3, pp. 69-83, August, 2012.
2. Shampa Sengupta, Asit Kr.Das “Single Reduct Generation based on Relative indiscernibility of Rough Set Theory” International Journal on Soft Computing(IJSC) Vol.3, No.1, pp.107-119, Feb-2012.
3. Soumen Kumar Pati and Asit Kumar Das, “*Rough Set and Statistical Method for Both Way Reduction of Microarray Cancer Dataset*”, International Journal of Information Processing (IJIP), ISSN: 0973-8215, Vol. 6, Issue 3, August, 2012.

4. Soumen Kumar Pati and Asit Kumar Das, “*Gene Selection Constructing Minimal Spanning Tree based on Rough set Theory*”, International Journal of Artificial Intelligence & Applications (IJAIA), DOI : 10.5121/ijaia.2012.3609, Vol.3, No.6, pp. 81-94, November 2012.

5. Asit Kr.Das, Shampa Sengupta “Compact Reduct Formation for Classification Rule Set Generation using Rough Set Theory” International Journal of Information Processing(IJIP) Vol.6,No.4,pp.64-74, Dec-2012

International Conference:

1. Soumen Kumar Pati and Asit Kumar Das, “*Optimal Samples Selection from Gene Expression Microarray Data using Relational Algebra and Clustering Technique*”, Proceedings of the InConINDIA 2012, AISC 132, pp. 507-514, Springer-Verlag Berlin Heidelberg 2012.

2. Soumen Kumar Pati and Asit Kumar Das, “*Gene Selection and Classification Rule Generation for Microarray dataset*”, Proceedings of the AIAA 2012, Advances in Computing and Information Technology(ACITY), Springer-Verlag Berlin Heidelberg, vol 3, pp.73-83, July 13-15, 2012.

3. Asit Kumar Das, Soumen Kumar Pati, Saikat Chakrabarty and Ajijul Haque Sahaji, “*Applying Restrained Genetic Algorithm for Attribute Reduction Using Attribute Dependency and Discernibility Matrix*”, Sixth International Conference on Information Processing-ICIP 2012, Bangalore, Communication in Computer and Information Science, Springer-Verlag Berlin Heidelberg, pp. 299-308, August 10-12,2012.

4. Asit Kumar Das, Soumen Kumar Pati and Saikat Chakrabarty “*Application of Genetic Algorithm Based on Boundary Region of Rough Set Theory for Attribute Reduction*”, Third International Conference on Computing Communication and Networking Technologies-ICCCNT 2012, IEEE-Computer Society 2012, July, 2012.

5. Asit Kumar Das, Soumen Kumar Pati and Saikat Chakrabarty, “*Reduct Generation of Microarray dataset using Rough Set and Graph Theory for Unsupervised Learning*”, Computational Science , Engineering and Information Technology (CCSEIT), ACM International Conference Proceeding Series (ICPS), pp 549-555, October 26-28,2012.

6. Asit Kumar Das and Soumen Kumar Pati, “*Gene Subset Selection for Cancer Classification Using Statsitital and Rough Set Approach*”, Third International Conference on Swarm, Evolutionary and Memetic Computing (SEMCCO), LNCS 7677, Springer-Verlag Berlin Heidelberg 2012, pp 294-302, December 20-22, 2012.

7. Soumen Kumar Pati and Asit Kumar Das, “*Missing Value Estimation of Microarray Data Using Similarity Measurement*”, Third International Conference on Swarm, Evolutionary and Memetic Computing (SEMCCO), LNCS 7677, Springer-Verlag Berlin Heidelberg 2012, pp 602-610, December 22-23, 2012.

8. Shampa Sengupta , Asit Kr. Das, “Single Reduct Generation by Attribute Similarity Measurement based on Relative Indiscernibility “Proceedings of the Second International Conference, CCSIT 2012, Bangalore, India, January 2-4, 2012. Part II. Springer LNICST Series, Vol. 85, pp.476-487, 2012.

Asit Kr. Das, Shampa Sengupta, Saikat Chakrabarty “ Reduct Generation by Formation of Directed Minimal Spanning Tree using Rough Set Theory” Proceedings of the International Conference on Information Systems Design and Intelligent Applications 2012 (INDIA 2012) held in Visakhapatnam, India, January 2012 Advances in Intelligent and Soft Computing Springer Volume 132, 2012, pp 127-135.

10. Asit Kumar Das, Saikat Chakrabarty, Shampa Sengupta “Formation of a Compact Reduct Set Based on Discernibility Relation and Attribute Dependency of Rough Set Theory” Proceedings of the Sixth International Conference on Information Processing – 2012 August 10 - 12, 2012, Bangalore, Wireless Network and Computational Intelligence Springer pp 253-261.

11. Shampa Sengupta , Asit Kr. Das, “Dimension reduction using clustering algorithm and Rough Set Theory “ Proceedings of the third International Conference, SEMCCO 2012, Odisha, India, December 20-22, 2012. Springer-Verlag Berlin heidelberg LNCS 7677, pp 705-712.

Prof. Saptarshi Ghosh

Journals:

(1)N. Ganguly, S. Ghosh, T. Krueger, A. Srivastava, “Degree Distributions of Evolving Alphabetic Bipartite Networks and their Projections”, Theoretical Computer Science, Elsevier, vol. 466, pp. 20-36, December 2012.

(2) S. Ghosh, A. Srivastava, N. Ganguly, “Effects of a Soft Cut-off on Node-degree in the Twitter Social Network”, Computer Communications, Elsevier, vol. 35, issue 7, pp. 784-795, 2012.

Conferences:

(3) S. Ghosh, N. Sharma, F. Benevenuto, N. Ganguly, K. Gummedi, “Cognos: Crowdsourcing Search for Topic Experts in Microblogs”, ACM SIGIR Conference, Portland, USA, August 2012.

(4) N. Sharma, S. Ghosh, F. Benevenuto, N. Ganguly, K. Gummedi, “Inferring Who-is-Who in the Twitter Social Network”, Workshop on Online Social Networks (WOSN), Helsinki, Finland, August 2012.

(5) A. Chakrobarty, S. Ghosh, N. Ganguly, “Detecting Overlapping Communities in Folksonomies”, ACM Hypertext Conference, Milwaukee, USA, June 2012.

(6) S. Ghosh, B. Viswanath, F. Kooti, N. Sharma, G. Korlam, F. Benevenuto, N. Ganguly, K. Gummedi, “Understanding and Combating Link Farming in the Twitter Social Network”, ACM World Wide Web Conference (WWW), Lyon, France, April 2012.

Seminar, Symposium/Conference attended / organized:

- 1) Attended ACM International SIGIR Conference, Portland, USA (August 2012)
- (2) Attended ACM International Conference on World Wide Web, Lyon, France (April 2012)

Seminar / Workshops / Conferences/ Training programme organized by the department (2012-13):

1. One-day seminar coordinated by Dr. Abhik Mukherjee on Some Aspects of Mathematics in Computer Science was organized by the Department on 10th April, 2013.
2. A short term TEQIP-II sponsored course coordinated by Dr. Saptarshi Ghosh and Dr. Asit Kumar Das on Social Media Analysis and Data Mining was organized by the Department during June 10-14, 2013.

About 60 participants attended the course, both from academic institutions as well as from the industry, including organizations such as BESU, IIT Kharagpur, WBUT, NIT Durgapur, Manipal University, TCS Innovation Labs, and so on.

The course had invited talks on relevant topics, from eminent faculty members from BESU, IIT Kharagpur, ISI Kolkata, IIT Patna, IIM Kolkata, TCS Innovation Labs, and so on. Also included were three demonstration sessions, conducted by research scholars from IIT Kharagpur and ISI Kolkata and researchers from TCS Innovation Labs, Kolkata.

*Department of
Electrical Engineering*

About the Department:

The Department of Electrical Engineering is one of the oldest in this 'ancient-new' University. Started in 1912, undergraduate degree course was introduced in this department from 1935-36 and postgraduate course from 1955. The first Ph.D. was produced by this department in 1959. The number of Ph.Ds awarded from this department has now been grown to 26 out of which 21 had been in last 10 years. From 1989, the Ministry of Human Resource Development declared this department as one of the QIP Centres for Post Graduate Studies and Research.

The faculty and other staff members of the department are committed to imparting excellent education at par with national / international seats of learning. An extraordinary pool of talents exists in fields as diverse as Electrical Machines, Power Systems, Control Systems, Power Electronics and Instrumentation. Research activities in the department are on a climbing ramp. The department has been included in the 'National Mission on Power Electronics Technology' (NaMPET), a project launched by DIT, MCIT, Govt. of India. In this programme, it shares the limelight with three IITs, IISc. and Anna University. Under NaMPET the department has received a grant of Rs. 73.2 lakhs to spearhead research on Power Electronics. The department has also executed the DST-FIST project under which a grant of Rs. 1.5 crores had been received. It has also received its share of about Rs.60 lakhs under the TEQIP scheme. Other research activities include condition monitoring of electrical equipment (a MOU with TISCO has been signed), application of soft computing tools to electrical machine and power system related problems, design of robust controllers for defense applications, biomedical instrumentation, power quality studies, embedded technology etc.

Academic Programmes:

Undergraduate level (NBA accreditation for 3 years)

- i. Degree offered – **B. E. (Electrical Engineering)**
- ii. Sanctioned students' intake – **60**
- iii. Additional intake through lateral entry in 3rd semester - **6**

Postgraduate level (NBA accreditation for 5 years)

Degree offered – **M. E. (Electrical Engineering)**

Sanctioned students' intake – **24**

Additional intake through other programs – **2 (QIP)**

Specialisations in - **(a) Control Systems**
 (b) Electrical Machines
 (c) Power Electronics
 (d) Power Systems

Doctoral level

Degree offered – **Ph. D.**

No. of candidates registered/enrolled – **6**

Awarded – **4**

Faculty positions:

Sanctioned faculty post – **28:** Vacant post – **2**(One adjunct Professor should not be counted, sr. no 2)

Faculty profile:

Sr.No.	Name	Designation	Highest Qualification	Specialisation / Research Area	E-mail id
1.	S. C. Konar	Professor (Re-employed)	Ph. D.	Electrical Machines & Power Systems	su_ch_konar@hotmail.com
2.	S. Mallik	Adjunct Professor	M.E.E.	Electrical Machines	srikumar_mallik@hotmail.com
3.	D. Ghosh	Professor (Re-employed)	Ph. D.	Automation, Digital Systems & Networks	dean_besus@yahoo.co.in
4.	A. Chakrabarti	Professor	Ph. D.	Power Systems, Networks	a_chakraborti55@yahoo.com
5.	B. Basak	Professor	Ph.D.	Electrical Machines, Power Electronics & Drives	biswarup_basak@yahoo.com
6.	D. Sarkar	Professor & Head	Ph. D.	Electrical Machines, Electromagnetic Fields	debasissrkr@yahoo.co.in
7.	G. Bandyopadhyay	Professor	Ph. D.	Power Systems, Computer Applications	gautamkabi@hotmail.com
8.	J. Pal	Professor	Ph. D.	Power Systems, Computer Applications & Expert Systems	jagadish_pal@hotmail.com
9.	A. Sutradhar	Professor	Ph. D.	Instrumentation, Digital systems	aseel@rediffmail.com
10.	P. Syam	Professor	Ph. D.	Power Electronics, Digital Systems, Power Electronics	prasidsyam@yahoo.co.uk
11.	A.K. Maitra	Professor	Ph. D.	Power Systems, Power System Protection	ashokmaitra@gmail.com
12.	C.K. Chanda	Professor	Ph. D.	Power System, Electrical Machines	ckc_math@yahoo.com
13.	A. Rouf	Professor	M.Tech.	Electrical Machines, Non-Conventional Energy	rauf_a@hotmail.com
14.	D. Ganguly	Asso. Professor	M.E.E.	Power Electronics & Drives, Microprocessor Applications	ganguly.debjani@gmail.com
15.	M. Sengupta	Asso. Professor	Ph. D.	Electromagnetic Fields, Electrical Machines and Drives	mainak.sengupta@gmail.com
16.	D. Roy	Asso. Professor	Ph. D.	Electrical Machines & Drives	dbr_roy@yahoo.co.in
17.	Aparajita Sengupta	Asso. Professor	Ph. D.	Control Systems	aparajitasg@rediffmail.com
18.	K.Das(Bhattacharya)	Asso. Professor	Ph. D.	Microprocessor & Power System Protection	poopolee50@hotmail.com
19.	A. Barman	Asstt. Professor	M.E.E.	Digital Computers	amalburman@yahoo.com

20.	A.B. Choudhury	Asstt. Professor	M.E.E	Power Systems	ab_choudhury@yahoo.com
21.	Anindita Sengupta	Asstt. Professor	Ph. D.	Instrumentation, Control Systems	aninsen2002@yahoo.com
22.	A. De	Asstt. Professor	Ph. D.	High Voltage Engg., Power Systems	abhinandan.de@gmail.com
23.	K. Mukherjee	Asstt. Professor	Ph. D.	Power Electronics / Electrical Machine Drives, Distributed Generation, Power Quality	(O) 033 26685018, extn. 22, 033 26684561-63, extn. 594 / kaushikk_mukh@rediffmail.com , kmukherjee@ee.becs.ac.in
24.	P. Chattopadhyay	Asstt. Professor	Ph. D.	Power System, Microprocessor, Condition Monitoring	paramita_chattopadhyay@yahoo.com
25.	S. Parui	Asstt. Professor	Ph. D.	Electrical Machines & Drives, Power Systems	sp_74107@yahoo.com
26.	Bhaskaran Barman	Asstt. Professor	Ph. D.	Power Electronics & Machine Drives	Barman_bec@rediffmail.com
27.	S. Dalapati	Asstt. Professor	Ph. D.	Power Electronics & Machine Drives	suvarundalapati@yahoo.co.in

Awards and Laurels:

1. Dr.Kaushik Mukherjee : Offered and availed of ‘Visiting Professor’ assignment, related to R&D activities, in the Centre of Hybrid and Automotive Research and Green Energy (CHARGE), University of Windsor, Canada during July 2011-June 2012.
2. The IEEE-IAS Kolkata chapter (the activities of which are almost entirely controlled by faculty members of the department) was awarded the ‘Outstanding Performance’ prize by IEEE thrice in a row

Research Area

1. Power Electronics
2. Application of Advanced Signal Processing and Soft-computing Techniques in Condition Monitoring of Induction Motor.
3. Smart Energy Saving Device for Power Factor Control.
4. Identification of Physiological Processes and Analysis, Synthesis and Design of Controllers for Drug Delivery System.
5. Robust Control applications in aerospace and ballistic problems
6. Stability, Economic and Optimum Operation and Control of EHV Power Transmission System
7. Robust Control and Nonlinear control

8. Theory and Instrumentation (Specially Analytical Instrumentation)

Research Facilities:

Electrical Machine Laboratory

Synthetic Rotating Machines comprising of:

1. 1ph. Sq. cage Ind. Motor (Capacitor Start Induction Run) Model: BEC/0.75/01/04.
2. 1ph. Sq. cage Ind. Motor (Capacitor Start/Run) Model: BEC/1.5/01/04
3. 1ph. Sq. cage Ind. Motor (Resistor Split type) Model: BEC/0.5/01/04
4. 3ph. Slip Ring Ind. motor Model: BEC/5.6/02/04
5. 3ph. Sq. cage Ind. motor Model: BEC/5.6/01/04
6. DC compound motor Model: BEC/5.6/DC1/04
7. Permanent Magnet DC motor Model: BEC/1.5/PMDC1



3ph. Sq. cage Ind. motor



3ph. Slip Ring Ind. Motor



1ph. Sq. cage Ind. Motor
(Resistor Split type)



1ph. Sq. cage Ind. Motor
(Capacitor Start /Run)



1ph. Sq. cage Ind. Motor
(Cap Start /Induction Run)



DC compound motor



Permanent Magnet
DC motor

High Voltage Laboratory



AC High Voltage Test Set



DC High Voltage Test Set



Test Set for measuring Tanδ & BDV



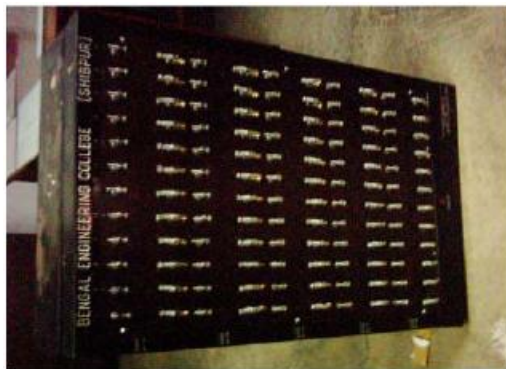
Lightning Impulse Test Set



Insulation cum Polarization Index Test Set

Energy Laboratory:

1. Automatic Dry Cell Battery Testing Setup
2. Energy Management System including SCADA



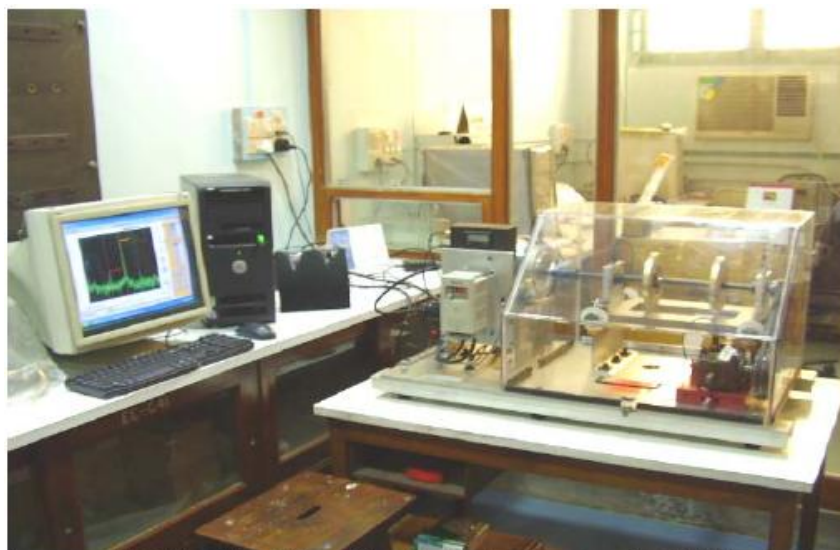
Automatic Dry Cell Battery Testing Setup



Laboratory Model of a SCADA

Condition Monitoring Laboratory:

- a) A full set of Machinery Fault Simulator, Spectra Quest, USA, fitted with vibration and current sensors (AICTE)
- b) High speed Data Acquisition System (DAS) (Hardware and Software) (AICTE/ DST)
- c) Adequate computing and printing facilities along with good working atmosphere (DST/ AICTE)
- d) Multi user ANSYS software. (DST)



Existing Condition Monitoring Laboratory in EE Dept.

Calibration Laboratory

This laboratory has been set up with the help of DST FIST support to build an infrastructure for regular experiments of the curriculum, research works and calibration of instruments. A full set up of calibration equipment has been procured by which all single phase meters and watt-meters excluding energy meters can be calibrated in house, which is being done at present. We also have single phase and three energy meter calibration units. Presently laboratory experiments are performed and PG research activities are on. Some training courses have been offered and the laboratory facilities had been extended to the engineers and technicians from industries like M/S Stuarts and Lloyds (Refresher course). One PG project work has been carried out in this laboratory on “Calibration of Temperature sensors...” under the supervision of Dr. D. Ghosh.

Only one equipment worth Rs. 8-10 lakh producing precision three phase variable voltage source with phantom loading and clock pulses by PC control has to be procured and formalities are to be fulfilled for NABL accreditation of the lab and one or two full time technical assistants are to be appointed so that the infrastructure may be fully utilized for teaching, research as well as commercial purpose.

The equipments in this Laboratory are:

- a) ISOTECH 650 Plus dry bath with temperature indicator/controller.
- b) Times Electronics 5051: Multifunction Calibrator.
- c) Times Electronics 5077: Power Calibrator with current probe.
- d) Times Electronics 5075: 6½ digit precision multimeter.
- e) Times Electronics Pressure calibrator.
- f) Shenzhen Clou C112: Portable single phase energymeter calibrator
- g) Shenzhen Clou C312: Three phase energymeter calibrator.
- h) Yakogawa DL1620 digital storage oscilloscope.
- i) Pentium IV PC with core 2 duo processor and 1GB RAM.
- j) EASYCAL calibration and report generation software.
- k) MATLAB 7.3 Release 2008b licensed software.

The pictures of the equipments in the laboratory are shown below:



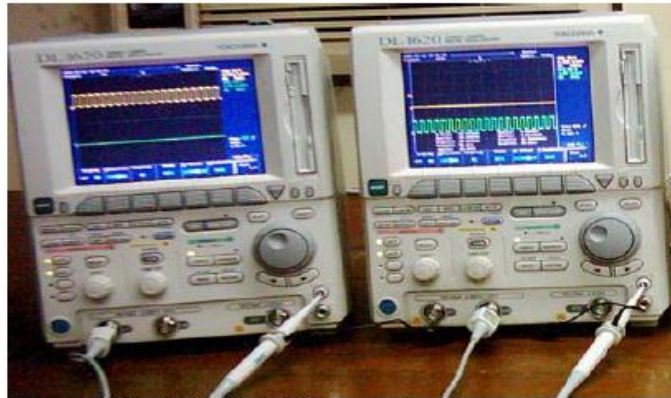
Single Phase Power Calibrator



Precision Multimeter



650° Dry Bath



DL1620 Digital Storage Oscilloscope



Pressure Calibrator



Multi-function/Multi-product Calibrator



3-ph Energy Meter calibrator

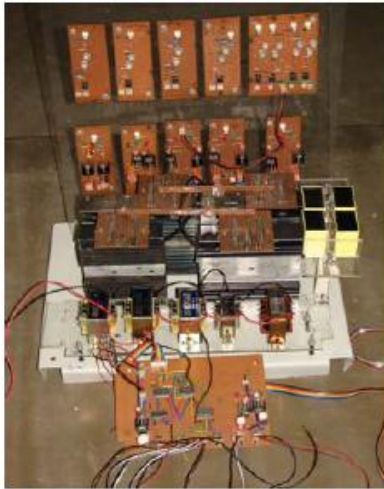


Single phase Energy Meter Calibrator

Advanced Power Electronics Laboratory:

Equipments procured and utilized:

1. Variable Voltage Static DC source.
2. Isolation Transformer
3. **Regulated DC Power Supply similar to model 19 rack adaptable Regulated DC power Supply**
4. **Regulated DC similar to model Regulated DC power Supply Dual and Triple Output**
5. Regulated DC similar to model Regulated DC power Supply Single Output
6. Mixed Signal Oscilloscope with built in printer
7. Mixed Signal Oscilloscope
8. DC Electronic Load (Main Frame and Load Module)
9. Handheld Battery operated Digital Power scope
10. Arbitrary Waveform Function Generator
11. 10 KVA IGBT – UPS
12. DSP Based Motor Control and Power Electronics Training Kit
13. DSP Based Motor Controller Training Kit
14. 10 KVA 3 Phase STATCOM
15. 10 KVA Unified Power Quality controller
16. 10 KW 4 Quadrant Line Regenerative AC Drive
17. FPGA Mother Board
18. FPGA Interface Card



► **Smart Control Laboratory:**

The “Smart Control Laboratory” has Computing Facilities, Networking and LAN connections



SMART CONTROL SYSTEMS LABORATORY
UNDER UGC SPECIAL ASSISTANCE PROGRAMME



Name of the Laboratories:

1. Electrical Machine Laboratory
2. Power System Laboratory
3. Drives Laboratory
4. Power Electronics Laboratory
5. Process Control and Instrumentation Laboratory
6. Calibration Laboratory
7. Microprocessor Laboratory
8. Circuits & Measurement Laboratory
9. Control System Laboratory
10. Energy Systems Laboratory
11. Simulation Laboratory
12. Industrial Electronics Research Laboratory
13. Relay Laboratory
14. Basic Electrical Engineering Laboratory
15. Condition Monitoring Laboratory
16. Advanced Power Electronics Laboratory
17. High Voltage Laboratory
18. Smart Control Laboratory

Consultancy Work:

Company	Total cost (Rs.)
M/S Netware	0.18 lac
Webel Mediatronics	1.0 lac
Webel Toolsind Ltd.	0.195 lac
Electrotherm Ltd.	0.65 lac
Haldia Development Authority	15 crore

Support Staff position:

Sanctioned technical post:

Technical staff profile:

Name	Designation	Highest Qualification	Contact No.	e-mail id
B. Dey	Technical Assistant	L.E.E.	033-65452279 (R)	
R. Maity	Technical Assistant (Grade II)	D.E.E		ra_ktim@hotmail.com
R. Bandyopadhyay	Technical Assistant (Grade II)	D.E.E		rajib_nh@sify.com
P. K. Das	Technical Assistant (Grade II)	D.E.E		pradipkdaselec@rediffmail.com
A. Pal	Technical Assistant (Grade II)	D.E.E		amit_raju_pal@sify.com
P. S. Baruri	Technical Assistant (Grade II)	D.E.E		mr.dekacom@rediffmail.com
S. K. Ray	Mechanic	Workman's Permit (Dir. Of Electricity, Govt. of WB)		roysamir26@yahoo.in
B. Santra	Instrument Mechanic	JDE & NCVT (Govt. of India)		Bablu_Santra@yahoo.com
S. Pramanik		ITI		

Sponsored Research:

Title	Project Investigator	Sponsoring Agency	Total Amount (Lakhs of Rupees)
Development of a smart energy-saving device for power factor control and power quality monitoring	K. (Das) Bhattacharya & Dr. D. Ghosh	CSIR	17.0
National Mission on Power Electronics Technology (NaMPET)	M. Sengupta, P. Syam, D. Ganguly & K. Mukherjee	DIT	90.2
National Mission on Power Electronics Technology (NaMPET) : Phase II - Started around middle of 2012	M. Sengupta, P. Syam, D. Ganguly & K. Mukherjee	Department of Electronics and Information Technology, Govt. of India	93

Full Spectrum Simulator	M. Sengupta, P. Syam, D. Ganguly & K. Mukherjee	DIT	15.25
A Variable Speed Induction Motor Drive with a Matrix Converter as a Static Commutator in the Rotor	P. Syam	UGC Major Research Project	7.62
Computer aided Design and Analysis for Optimization of Thermal Conditions in Rotating Electric Machines	D. Sarkar	UGC Major Project	4.08
Estimation of Kinetic state of ballistic target using fusion of a) Radar & RF seeker data b) RF & IIR seeker data & c) Radar RF & IIR seeker data	Aparajita Sengupta	DRDL RCI, (Hyderabad)	24.75
Six degree-of-freedom modeling & closed loop robust control of a Renewable winged body satellite launch vehicle (RLV)	Aparajita Sengupta	ISRO	7.32
Implementation of Robust Control Techniques through a DSP Platform on a Lab-Scale real-time system	Aparajita Sengupta	AICTE	8.85
Modernisation of Junior Simulation Laboratory (U.G.)	HoD – EE	AICTE (MODROB)	5.0
BPL Communication through underground and overhead lines	P. K. Ray (ETC) & D. Ghosh (EE)	MCIT, GoI	92.0
Computer-aided design and analysis for optimization of thermal conditions in rotating electrical machines	D. Sarkar & A. De	UGC	4.04
Spectral Identification of Potentised Homeopathic Medicines	C. R. Mahata & A. Sutradhar	CCRH	26.2
Bifurcation in Electrical Drives	S. Parui	AICTE	10.5
Development of a FPGA controller-based commutatorless motor drive with selectable hard or soft characteristics	K. Mukherjee	AICTE	4.2
A Hybrid Wavelet –ANN approach in Transformer Protection	P. B. Chattopadhyay	IE(I)	1
Support Vector Machines (SVM) Based Condition Monitoring of Induction Motor	P. B. Chattopadhyay	CSIR	8.6
Development of a sensor integrated multi-filgered dexterous robot hand with data glove interface	D. Ganguly (Co-Investigator)	DAE/ BARC	61
Development of an efficient staple yarn characterization unit with multi- sensor fusion and field	Anindita Sengupta	DST-IDP	31.094

programmable gate array (FPGA) based data reduction card. (17/08/2011)			
Embedded Systems in Instrumentation and Control (2011-2016)	Aparajita Sengupta	UGC-SAP DRSI	51.25
Analysis and Development of a single-axis controlled repulsive type magnetic bearing (from 16/01/2013 for 3 years)	D. Roy & A.B. Choudhury	DST-SERB	38.498
Design and development of computerized instrument for testing bending behavior of semi-rigid fabric with special reference to technical textiles (30/01/2012)	Anindita Sengupta	DST-IDP	30.086

Industry – Institute Interaction

Organised 1-day workshop on Industry- Institute Interaction on October, 2012

No. of publications:

Journal – 11

Conference – 10

List of Publications (last 1 year):

Journals

1. K. L. V. Iyer, X. Lu, Kaushik Mukherjee, and N. C. Kar, “A Novel Two-Axis Theory-based Approach towards Parameter Determination of Line-Start Permanent Magnet Synchronous Machines”, **IEEE Transactions on Magnetics**, vol. 48, no. 11, pp. 4208 – 4211, November 2012.
2. X. Lu, K. L. V. Iyer, Kaushik Mukherjee, and N. C. Kar, “A Wavelet/PSO based Voltage Regulation Scheme and Suitability Analysis of Copper- and Aluminum-rotor Induction Machines for Distributed Wind Power Generation”, **IEEE Transactions on Smart Grid**, vol. 3, no. 4, pp. 1923-1934, December 2012
3. X. Lu, K. L. V. Iyer, Kaushik Mukherjee, and N. C. Kar, “A Dual Purpose Triangular Neural Network Based Module for Monitoring and Protection in Bi-directional Off-board Level-3 Charging of EV/PHEV”, **IEEE Transactions on Smart Grid**, vol. 3, no. 4, pp. 1670-1678, December 2012
4. D. Mondal, A.Chakrabarti and A.Sengupta, “Investigation of small signal stability performance of a multimachine power system employing PSO based TCSC controller,” *Journal of Electrical Systems*, vol. 8, no. 1, pp. 23-34, March 2012, **ISSN: 1112-5209**

5. D. Mondal, A. Chakrabarti and A. Sengupta, "Optimal placement and parameter setting of SVC and TCSC using PSO to mitigate small signal stability problem," *International Journal of Electric Power and Energy System (Elsevier)*, vol. 42, no. 1, pp. 334-340, April 2012, www.elsevier.com. **ISSN: 0142-0615**
6. D. Mondal, A. Chakrabarti and A. Sengupta, "LMI based wide area TCSC controller in mitigating small signal oscillations," *International Journal of Soft Computing and Engineering*, vol. 1, no. 6, pp. 139-144, January 2012. **ISSN: 2231-2307**
7. D. Mondal, A. Sengupta and A. Chakrabarti, "Intelligent Control of Inter-area Oscillations in a Multimachine Network Employing LMI Based Wide Area TCSC Controller," *Iranian Journal of Electrical and Computer Engineering (IJECE)*, vol.11, no.1, WINTER-SPRING 2012, **ISSN: 1682-0053. Awaiting Publication**
8. Tapan Santra, Dr. D. Roy and A.B.Choudhury, " Fuzzy Control of a vertical shaft single axis controlled repulsive type magnetic bearing", *International Journal Of Advanced Research in Engineering and Technology (IJARET)*, Volume 4, Issue 4, May-June 2013.
9. Surajit Sengupta and **Anindita Sengupta**, "Electrical resistance of jute fabrics", *Indian Journal of Fibre & Textile Research(CSIR)*, vol 37, pp.55-59, 2012
10. Surajit Sengupta and **Anindita Sengupta**, "Electrical Resistance of jute needle-punched non-woven fabric – effect of punch density, needle penetration and area density", *The Journal of the Textile Institute(Taylor& Francis)*, vol 104, No. 2, pp.132-139, 2013.
11. Rimi Paul, **Anindita Sengupta** and Rajeev Ranjan Pathak , "Wavelet based denoising technique for liquid level system", *Journal of Measurement(ELSEVIER)*, vol 46, pp.1979-1994, 2013.

Conference Proceedings

1. K. L. V. Iyer, X. Lu, Kaushik Mukherjee and N. C. Kar, "Fault Detection in Copper-rotor SEIG System Using Artificial Neural Network for Distributed Wind Power Generation", *IEEE International Conference on Electric Machines (ICEM)*, September 2 – 5, 2012, Marseille, France, pp. 1700-1705 (Digital Object Identifier: 10.1109/ ICE|Mach.2012, 6350109).
2. D. Biswas, Kaushik Mukherjee and N. C. Kar, "A novel approach towards electrical loss minimization in vector controlled induction machine drive for EV/HEV", *IEEE Transportation Electrification Conference and Expo*, June 17-20, 2012, Dearborn, MI, USA, pp. 1-5 (Digital Object Identifier: 10.1109/ITEC.2012.6243462)
3. X. Lu, K. L. V. Iyer, Kaushik Mukherjee and N. C. Kar, "Development of a Bi-directional Off-board Level-3 Quick Charging Station for Electric Bus", *IEEE Transportation Electrification Conference and Expo*, June 17-20, 2012, Dearborn, MI, USA, pp. 1-6 (Digital Object Identifier: 10.1109/ITEC.2012.6243500)
4. S. M. M. Sangdehi, K. L. V. Iyer, Kaushik Mukherjee and N. C. Kar, "Short Term Power Demand Forecasting in Light and Heavy Duty Electric Vehicles Through Linear Prediction Method", *IEEE Transportation Electrification Conference and Expo*, June 17-20, 2012, Dearborn, MI, USA, pp. 1-6 (Digital Object Identifier: 10.1109/ ITEC.2012.6243480).

5. X. Lu, K. L. V. Iyer, Kaushik Mukherjee and N. C. Kar, "Study and detection of demagnetization in line start permanent magnet synchronous machines using artificial neural network", in the 15th IEEE International Conference on Electric Machines & Systems (ICEMS), 2012, held in Sapporo, Japan, 21st – 24th October 2012, pp. 1-6
6. Raju Patwary, A.B. Choudhury, D. Roy and D. Sarkar, "Harmonics and Interharmonics Estimation of a Passive Magnetic Fault Current Limiter Using Symlet Wavelet Transform", *International Conference on Engineering Education in the New Century (E2NC-2012)*, February 03-04, 2012, jointly organized by Sir J.C. Bose School of Engineering and Supreme Knowledge Foundation Group of Institutions. [Page 161-165]
7. Arpita Mukherjee, Debaprasad Mukherjee, Aparajita Sengupta, "Filter design for tracking of ballistic target missile using seeker measurements with time lag," *IEEE International Conference on Signal Processing Image Processing & Pattern Recognition (ICSIPR-2013)*, pp. 351-355, 7-8 Feb. 2013
8. Ujjwal Mondal, **Anindita Sengupta**, Shanti Mohan Sinha, Bhaskar Das, Pradipta Ghosh, "Finite Dimensional Repetitive Controller For Identified Model of a DC Servo System", IEEE 1st International conference on Power and Energy in NERIST(ICPEN), pp.1-4, 28-29 Dec, 2012
9. Rimi Paul, **Anindita Sengupta**, "Wavelet Based Noise Reduction of Liquid Level System Using Minimum Description Length Criterion", IEEE International conference on Communications, Devices and Intelligent systems, Jadavpur University, pp.592-595, 28-29 Dec, 2012
10. Arunima Mukherjee, **Anindita Sengupta**, "Selection of optimum wavelet filter and proper level of decomposition to design an MRPID Controller connected to a liquid level system", National Conference on Recent trends in energy systems(NCRTES-2013),5-6 April,2013

Seminars / Workshops / Conferences / Training programs organized:

- I. Short term Course on Power Electronics on June, 2012
- II. National seminar on 'Embedded Systems in Instrumentation and Control' (ESIC 2012) in March 2012
- III. (iii) One day workshop on 'Industry-Institute Interaction' in October 2012
- IV. (iv) One day national seminar under UGC SAP on "Embedded Systems in Instrumentation and Control", ESIC 2013, 14th June, 2013

Innovation and Technology Developed:

Having done the developments of research on **Power Electronics** with generous and continued support from the NaMPET Project, the Power Electronics group at EE, BESU, Shibpur has already started reaping benefits through a much improved course curriculum in PE at both UG and PG level. It has also gained reasonable visibility. However to justify the infrastructure created the next essential step is first to procure funded research projects and doctoral manpower and to produce time-bound results in those projects through the recruited manpower.

The major achievements in the field of Power Electronics are

1. Design and fabrication of the power electronic converter for a double sided axial flux SR motor for an electric bicycle,
2. Experimental determination of Parameters of a wound – Field Three Phase Synchronous Motor and Modeling and Simulation of its Performance under Self – Control,
3. Development of a complete commutatorless DC motor drive,
4. 4.Three Phase To Three Phase Matrix Converters performance simulation with inductive load, design and fabrication of sensing and interface cards and implementation of current commutation on FPGA platform,
5. Application of a TMS320LF2407A platform in implementing pace Vector Modulation based control of a Matrix Converter,
6. 1 kW, 48V, 2000rpm, 4-pole BLDC Motor for EV application,
7. 1 kW, 48 V, 3000 RPM, 3 phase Switched Reluctance Motor for electric vehicle application -Weight optimized design, fabrication, controller design, system modeling, performance simulation and open loop running,
8. Finite element based design, fabrication and Testing of a 2kW, 20 A, 10 kHz CSI-fed single Phase Induction Heating Furnace for Application in bar/billet heating,
9. Investigations on a CSI fed induction heating system
10. Implementation of Indirect Space Vector Modulation Strategy for a three phase Matrix Converter in FPGA Cyclone II EP1C12Q240C8 platform,
11. 11.Design and Implementation of DSP based Space Vector Pulse Width Modulation Strategy for Three Phase Matrix Converter in DSP TMS320LF2407A platform,
12. A linear induction motor based conveyor system and its power electronic control,
13. DSP based Robust Control of a 10 kVA STATCOM,
14. Realisation of a sensorless 4 kW, 1500 rpm Switched Reluctance Motor Drive, and many more.

B. In the field related to the Condition Monitoring of Electrical Machines, a team under Dr. P. B. Chattopadhyay is actively engaged in the research work for last ten years developing the technology of application of ANN to the condition monitoring of induction motors and wavelet techniques used to detect broken rotor bar, motor current and vibration etc. They are trying to upgrade the condition-monitoring laboratory in the department to international standard. The supervisor has successfully completed two research projects under DST, Govt. of India and AICTE, Govt. of India. Present work is on the applications of various soft computing techniques like artificial neural networks (ANN), support vector machines (SVM) in the field of condition monitoring of induction motors.

Dr. Chattopadhyay as a visiting professor in the school of computer and Electrical Engineering, Hanyang University, South Korea in fall semester 2008 has performed advanced research works in the area of signal processing.

C. In the field of Smart Energy Saving Device for Power Factor Control and Power Quality monitoring, Dr. K. (Das) Bhattacharya along with other faculty members and her team of scholars has developed optimization techniques around an embedded system using a DSP BF533 microcontroller that runs on a co-operative agent based algorithm oriented on the Ant Colony System (ACS). The system aims to reduce energy consumption for bulk consumers of electricity connected to the 33KV and 11KV buses. This work aims at optimizing the selection of capacitor banks quickly and using less memory at a reasonably low cost. Optimizing Parameters would include p.f., Voltage profile, Frequency, health and state of capacitors and also the instant of switching. In comparison to other heuristics, ACS provides better result because it includes following advantages: i) Distributed Computation due to a large amount of parallelism offered by the presence of several agents. ii) Positive Feedback, as the search proceeds new population of ants who contribute to a higher fitness value in

terms of rich pheromone (organic deposition from ants) trail overpowers the one having a weaker pheromone trail. iii) Robustness which enables the colony to find a solution for problems which are dynamically evolving. Research is on for other applications and several publications have yielded.

The above micro-controller based low-cost power factor correction device developed in our laboratory has been accepted by the WBSEDCL for their 11kV-33kV system and approved for its commercial production.

- D.** In the field of **Advanced Control Systems and Applications**, Dr. A. Sutradhar is working on *Modeling and Control of Physiological Processes*. He has developed the identification techniques for the non-linear glucose-insulin interaction model in NIDDM patients and developed the control algorithms for implantable insulin delivery system in presence of disturbances like food ingestion and physical exercise:

The implantable drug delivery systems are currently in clinical trials in developed countries but the same have not been sufficiently addressed in our country. We already have the experience in modeling and designing robust controllers for implantable micro-insulin dispenser system for diabetic patients. A number of critical design and performance obstacles are still there. We would like to continue our research in this area with indigenous biomaterials and devices. Efforts are being made to improve control algorithms so that greater miniaturization of the device is possible. The theoretical results and the simulation studies with available data are believed to be the building blocks necessary to obtain a complete understanding of the adaptive control algorithms applicable to practical situations of dynamics of devices for PIMS. Prototypes will be developed. The implementation of the closed loop implantable drug delivery systems will be undertaken jointly with medical institutions.

Other system identification and control algorithms developed in his laboratory include the Artificial Neural Network and various model structure algorithms (like NARX, NARMAX) used to identify and simulate and control of multivariable nonlinear systems like physiological processes, inverted pendulum system etc.

Dr. Aparajita Sengupta has been working for quite a long period and contributed a lot in the field of (i) Robust Control applications in aerospace and ballistic problems, (ii) Parameter Estimation, (ii) Model uncertainty, (iii) H_∞ control, (iv) Robust Kalman filtering and (v) self tuning PID control for linear and non-linear systems etc.

Dr. Anindita Sengupta has developed several algorithms and tools for (i) Analysis of Continuous Time dynamic Systems by Triangular Orthogonal Functions, (ii) Microprocessor based identification of sampled data system with/without hold device using a set of Sample-and-Hold and Direct Delta Functions, (iii) Online measurement of Triangular Domain Spectral coefficient of a sine wave, (iv) Online application of Wavelet Transform methods for signal analysis and (v) Identification of Sampled Data System with/without hold devices, (vi) Application of ANN in control system etc.

- E.** In the field of **Stability, Economic and Optimum Operation and Control of EHV Power Transmission System**, Dr. A. Chakrabarti has been working for quite a long period. Indian power system is on the fast track of development. The essence of the development activity in this area with proper planning monitoring and control of the entire system of operation right from generation to distribution, power transmission stability is possibly one of the most important aspects in proper operation of the power system, particularly when power transmission in India is being upgraded in the recent days. In India the transmission system being a longitudinal, it needs in depth study and research for successful power transmission economically and at stable state. The voltage stability of power systems in developing country and concentrated in the research of power transmission has been investigated. The following items highlight the achievements and results of the research in this field.

1. The criterion of voltage stability in a multibus power system has been developed and application of static VAR compensators to mitigate the problem have been explored.

2. Detail model of multibus power system equivalenced as a two bus model have been developed.
3. Accurate model of static VAR compensator has been developed for simulation in multimachine power system.
4. HVDC transmission has been explored to improve the transient stability.
5. Voltage security and different aspects of contingency analysis have been investigated.
6. A variety of voltage stability indicators have been investigated and applied to different power systems. The result have been analysed and interpreted.
7. Small signal stability problem of longitudinal power system is being investigated and attempt is being made to mitigate this problem.
8. Optimum location of SVC and PSS has been explored.
9. ANN has been implemented in order to simulate the highly complex the voltage stability problem in a multibus power system.
10. Digital protection system for distribution feeder has been developed.
10. Matrix analysis has been extensively used in addition to eigenvalue analysis in order to investigate the performance of operation of power system.
11. Effective research have been conducted in order to observe multi frequency resonance problem on EHV grid transformers.

F. During the assignment as ‘Visiting Professor’ in the University of Windsor from July 2011-June 2012, Dr. Kaushik Mukherjee has been a part of US provisional patent application filed on “Mechanism for Seamless Power Transfer between **SunSource's** PV Source, End Users and Power Grid”.

Others

- During the assignment as ‘Visiting Professor’ in the University of Windsor from July 2011-June 2012, Dr. Kaushik Mukherjee’s major activities other than research and research supervision, already mentioned, were:
 - (i) Attracting an R&D funding worth Canadian \$2,17,000 approx.
 - (ii) Delivering invited talk at the University of Victoria, Canada, on “Series synchronous motor drives for large power & normal speed applications”
 - (iii) Attending and presenting paper entitled, “A novel d-q theory based approach towards parameter determination of line-start permanent magnet synchronous machines,” in *IEEE INTERMAG*, 2012 international conference, Vancouver, Canada, May 2012
- Prof. A. K. Chattopadhyay visited IIT Kanpur to deliver the Dr. Ramamoorthy Distinguished lecture in March 2012
- Prof. A. K. Chattopadhyay visited New Delhi to deliver an invited lecture at India International Conference on Power Electronics (IICPE 2012) in December 2012
- Mr. Nihar (Neil) Ray, Leader, Advanced Reactor Program, United States Nuclear Regulatory Commission visited the department and delivered a talk in January, 2012
- Prof. Arindam Ghosh of University of Queensland, Australia visited the department in December, 2012
- Shri Aniket Datta, a BE degree recipient this year has stood 1st among 1 lakh 5 thousand candidates in the GATE exam of Electrical Engineering, 2012
- Shri Indrajit Sarkar, a post graduate degree recipient this year, specialising in Power Electronics and Drives (supervisor Prof. P. Syam) has received the INAE best M. Tech thesis award, 2012

*Department of
Electronics & Telecommunication
Engineering*

The Department of Electronics and Telecommunication Engineering started its journey in July, 1968 after its nucleation from the Department of Physics & Telecommunication from the erstwhile Bengal Engineering College. The first batch of Graduates & Post Graduate passed out in 1971 & 1974 respectively. The Department offers Bachelor of Engineering (B.E.) course in Electronics & Telecommunication Engineering for a duration of 4 years (8 Semesters). Master of Engineering (M.E.) programs of 4 semester duration (2 years) are conducted for the specializations in Digital Systems & Instrumentation, and Microwave Communication. A new Post Graduate (M.E.) program in Communication and Signal Processing has started recently since 2012. Department also offers Ph.D. degree in Electronics and Telecommunication Engineering in various fields.

Undergraduate Level

i.	Degree offered	Bachelor of Engineering (B.E.)
ii.	Sanctioned students' intake	40
iii.	Additional intake through lateral entry in 3 rd Semester	02

i.	Degree offered	Master of Engineering (M.E.)
ii.	Sanctioned students' intake	8 + 8 + 18 = 34
iv.	Specializations in	a) Digital System and Instrumentation b) Microwave Communication c) Communication and Signal Processing

i.	Degree offered	Ph.D.
ii.	No of candidates enrolled	19
	registered	18
	awarded	03

Faculty position :

Sanctioned faculty post : 13
Faculty profile

Vacant Post : 3

Name	Designation	Highest Qualification	Specialisation / Research Area	Contact No. & E-mail
Dr. Sekhar Ranjan Bhadra Chaudhuri	Professor	Ph. D.	Microstrip antenna and circuits, Wireless / Mobile Comm. & Network, Information & Network Security, Digital System Design	prof.srbc@gmail.com prof_srbc@yahoo.com
Dr..Baidynath Ray	Professor	Ph.D.	VLSI Design and Testing, Mobile Communication and Networking, Image Processing	bnr@telecom.becs.ac.in
Prof. Arabinda Roy	Associate Professor	M.E.	Microprocessor based system, Signal Processing, Power Electronics	arabinda@telecom.becs.ac.in oruroy@yahoo.co.in
Dr. Monojit Mitra	Associate Professor	Ph.D.	Fabrication of Microwave Device Like IMPATT, its Characterization and System development	monojit_m1@yahoo.co.in
Dr. Santanu Das	Associate Professor	Ph.D.	Microstrip circuits, Components and antennas	santanumdass@yahoo.co.in
Dr. Susanta Kumar Parui	Assistant Professor	Ph.D.	Microstrip filters, Couplers, Power dividers, Patch antenna (MSA) and arrays, Freq. selective surfaces (FSS), Electromagnetic bandgap structures (EBG), Defected ground structures (DGS)	arkapv@yahoo.com
Prof. Ayan Banerjee	Assistant Professor	M.Tech.	VLSI Architectures for Comm. and Biomedical Engg.CORDIC based DSP architectures Digital Signal Processing	ayanb12@gmail.com
Dr. Chirasree Roychoudhury	Assistant Professor	Ph.D.	Biosensors, MEMS based pressure & conductivity sensor, VLSI based signal processing.	chirasreepram@yahoo.com
Dr. Tamaghna Acharya	Assistant Professor	Ph.D.	Wireless Communication – Physical & MAC Layer issues, Wireless Ad Hoc & Sensor Network, Speech Processing.	tamaghna_acharya@yahoo.com
Dr. Partha Bhattacharyya	Assistant Professor	Ph.D.	Nanomaterial based Chemical Sensors, MEMS based Sensors and Its Signal Processing, Low Power VLSI Design	pb_etc-besu@yahoo.com
Prof. <u>Debasis Mitra</u> (Contractual)	Assistant Professor	M.E.	Antenna Design, Electro-magnetic theory, Microwave Engineering,EMI & EMC,Digital Signal Processing	debasisiit@gmail.com , debasis.mitra@telecom.becs.ac.in
Prof. Abhijit Chandra (Contractual)	Assistant Professor	M.E.	Communication and Signal Processing	abhijit922@yahoo.co.in ,

Awards and Laurels :

By Dr. Partha Bhattacharyya

- Indian National Science Academy (INSA) **Young Scientists Award 2012.**
- Indian National Academy of Engineering (INAE) **Young Engineer Award 2012.**
- All India Council for Technical Education (AICTE) **Career Award for Young Teachers (CAYT) 2011-12.**
- Bengal Engineering Collage Alumni Association-Washington Metropolitan Area (BECAA-WMA) and Global Alumni Association of Bengal Engineering and Science University (GAABESU) **Young Faculty Research Award 2012.**
- Research project Grant under **DST (Department of Science and Technology) Fast Track Scheme for Young Scientists, Govt. of India 2012.**

Research area (only mention broad titles without description in detail):

Microwaves and Antennas

- Planar circuits and antennas
- Microwave avalanche devices
- IMPATT amplifiers and oscillators
- Meta-materials and its applications
- Phased array antennas
- Electromagnetic band-gap materials
- Surface integrated waveguides (SIW)
- RFID and its applications

Microelectronics, Devices and VLSI

- Biosensors
- MEMS based pressure and conductivity sensors
- Nanostructured semiconducting metal oxides for sensor applications
- Chemical sensors
- MEMS based gas sensors and its CMOS integration
- VLSI design and testing
- VLSI based signal processing
- VLSI Architectures for Communication and Biomedical Engineering

Communication and Signal processing

- Wireless Ad-hoc and sensor networks
- Cognitive Radio networks
- Hardware efficient FIR filter design
- Space-time coding for wireless communication
- DSP algorithms
- Design of CDMA spreading codes
- Medical imaging
- Sensor signal processing
- CORDIC based DSP architectures

Research facilities:

Areas	Equipments / Set up	Design Softwares / Tools
Microwaves and Antennas	Network Analyser (10 MHz – 20 GHz) Signal Generator (10 KHz - 3 GHz) Power Meter (DC – 26 GHz) PCB fabrication set up by photolithography Prototype fabrication by milling process Radiation characteristics measurement bench	IE3D HFSS CST studio FDTD
Microelectronics, Devices and VLSI	E-Beam Evaporation System Mass Flow controller & Mass flow Meter Spin Coating Unit Dip Coating Unit Laminar Flow Clean Bench Millipore water purification system Gas line manifold Temperature Controlled annealing Furnace (1050°C) Portable Ph meter, range 1-14 ph Temperature Controlled Oven (upto 300°C)	
Communication and Signal processing	Spectrum analyzer (9 kHz - 3.0 GHz) Vector signal generator (10 KHz – 3 GHz) Arbitrary function generator DSO (500 MHz)	MATLab

Name of the laboratories:

Basic Electronics Engg. Lab	Advanced Microprocessors Lab
Network Theory Lab	Waveguides and Antenna Lab
Electronic Devices Lab	Wireless Communication and Networking Lab
Analog Electronics Lab	Digital Image Processing & Computer Vision Lab
Analog Communication Systems Lab	Microwave and RADAR Engineering Lab
Digital Electronics Lab	VLSI Design Lab
Microelectronics Lab	Opto-Electronics & Optical Communication Lab
Digital Communication Lab	Thin film/Sensors Lab
Integrated Circuits and Systems Lab	RF and Microwave measurement Lab
Microprocessors and Microcontrollers Lab	Control Engineering Lab
Electronic Instrumentation and Measurements Lab	Audio & Video Engineering Lab
Digital Signal Processing Lab	Power Electronics Lab

Support staff position:

Sanctioned technical post: 10 Vaccant: 2

Technical staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Mr. S. Bose	Inst.Mechanic	H.S., Diploma in Electrical Engg.	9903215751	
Mr. K. N. Chowdhuri	Technical Suptd.	Diploma in Electronics Engg.	9831497043	
Mr. Rajat Mukherjee	Technical Asst.	Diploma in Electrical Engg.	9432367342	mukherjeera.2009@rediffmail.com
Mr. Dibyendu Pal	Mechanic	H.S.	9831342357	paul.dibyendu@rediffmail.com
Mr. Brindaban Patta	Jr. Technical Asst.	Diploma in Electronics Engg.	9830970287	brindaban_patta@yahoo.co.in
Smt. Indrani Santra	Jr. Technical Asst	Diploma in Electronics Engg.	9434223985	indrani.santra08@gmail.com
Mr. Biswajit Samanta	Jr. Technical Asst	Diploma in Electronics Engg.	9002322109	biswajit_samanta21@rediffmail.com
Mr. Pradip Mistry	Jr. Technical Asst	Diploma in Electronics Engg.	9432269081	pradip.mistry75@gmail.com

Sponsored Research: (mention area)

Name of Project	PI	Sponsoring agency	Prof value in Rs. Lakh	Date	Duration
A novel Metal-Insulator-Metal (MIM) device for detection of early spoilage of potato during Storage	Dr. Partha Bhattacharyya	DST	14.5	June'12	2 years
Development of a Chemical Sensor to Monitor the Spoilage of Potato in the Cold Storage	Dr. Partha Bhattacharyya	CSIR	14	April'11	3 years
Current mode FPAA Design	Dr. B.N. Ray	SERC-DST	29.33	Sept'10	4 years
CMOS VLSI Design	Dr. B.N. Ray	SERC-DST	16	Aug'11	3 years
Efficacy of silicon microchannel cytosensor platform for electrical profiling of multiple mammalian cells	C.RoyChaudhuri	DST, SERB	54.6	2012-15	3 years
Establishment of MEMS Design Center under National Program on Micro and Smart Systems(NPMAS)	C.RoyChaudhuri	ADA	17	2009-2014	6 years
Integrated Sensor System for Elderly Health Monitoring	C.RoyChaudhuri	DST, IDP	24	2010-2012	3 years
Design and Development of Compact and Wideband Microstrip Filters Using Electromagnetic Bandgap Technology	Dr. Santanu Das	CSIR	17	Sept'10	3 years
Development of Microstrip Phased Array Antenna System for Eliminating Scan Blindness by Using Defected Ground Structures	Dr. Susanta Kumar Parui	CSIR	20	Apr'12	3 years

No of publications:

Journal : 40

Conference : 39

Books/Monographs - 01

List of publications – **Annexure I**

Seminar / Workshops/ Conferences/ Training programme organized by the department (in last year)

Date	Title	Organizer	Speaker
17.04.2012	ARM Processor	BESU	Mr. Sadananda Goswami
13.02.2013	NASA's Mars curiosity mission	BESU, IEEE Kolkata Chapter	Dr. Goutam Chattopadhyay

Others

Books/Monographs :

1. A.DattaGupta, **C.Roy Chaudhuri**, "An introduction to MEMS Technology", published on 15.09.2012, ISSN-13: 978-3-659-24700-2, ISBN-10: 3659247006, Lambert Academic Publishing.

ANNEXURE - I

Paper Published

International and National Journals

1. S. Roy, C.K. Sarkar, P. Bhattacharyya, Low Temperature Fabrication of a Highly Sensitive Methane Sensor with Embedded Co-Planar Nickel Alloy Microheater on MEMS Platform, *Sensor Letters* (American Scientific Publishers), vol. 10 pp.759-768 (2012). (Impact Factor: 1.587).
2. Sunipa Roy, Chandan Kumar Sarkar, Partha Bhattacharyya, Ultrasensitive Pd-Ag/ZnO/Nickel alloy based Metal-Insulator-Metal Methane Sensor on Micromachined Silicon Substrate, *IEEE Sensors Journal* (IEEE), vol. 12 pp.2526-2527 (2012). (Impact Factor: 1.852).
3. S. Roy, C.K. Sarkar, P. Bhattacharyya, A Highly Sensitive Methane Sensor with Nickel Alloy Microheater on Micromachined Si Substrate, *Solid State Electronics* (Elsevier), vol. 76 pp.84-90 (2012). (Impact Factor: 1.466).
4. S. Basu, P. Bhattacharyya, Recent Developments on Graphene and Graphene Oxide based Solid State Gas Sensors, *Sensors and Actuators B* (Elsevier), vol. 173 pp.1-21. (2012) (Impact Factor: 3.668).
5. R.Dev Das, N.Mondal, C.RoyChaudhuri, "Optimized Electrode Geometry for an Improved Impedance based Macroporous Silicon Bacteria Detector", *IEEE Sensors*, vol.12,pp.1868-1877, 2012. (Impact Factor: 1.52)
6. D.Mondal, C.RoyChaudhuri, L.Das, J.Chatterjee, "Microtrap electrode devices for single cell trapping and impedance measurement", *Biomedical Microdevices (Springer)*, vol.14, pp.955-964, 2012. (Impact Factor: 3.08)
7. A.D.Chowdhury, A.De, C.RoyChaudhuri, K.Bandyopadhyay, P.Sen "Label free polyaniline based impedimetric biosensor for detection of E. coli O157:H7 Bacteria" *Sensors and Actuators B(Elsevier)*, vol. 171-172, pp.916-923, 2012. (Impact Factor: 3.66)
8. G. Rana, S.K. Lahiri, C.RoyChaudhuri, "Design Optimization of a Wide Band MEMS Resonator for Efficient Energy Harvesting", *Lecture Notes in Computer Science(Springer)*, vol.7373,pp.129-138(2012).
9. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Design of high quality factor and harmonic reduced bandpass filter using coupled resonators and defected ground structures," *International Journal of Soft Computing and Engineering (IJSCE)*, Volume-1, Issue-6, pp. 185-188, January 2012.
10. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Modeling and Validation of Wide Band Bandpass Filter Using Open-Stub Resonator," *Current Trends in Technology and Sciences*, Volume : 1, Issue : 1, pp.9-14, (May-June-2012).
11. Tapan Mondal and Santanu Das, "Ultrawideband-Printed Hexagonal Monopole Antennas With WLAN Band Rejection" *Microwave And Optical Technology Letters*, Vol. 54, No. 6, pp.1520-1525, June 2012.
12. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Modeling and validation of high selective harmonic reduced bandpass filter using coupled resonators and defected ground structures," *Journal of Computational Electronics*, vol.11, no.4, pp.330-335, On line; 06 July 2012 (Springer publication).
13. Tapan Mondal and Santanu Das, "Bandwidth enhancement of microstrip antennas using additional gap-coupled hexagonal shape resonators to the radiating edges" *Int. J. Signal and Imaging Systems Engineering*, Vol. 5, No. 4, pp.284-289, 2012.
14. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Design Of T-Split Power Dividers Using Dumbbell," *Journal of Radio Electronics*, No.8, pp.1-14, 2012.
15. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Modeling and Validation of Coplanar Waveguide Elliptic Filter Using Square Open Complementary Split-Ring Resonator," *Electromagnetics*, No.32, pp.506-515, 2012.
16. Tamasi Moyra, Susanta Kumar Parui and Santanu Das, "Modeling And Validation Of Loose Coupler By Using Dgs In Branch Line Coupler," *Journal Of Radio Electronics*, No.11, pp.1-16, 2012.
17. Somdotta Roy Choudhury, Susanta Kumar Parui and Santanu Das, "Design Of Log Periodic Based Circular Split Ring Type," *International Journal Of Microwave And Optical Technology*, Vol.7, No.6, pp.358-367, Nov. 2012.
18. Tapas Mondal, Rowdra Ghatak and S R Bhadra Chaudhuri, "Vehicular Radio Scanner using Phased Array Antenna for Dedicated Short Range Communication Service", *Journal of Electromagnetic Analysis and Applications (JEMAA)*. ISSN Print: 1942- 0730, ISSN Online: 42-0749.
19. Debasis Mitra and Sekhar Ranjan Bhadra Chaudhuri. "CPW-Fed Miniaturized Split Ring-Loaded Slot Antenna", *Microwave & Optical Technology letters (MOTL)*, Vol. 54, No. 8, August 2012, p.p.1907-1911.
20. Krishnendu Chattopadhyay, Santanu Das and Sekhar Ranjan Bhadra Chaudhuri, "Design of a Novel Aperture Coupled feeding Technique for a Printed Microstrip Dipole", *International Journal of Scientific & Engineering Research*, ISSN : 2229-5518, Vol.3, Issue 8, August 2012.

21. Satyendra Nath Mandal, Arghya Ghosh, Subhojit Roy, J.Pal Choudhury and S.R. Bhadra Chaudhuri, "A Novel Approach of Genetic Algorithm in prediction of Time Series Data", IJCA Special Issue on Advanced Computing and Communication Technologies for HPC Applications ACCTHPCA, July 2012, p.p. 16-20.
22. Satyendra Nath Mandal, J.Pal Choudhury and S.R. Bhadra Chaudhuri, "Neuro-PCA-Factor Analysis in Prediction of Time Series Data", American Journal of Intelligent System(AJIS), p-ISSN:2165-8974/E-ISSN:2165-8994, Vol 2, No. 4, July, 2012, p.p. 45-52.
23. Debasis Mitra, Dhruba Das and Sekhar Ranjan Bhadra Chaudhuri, "Bandwidth Enhancement of Microstrip line and CPW-fed Asymmetrical Slot Antennas", Progress In Electromagnetics Research (PIER L), Vol. 32, page 69-79, June, 2012.
24. Debasis Mitra and Sekhar Ranjan Bhadra Chaudhuri, "CPW Fed Rectangular DR Loaded Miniaturized Slot Antenna", International Journal of Microwave & Optical Technology (IJMOT), Vol.7, No. 3, May, 2012.
25. Tanmay Bhattacharya, Sirshendu Hore and S. R. Bhadra Chaudhuri, "An Image Authentication Technique by Handwritten Signature Verification using DWT and ANN" International Journal of Computer Applications (IJCA) (0975 – 8887) Volume 47– No.21, June, 2012, Pp 35-40.
26. Satyendra Nath Mandal, J.Pal Choudhury and S.R. Bhadra Chaudhuri, "In Search of Suitable Fuzzy Membership Function in Prediction of Time Series Data", International Journal of Computer Science Issues(IJCSI), ISSN(Online):1694-0814, Vol 9, Issue 3, May, 2012, p.p.293-302.
27. Partha Sarathi Banerjee, J.Pal Choudhury and S.R. Bhadra Chaudhuri, "A Framework for Selecting the Most Reliable Path in a Computer Network using Particle Swarm Optimization (PSO) based on Fuzzy Logic", International Journal of Computer Application (IJCA)(0975-8887), Volume 45- No.08, May, 2012, p.p.01-05.
28. Krishnendu Chattopadhyay, Santanu Das and Sekhar Ranjan Bhadra Chaudhuri, "Bandwidth Enhancement of A Microstrip line Fed Hexagonal Wide Slot Antenna Using Fork-like Tuning Stub, International Journal of Soft Computing and Engineering (IJSCE), ISSN: 2231-2307, Volume-2, Issue-2, May 2012 p.p. 262-267.
29. Krishnendu Chattopadhyay Soumava Mukherjee, Santanu Das and Sekhar Ranjan Bhadra Chaudhuri, "A Novel Design of Triple Frequency Dipole Antenna for Wireless Applications", Journal of Telecommunications, ISSN : 2042-8839, Vol.13, Issue-1, March-2012, p.p., 1-6.
30. Tanmay Bhattacharya, Nilanjan Dey, S. R. Bhadra Chaudhuri, "A Session Based Multiple Image Hiding Technique using Discrete Cosine Transformation", International Journal of Advanced Research in Computer Science and Software Engineering, ISSN: 2277 128X, Volume 2, Issue 2, February 2012, p.p.
31. Tanmay Bhattacharya, Nilanjan Dey and S. R. Bhadra Chaudhuri, "A Session based Multiple Image Hiding Technique using DWT and DCT", International Journal of Computer Applications (IJCA) (0975 – 8887) Volume 38– No.5, January, 2012, p.p. 18-21.
32. Arabinda Roy, Pratik Mondal, Susanta Kumar Parui, "Design of Bandpass Filter using CRLH Transmission Line and Floating Slot", International Journal of Emerging Technology and Advanced, Vol. 2 Issue 2 pp.270-274, February, 2012
33. Chandan Kumar Ghosh, Biswarup Rana, Arabinda Roy and Susanta Kumar Parui, "Design and Development of Triple Frequency Compact Microstrip Patch Antenna Array for Wireless Application", International Journal of Electronics Engineering, vol 4 no1, pp. 29– 32, 2012
34. Arabindo Roy, Chandan Ghosh, and Susanta Kumar Parui, "Highly Isolated Dual-Polarized Microstrip Patch Antenna Using Defected Microstrip Structure", International Journal of Soft Computing and Engineering (IJSCE), Volume-2, Issue-3, pp.688-592, July 2012
35. Chandan Kumar Ghosh, Subhajit Sinha, Arabinda Roy and Susanta Kumar Parui, "Arrow Shaped CPW-fed Slot Antenna for Wireless Application," The Bulletin of Engineering and Science, Vol.4, No1, (special Issue), pp.1-4, 2012
36. Chandan Kumar Ghosh, Biswarup Rana, Arabinda Roy and Susanta Kumar Parui, "Design of Aperture coupled dualband microstrip Antenna for Wireless Application," The Bulletin of Engineering and Science, Vol.4, No1, (special Issue), pp.22-24, 2012
37. Chandan Kumar Ghosh, Arabinda Roy and Susanta Kumar Parui, "Elevated CPW-Fed Slotted Microstrip Antenna for Ultra-Wideband Application," International Journal of Antennas and Propagation, Hindawi Publishing Corporation, Volume 2012, Article ID 425919, pp.1-8, 2012
38. Sourav Moitra, Sayantani Roy, Chandan Kumar Ghosh and Susanta K. Parui, "A Novel Printed UWB Antenna with Band Rejection Characteristics r," International Journal of Engineering and Innovative Technology (IJEIT) Volume 2, Issue 3, pp. 20-24, September 2012
39. D.Ghosh, B.Chakrabarti, M.Mitra, A Detailed Computer Analysis of SiC And GaN Based IMPATT Diodes Operating at Ka, V and W Band, International Journal of Scientific & Engineering Research (IJSER), Volume 3, Issue 2, pp. 1-6, February 2012.
40. D.mondal, R.Bera, T.K.Das, M.Mitra, Vehicular Safety In Hostile Environment For Intelligent Transport System, Journal of Theoretical and Applied Information Technology(JATIT), Vol. -37, No. -1, pp. 22-31, 15th March 2012.

International and National Conferences papers

1. Novel Architecture (ASIC) for High Speed VLSI Applications, Prabir Saha, Arindam Banerjee, Partha Bhattacharyya and Anup Dandapat, International Symposium on Electronic System Design (ISED) 2011, 19-21 December 2011, Kochi, India.
2. SiC-FET Sensors for Methanol leakage detection, Z. Darmastuti, P. Bhattacharyya, M. Andersson, J. Kanungo, S. Basu, L. Ojamae, A. Lloyd Spetz, The 14th International Meeting on Chemical Sensors-2012 (IMCS-2012), May 20 - 23, 2012, Nürnberg/Nuremberg, Germany.
3. Design of High Speed Vedic Multiplier for Decimal Number System, P. Saha, A. Banerjee, A. Dandapat, P. Bhattacharyya, 16th International Symposium on VLSI Design and Test (VDAT) 2012, July 1-4, 2012, Bengal Engineering and Science University, Shibpur, Howrah, India.
4. ZnO nanoflake based Metal-Insulator-Metal Methane Sensor for underground Coalmine Application, S. Roy, C. K. Sarkar, **P. Bhattacharyya**, 2012 International Conference on Communications, Devices and Intelligent Systems (CODIS-2012), December 28-29, 2012, Dept. of Electronics and Tele-Communication Engineering, Jadavpur University, Kolkata, India.
5. Mousumi Bhanja, Kasturi Ghosh and Baidyanath Ray, Implementation of nth order polynomial and its application, International Conference on Informatics, Electronics and Vision, IEEE-ICIEV, Dhaka Bangladesh, 18-19th May, 2012
6. Kasturi Ghosh, Mousumi Bhanja and Baidyanath Ray: Realization of second order log filter with OTA using state space representation, , International Conference on Informatics, Electronics and Vision, IEEE-ICIEV, Dhaka Bangladesh, 18-19th May, 2012
7. Kasturi Ghosh and Baidyanath Ray : Realization of hyperbolic function with OTA and its application in ELIN filter, , International Conference on Informatics, Electronics and Vision, IEEE-ICIEV, Dhaka Bangladesh, 18-19th May, 2012
8. Mousumi Bhanja , R. Chakraborty and Baidyanath Ray: Design of pseudo-logarithmic function using operational transconductance amplifier: IEEE Int. conference on Electrical and Computer Engineering (ICECE) 20-22 December, 2012, Dhaka.
9. R. Nandi, M. Bhanja, M. Ray and B.N.Ray : Light enhancement of OLED using photonics crystal ; 37 th National Symposium of optical society of India, 23-25 Jan 2012, Pondicherry, India
10. D.Mondal, C.RoyChaudhuri, "Impedance Measurement of Single Biological Cell With a Microelectrode Trapping Platform", Indo-US Workshop on Fabrication for Healthcare, December 23-24, 2012, CMERI-Durgapur, India.
11. D.Mondal, R.Dev Das, C.RoyChaudhuri, "Fabrication of Microelectrode Traps for Electrical Characterization of Single Biological Cell", International Conference on Smart Materials, Structures and Systems, Jan 04-07 2012, IISc Bangalore
12. G.rana, S.K.Lahiri, C.RoyChaudhuri, "Design and analysis of a membrane based efficient wide band resonator for energy harvesting", International Conference on Smart Materials, Structures and Systems, Jan 04-07 2012, IISc Bangalore.
13. H.Ghosh, C.RoyChaudhuri, "Nanocrystalline Porous Silicon for Sensitive Toxin Detection", pp. 688-693, International Conference on Sensing Technology, 18th-21st Dec. 2012.
14. N.Samanta, A.K.Chanda, C.RoyChaudhuri, "Optimized multi Sensor Wireless System for Elderly Health Monitoring", pp.151-156, International Conference on Sensing Technology, 18th- 21st Dec.2012,
15. N.Samanta, S.Dey, C.RoyChaudhuri, "Multi Sensor Wireless System Optimized for Elderly Health Monitoring", pp.1-8, International Conference on Computing, Communication and Networking Technologies (ICCCNT), 26th- 28th July 2012, Coimbatore, India.
16. C.RoyChaudhuri, R.DevDas, "High performance impedance biosensor for pathogen detection", pp.13-24, International Workshop on Tools, Implants and Biomaterials, 17th-18th May 2012, BCSIR Dhaka.
17. H.Ghosh, C.RoyChaudhuri, "Design and Fabrication of Nanocrystalline Porous Silicon for Sensitive Toxin Detection", Fifth ISSS National Conference on MEMS, Smart Materials, Structures and Systems organised by ISSS and Karpagam University, September 21-22, 2012, Tamil Nadu, India.
18. N.Das, **C. RoyChaudhuri** , "Polymer Nanowire Based Impedance Biosensor", COMSOL Conference, November 2-3, 2012, Bangalore, India.
19. H. Ghosh, C. RoyChaudhuri, "Nanoporous Silicon Structures for Toxin Detection", COMSOL Conference, November 2-3, 2012, Bangalore, India
20. S.Ghosh, S.Dey, **C.RoyChaudhuri**, "A Portable Fast response Sensitive Measuring Unit for LPG/Methane Gas", pp.27-28, Michael Faraday IET India Summit, organized by Institution of Engineering and technology-UK, Nov.25th, 2012
21. Somdotta Roy Choudhury, **Susanta Kumar Parui** and **Santanu Das**, "Design Of A Novel Bandstop Filter Using Log Periodic Based Circular Split Ring Slots" IEEE Students' Conference on Engineering and Systems (SCES 2012), Paper No. March 16-18, Allahabad, 2012.
22. Bhupesh Mukherjee, Susanta Kumar Parui and Santanu Das, "Study of a Circularly Polarized Square Microstrip Patch Antenna for WLAN Application," *International Conference on Communication, Circuits and Systems 2012*, pp.1-5, KIIT University, Bhubaneswar, Oct.5-7, 2012.
23. Somdotta Roy Choudhury, Susanta Kumar Parui and Santanu Das, "Design And Improvement of Bandwidth Of A Compact and Wide Band Rejection Filter," *International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp. Dec28-29, 2012, Kolkata.

24. Somdutta Roy Choudhury, Susanta Kumar Parui and Santanu Das, "Compact Stop Band Filter Using Circular Split Ring Defected Microstrip Structure," *International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp. Dec28-29, 2012, Kolkata.
25. Tamasi Moyra, Arabinda Roy, Santanu Das and Susanta Kumar Parui, "Design Of 10 dB Branch line Coupler By Using DGS," *International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp. Dec28-29, 2012, Kolkata.
26. Bhupesh Mukherjee, Susanta Kumar Parui and Santanu Das, "Mutual Coupling Reduction of Microstrip Antenna Arrays using Rectangular Split Ring Shaped Defected Ground Structure," *International Conference on Communications, Devices and Intelligent Systems (CODIS) 2012*, pp.206-208, Jadavpur University, Kolkata Dec. 2012.
27. Bhupesh Mukherjee, Pratik Mondal, Susanta Kumar Parui and Santanu Das, "Study of A circular split-ring slot loaded Patch," *International Conference IEMCON 2012*, pp.432-435, Kolkata 2012.
28. Bhupesh Mukherjee, Somdutta Roy Chowdhury, Susanta Kumar Parui and Santanu Das, "Reduction of Mutual Coupling of Antenna Arrays using Defected Ground Structure," *ICMARS- 2012*, 2012.
29. Bhupesh Mukherjee, Bappaditya Mandal, Susanta Kumar Parui and Santanu Das, "A Compact Patch Antenna With A Circle Headed Angular Slot Loaded Radiating Patch," *National Conference on Recent Trends in Microwave Techniques and Applications (Microwave - 2012)*, paper no.-1238, Jaipur, 2012.
30. Bhupesh Mukherjee, Susanta Kumar Parui and Santanu Das, "Design of an Inset CPW Fed Patch Antenna for WIMAX Application," *National Conference on Recent Trends in Microwave Techniques and Applications (Microwave - 2012)*, paper no.-1272, Jaipur, 2012.
31. A.Ghosh and S.R.Bhadra Chaudhuri, "Design of an Extremely Wideband Monopole Antenna with Triple Notches" IEEE sponsored International Conference, CODIS, Jadavpur University, Kolkata, December, 2012.
32. Abhishek Sarkhel and Sekhar Ranjan Bhadra Chaudhuri, "Magnetic Response of Rectangular & Circular Split Ring Resonator—A Research Study" International Conference on Communication, Circuits and Systems (iC3S 2012), October 05-07, 2012, Bhubaneswar, India.
33. Tanmay Bhattacharya, Nilanjan Dey and S.R. Bhadra Chaudhuri, "Stationary Wavelength Based Audio Authentication Technique", The Second International Conference on Computational Science Engineering and Information Technology (CCSEIT-2012), October, 26-28, 2012, Coimbatore, India.
34. Satyendra Nath Mandal, J.Pal Choudhury, Debasis Mazumdar, Dilip De and S.R. Bhadra Chaudhuri, "Forecasting Time Series Data Using Particle Swarm Optimization", accepted in International Conference on Electrical and Computer Systems (ICECS'12), August 22-24, 2012, Ottawa, Ontario, Canada
35. Dhruva Das, Debasis Mitra & S.R.Bhadra Chaudhuri, "Miniaturization of Meandered Line Slot Antenna", 2012 IEEE International Symposium of Antennas and Propagation Society (APS/URSI), Chicago, July, 8-14, 2012, Illinois, USA. accepted and to be available in IEEE-Xplore.--*
36. Sudip Dogra, Subir Kr. Sarkar and S. R. Bhadra Chaudhuri, "A New Scheme for Wild Fire Detection and Alert System using Wi-Fi Based Active RFID Tags", Proc., NCRETS-2012, PIES, Indore, M.P., India, April 20-21, 2012, p.p.183-186.
37. Satyendra Nath Mandal, Mihir Mandal, J. Pal Choudhury, and S. R. Bhadra Chaudhuri, "Neuro-Simulated Annealing Approach in Prediction of Time series Data", CD Proceeding, 6th National Conference INDIACOM, February 23-24, 2012, New Delhi.
38. I. Dutta, R. Banerjee, T.Acharya, S. Das Bit, "An Energy Efficient audio Compression Scheme using Wavelet with Dynamic Difference Detection Technique in Wireless Sensor Network," in International Conference International Conference on Advances in Computing, Communications and Informatics, Chennai, India, August, 2012.
39. C. Maji, S.P. Maity, T Acharya, "Optimal Power Allocation for Relay-based CR Networks with Enhanced Network Lifetime," in The Ninth International Symposium on Wireless Communication Systems', Paris France August, 2012.

Department of Earth Sciences

The Department

Bengal Engineering and Science University and the subject Geology possess a century old relationship. Many eminent geoscientists have offered their teaching and research expertise in the past. Previously teaching in geology was introduced in this university to meet the need of the would be engineering graduates only in Civil Engineering, Mining Engineering and Metallurgical Engineering branches. The science streams have emerged as an integral part of the university offering postgraduate degrees from 2001. The Department of Geology, however, has started to offer independent postgraduate courses in geology after its separate identity as a science department from 2005. In 2011, name of the department has been changed to the Department of Earth Sciences to hold an umbrella to develop teaching and research in various disciplines of geology, geophysics, atmospheric and planetary sciences.

The Department of Earth Sciences is dedicated to improve the understanding of the solid earth, its geotechnical and other applied aspects through teaching, research and field training programme. Students are being trained by permanent and eminent visiting faculties of diverse fields of geology, involved in frontier areas of research like sedimentology, basin tectonics, mineralogy, geochronology, tectonothermal evolution, hydrogeology and paleontology etc. The Master degree programme of the department has a modern and updated syllabus to cope up with the need of the hour and aims to prepare students for a broad range of geoscientific careers which includes petroleum or mineral exploration, natural hazard mitigation and geoscientific activities in different universities and research institutes. Students are able to find employment in mining companies, petroleum industries and various corporate houses.

Academic Programmes:

Postgraduate Level

i. Degree offered	M.Sc In Applied Geology.
ii. Sanctioned students' intake	25
iii. Specialisations in	Sedimentology & Basin Tectonics, Paleontology (Invertebrate), Geohydrology, Metamorphic Petrology, Geochronology.

Doctoral Level

i. Degree offered	Ph.D in Science (Geology)
ii. No of candidates enrolled	03
registered	01
awarded	0

Faculty position:

Sanctioned faculty post : 8 (Professor-01, Assistant Professor-03, Lecturer-04)

Vacant Post : Assistant Professor-02, Lecturer-02 (already advertised)

Faculty profile

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Bhabani Prasad Mukhopadhyay	Professor	Ph.D.	Sedimentology & Basin Tectonics	+91-9830019506. bpmbesus@gmail.com
Ananya Biswas	Assistant Professor	Ph.D.	Sedimentology & Stratigraphy	+91-9830012606 +919433516731 anniegeol@hotmail.com
Tapas Ganguly	Assistant Professor (Sr.) (WBHES)	Ph.D.	Invertebrate Paleontology	+91-9903570914 tapasgeolbe@yahoo.com
Kaushik Das	Lecturer	Ph.D.	Metamorphic Geology & Geochronology	+91-9433045322 Kaushik.met@gmail.com

Research area (only broad titles):

Sedimentology, Basin Tectonics, Geohydrology, Invertebrate Paleontology, Mineralogy, Geochronology, Metamorphic Petrology

Research facilities: (name specific equipment / picture etc.)

Binocular Microscope with photographic attachments, GPS, Petrological microscope (student model), Rock cutter, rock polishing machine, Hotplate, Spectrophotometer, ph meter & conductivity meter

Name of the laboratories:

- 1.Sedimentology
- 2.Paleontology
- 3.Metamorphic Petrology
- 4.Rock cutting & polishing

Support staff position:

Sanctioned technical post: 01

Technical staff profile

Name	Designation	Highest Qualification	Contact No.	E-mail
Panchdeo Rangwa	Section Cutter	H.S.	+919038880675	--

Sponsored Research: (only areas mentioned)

Ongoing (Prof value)	Sponsoring agency
Sedimentology-Rs /-20,58,500	ONGC
Sedimentology-Rs /-21,16,000	DST
Hydrogeology-Rs.16,11,600.00	Govt. of W.B.

**Department received DST-FIST support under FIST-2009 –
Rs. 40.75 Lakhs.—Continuing in 2012-13**

Industry- Institute Interaction

Department is collaborating with ONGC for drill site training of students
& research work.

No of publications:

Journal -04 (published)

Conference- 01

Books/Monograms- 0

(List to be included)

Seminar/Workshop Attended :

GEOS-Annual International Conference, 2012, Singapore.

List of Publications(2012-13)

Mukhopadhyay B. P., Roy S., Cahudhuri S., Mitra S., 2012. Geological Controls on Landslide Vulnerability of Darjeeling Hill Town, in Eastern Himalayas. Asian Journal of Environment and Disaster Management, vol.4(2), pp. 145-164.

Ganguly, T. 2012. The Physa dominated Upper Cretaceous Intertrappean macro fossil molluscan assemblages from four different locations of M.P,India---Palaeontological inklings. Journal of Science and Technology,Mahasarakam University,Thailand--Vol. 31,No:1, pp--74--83

Ganguly, T. 2012. Geological Implication of a turreted gastropod and astartid pelecypod bearing horizon in Nodular Limestone of Sukar Nala section near Jirabad of Bagh,Dhar District ,M.P, India. Journal of Science and Technology,Mahasarakam University,Thailand --Vol,31,No:1, pp--45—49.

Mukhopadhyay B. P., Roy S., Cahudhuri S., Mitra S., 2012. Influence of Geological Parameters on Landslide Vulnerability Zonation of Darjeeling Hill Town, in Eastern Himalayas. *Conference proceeding – 19th West Bengal state Science & Technology Congress*, March 2012. pp.272.

*Department of
Humanities and Social sciences*

About the department

The Department of Humanities and Social Sciences was established in 1945 to teach courses in the social sciences and literature in the B.E. program. The Department of Humanities and Social Sciences has an exclusive and distinguishing position in an institute where the philosophy of science and technology prevails.

Its faculty offers a wide spectrum of courses in English, Economics, Accounts & Finance, Values & Ethics, Human Development and Management . It also teaches a good number of courses in the MBA and program. The undergraduate courses imparted by the Department endeavor to make the science and technology students conscious, about the diverse issues pertaining to man and society. They are intended to sensitize students to the wider social, cultural, economic, ethical and humane issues involved in social change. The PG level courses are advanced. The purpose of these courses is to enlighten critical mind and methodical potentialities.

Over the years the department has developed with the time, by increasing the range of its courses, updating its syllabi and enhancing its facilities.

It began its Ph.D. program in 2000 with an accent on inter-disciplinary topics. The department has outstanding opportunities and amenities for the quest of research and development. The research scholars are working towards their Ph.D. degree. Many students of this Department have already obtained their Ph. D. degree in different areas and they are now well placed and established as excellent academicians and professionals. In this year, five students have received their Ph.D. degrees. At present seven students are registered in the program.

Since 1999, the department has conducted several projects on environmental issues and science & technology policy, and its faculty may be credited with a significant number of publications. The department strongly desires to have its own PG course.

The Department has its own Computer Laboratory. Photocopying and other infrastructure facilities are also made accessible to the students. The Department has competent faculty members with a high degree of brilliance who keep pace with the contemporary developments in their specialization areas.

Academic Programmes:

Undergraduate Level

- i. Degree offered
- ii. Sanctioned students' intake
- iii. Additional intake through lateral entry in 3rd Semester

Teaching in B.E. program, all sections

B.E.
All BE Students.
Same

Postgraduate Level

- i. Degree offered
- ii. Sanctioned students' intake
- iii. Additional intake through other programmes (i.e. QIP)
- iv. Specialisations in

Teaching in MBA.

Accounting & Financial Management.

Doctoral Level

i. Degree offered

Ph.D. in Humanities and Social Sciences

registered 7
awarded 5

Faculty position

Sanctioned faculty post : Nine. Vacant Post : 4

Faculty profile

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Rupen Basu Mallik.	Associate Prof. & HoD	M.COM., FCMA	Accounts/Financial Mnagement.	rbmallik@gmail.com
Dr. Madhumati Dutta	Professor	Ph.D.	Economics/Environmental Economics,Environmental Management	madhumatidutta@yahoo.co.in
Dr. Partha Sarathy Roy	Associate Prof.	Ph.D.	Marketing Management/Rural Marketing/Entrepreneurship	psr740@rediffmail.com
Mallika Ghosh Sarbadhikary	Associate Prof.	M.Phil	English/Gender Studies	ghosh16mallika@gmail.com
Subhasis Bandyopadhyay	Assistant Professor	M.A. (NET)	Sociology/ Science & Technology Policy	subhasisban@gmail.com

Research area (only mention broad titles without description in detail):

- Environmental Economics and Management.
- Rural Marketing, Entrepreneurship.
- Science and Technology Policy.
- Accounting Finance & Control.
- Gender Studies.

Research facilities:

Computer and peripherals

Name of the laboratories:

Computer Laboratory : 1

- Support staff position: 2 (Group D)

No of publications:

Journal ...	2
Conference...	1
Books/Monographs	3

- Madhumati Dutta: 'Evaluating The Health Cost Of Transport Pollution', in International Journal of Physical and Social Sciences, Vol. 2, Issue 10, October 2012 (with Rajasree Banerjee, Sudip K. Roy and Suranjan Sinha), 81-96
- Madhumati Dutta: 'Evolving Feasible Modal Structures for Cost Efficient Pollution Reduction: The Case of Passenger Transport in an Indian Megacity', (with Joyshankar Bhattacharyya), eds. Michael von Hauff and Amitabh Kundu, in print
- Madhumati Dutta: 'Expenditure Patterns and Climate Change in India: Implications for Policy', in Contemporary Issues in Development Economics, ed. P.Pal et al, Regal Publications, New Delhi, in print
- Madhumati Dutta: 'Targeting Consumer Groups and What They Consume for the Mitigation of Climate Change in India', Conference Proceedings, 3rd International Conference on Global Environmental Change and Human Security: the Need for a New Vision for Science, Policy and Leadership, Marrakesh, Morocco, 22-24 November 2012, NRCS, GIZ, Dept. of Environment, Morocco and NCCSD.
- Book chapters: 1. Bandyopadhyay Subhasis. The Chimera of Development: A Conceptual Critique in A Mazumder et al (eds.) Human Development – Perspective and Dimensions. Silchar: RPC, Women's college 2013 (ISBN: 978-81-925997-0-0)
- Article: 1. Bandyopadhyay Subhasis. Whose Semi Fascism? Economic and Political Weekly. Vol.-XLVII No.30, July 28, 2012.

Seminar / Workshops/ Conferences/ Training programme organized /attended by the department

The Department of Humanities & Social Sciences, with support from the Equity Action Plan under TEQIP-II held a one-day National Seminar on 'Women & Work: Issues and Interrogations' on 7th February 2013. The co-ordinators, Prof Mallika Ghosh Sarbadhikary and Prof. Madhumati Dutta organized the Seminar with active support from the Head, Prof Rupen Basu Mallik. Dr. Samita Sen from Jadavpur University and Dr. Debjani Sengupta from Delhi University, Dr. Shireen Moosvi from Aligarh Muslim University and Bithika Acharya from Guwahati High Court traversed a wide gamut of ideas on gender-sensitive issues related to work. Two students papers were well received and the audience participated in narrations based on the first-hand empirical evidence and observations provided by panelists in the second half of the seminar. Rights activist Prof. Sujato Bhadra, Mahua Bagchi, Director of Cognizant Technologies, Yashodhara Roychoudhury Principal Director of Commercial Audit, GOI, spoke of the problems of implementing the provisions for legal

protection for working women. Oishee Chakraborti, Associate Professor of SINP lamented how social structures and strictures restricted women's progress in scientific research.

Dr. M. Dutta : Lecture Delivered on 'Writing a Research Report' , March 22, 2012, Workshop on Research Methodology, Faculty of Engg. And Technology, 21-23 March, 2012, Alumni Seminar Room, BESUS

Other seminars etc. attended:

Sl. No.	<u>Name</u>	<u>Name of Conference etc.</u>	<u>Organized by</u>	<u>Venue</u>	<u>Date</u>	<u>National/ International</u>
1	Madhu mati Dutta	Seminar Series of Economics Research Group, Centre for Studies in Social science	CSSSC	Kolkata	March 26, 2013	National
		3 rd International Conference on Global Environmental Change and Human Security: the Need for a New Vision for Science, Policy and Leadership	NRCS, GIZ, Department of Environment, Morocco and NCCSD	Marrakech, Morocco	22-24 Nov 2012	International
2	Rupen Basu Mallik	National Level Seminar on : 'System of Governance in Higher Education' Eleventh International Accounting Conference	Department of Political Science, Midnapore College, & WBCUTA Indian Accounting Association Research Foundation in association with DELOITTE and EILM	Midnapore, West Bengal Crystal Hall, Taj Bengal, Kolkata	January 5 & 6, 2013.	National International
		National Seminar on Emerging Issues in Finance National DSA-1 Seminar	Department of Commerce, T.H.K. Jain College UGC-sponsored Alipore Campus of Calcutta University	Kolkata Kolkata	March 02, 2013 March 26, 2013	
		National Two-day Workshop on Reviewing of the B.Com New Syllabi	. CUCAA	Kolkata	April 25, 2013	
		National Seminar on Contemporary Issues in Finance: Proposals of the Companies Bill 2012	Department of MBM, C.U. in collaboration with IAA Kolkata	Kolkata	May 24, 2013	

	Mallika Ghosh Sarbadhikari	The Dickens World AnustupSamarSenMemorial LecturebyPranabBardhan Gender&Sexuality,	Jadavpur University EZCC Visva- Bharat University	Kolkata Kolkata Santiniketan	Dec,18-20, 2012 March 16, 2013 Feb 18-19, 2013	International International National
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Others

- a. Madhumati Dutta: External Member, Senate, NIT Durgapur
- b. Madhumati Dutta: Member, Advisory Committee, State Disaster Management Authority
- c. Madhumati Dutta: Visiting Researcher, Centre for Studies in Social Sciences, Calcutta, Jan – April, 2013
- d. Lecture series on *Volpone* delivered between October 2012 – February 2013 at Maulana Azad College, Kolkata.
- e. Co-ordinator for English Language Skill Enhancement courses for B.E. Students:
 - i. English for Professional Skill Development March 21 – April 13, 2012
 - ii. English for Communication Skill Development 21 August 2012 – 21st November 2012.
 - iii. Advanced Course On English for Professional Skill Development, 21 August 2012-21 November, 2012

*Department of
Information Technology*

Introduction

The Department of Information Technology started its journey in the year 2000. It is one of the youngest departments of this 157 years old University. The department has produced excellent IT engineers who are serving in different reputed organizations and pursuing higher studies at Institutes of excellence in India and abroad. The department provides state of the art computational facilities for the students. The strength of the department has been in its diverse areas of research in which it has a remarkable contribution.

Academic Programmes

Undergraduate Level

B.E. in Information Technology: The B.E. program is a four -year course oriented undergraduate program. The course work is spread across all the semesters. The courses include a set of core courses offered by the department, a set of departmental electives, and some free electives. Apart from this, a student must complete three courses in his or her minor area. The minor area must be different from Information Technology. Besides, a student must also complete a mini project in 6th semester and a project in fourth year (7th – 8th semester) towards the fulfillment of the degree requirements.

Postgraduate Level

M.E. in Information and Communication Engineering: The M.E. program is a two-year course oriented graduate program. The student has to take a set of core courses and a set of electives. The course work is spread across the first two semesters with an option of taking one elective in the third semester. This is followed by a project in the third and fourth semester in which the student can take up a project of his or her interest, supervised by a faculty member.

Doctoral Level

PhD in Information Technology: The PhD programs are postgraduate research oriented programs. The scholar works in an area of his/her interest under the supervision of a faculty member. The scholar has to obtain a minimum number of credits by taking courses. The highlight of the program is the independent research work taken up by a scholar, leading to a dissertation at the end of the program. The average duration of a PhD. program is between four to five years.

Student's intake

	U.G	P.G	Ph.D
Sanctioned students' intake	60	18	1- Awarded 1- Thesis submitted
Additional intake through lateral entry/ QIP	6	-	11- Registered 13- Enrolled

Ph.D Activities

PhD. Awarded during 2012-2013 session

1. Debasish Mitra
2. Goutam Maity

PhD. Submitted during 2012-2013 session

1. Prof. Indrajit Banerjee

PhD. Registered during 2012-2013 session

Registered = 11

PhD. Enrolled during 2012-2013 session

1. Sanga Chaki
2. Prasenjit Chanak
3. Rupam Bhattacharya
4. Sourav Saha
5. Piyali De
6. Nilanjana Das
7. Ashish Kumar Layek
8. Apurba Roy
9. Anirban Bose

Faculty position

	Nos.
Sanctioned faculty post	13
Professor	1
Associate Professor	2
Assistant Professor	6
Vacant post	4

Faculty Name	Designation	Highest Qualification	Specialization/ Research Area	Contact No. / Mail Id
Dr. Hafizur Rahaman	Professor	Ph.D	Design & Test of VLSI Circuits Network-On-Chip SOC Testing Design & Testing of Cryptographic Hardware Design & Testing of Micro fluidic Bio Chip	rahaman@it.becs.ac.in Extn. no.260/848
Dr.Santi Prasad Maity	Associate Professor	Ph.D	Digital Image Watermarking Wavelets for image de-noising, watermarking, Access control and Error concealment Optimized spread Spectrum watermarking VLSI for watermarking PAPR reduction in multicarrier communication Wireless Channel Estimation Multiuser Detection in MC-CDMA Optical Computing	smaity@it.becs.ac.in Extn. no.846
Dr. Arindam Biswas	Associate Professor	Ph.D	Digital Geometry Image Processing and Pattern Recognition Medical Image Analysis	abiswas@it.becs.ac.in barindam@gmail.com Extn. no.864
Dr. Sukanta Das	Assistant Professor	Ph.D	Cellular Automata Distributed Computing	sukanta@it.becs.ac.in Extn. no.847
Dr. Tuhina Samanta	Assistant Professor	Ph.D	Design of algorithms for VLSI inter connect design Developing of algorithm for Physical design of Digital Micro-fluidic Biochip	tuhina@it.becs.ac.in Extn. no.857
Dr. Prasun Ghosal	Assistant Professor	Ph.D	3D Integration of VLSI Physical Design Network-On-Chip Design of Embedded Systems	prasadghosal@it.becs.ac.in Extn. no.309
Dr. Chandan Giri	Assistant Professor	Ph.D	VLSI digital Circuit Testing System-On-Chip Testing Network-On-Chip Testing	chandan.giri@gmail.com Extn. no.858
<u>Mr.Indrajit Banerjee</u>	Assistant Professor	M.Tech	Wireless ad-hoc Sensor Network	indrajitbanerjee@it.becs.ac.in Extn. no.860
Mr.Surajit kr. Roy	Assistant Professor	M.Tech	SOC Testing	surajit.roy@gmail.com Extn. no.861

Awards and Laurels

Name	Award Received	Given by	Year
Dr. Prasun Ghosal	Heidelberg Laureate Forum Fellowship from Heidelberg Laureate Foundation to participate in the 1st Heidelberg Laureate Forum to be held from	Heidelberg Laureate Forum Fellowship, Germany	September 2013
	Senior Member Grade from ACM	Association of Computing Machinery	2013
	Raman Fellowship for Post Doctoral Research (one year) for Indian Scholars in United States for the	University Grants Commission, India.	2013
Dr. Sukanta Das	Career Award for Young Teachers (CAYT)Development of Automata Model for Distributed Systems	AICTE	2013

Research area

Below we mention selected areas of research contributions made by the department.

- A. Systems Architecture and Design Computer Architecture, Design, Testing, Verification, Algorithms and VLSI CAD
- B. Theory and Applications of Cellular Automata in Distributed Computing, Pattern Recognition, Traffic Modeling and VLSI design & Test

C. Digital Image Watermarking and Signal Processing

- LBM and Additive watermarking using signal processing tools
- High Payload Spread Spectrum watermarking using Wavelets
- QIM watermarking for Access control and Error Concealment
- Optimized Spread Spectrum watermarking
- VLSI architecture for watermarking

D. Digital Geometry and Image Analysis

Shape Analysis

- 3D Image Analysis
- Face Recognition
- Document Image Analysis

E. Wireless and Mobile Communication, Sensor Network

- PAPR reduction in Multicarrier System
- Multiuser Detection in MC-CDMA
- Channel estimation
- Optimized system design
- Efficient Routing protocol
- Energy efficient WSN Management

F. Medical Image Analysis

- Mammogram
- Bone fracture detection from X-Ray images
- Vessel Detection in Retina

Research facilities

Computing Facilities:

Model	Specification	No.
A. MAIL SERVER & FILE SERVER	X Series 236 @ server (IBM) Intel Single Xeon DP Processor @ 3.2 GHz EM 64T	2
B. SUN SERVER	SUN FIRE V215 SERVER PROCESSOR 2X ULTRA SPARC 111	1
C. ORACLE SERVER	Single or Dual Intel® Xeon® 3.0 GHz processors or Single or Dual Intel® Xeon® 3.2 GHz processors (dependent on model)	1
D. HP XW 4600 Workstation	Intel Dual Core 3 GHZ	2
E. HP COMPAQ DX 7200 MICROTOWER & DELL OPTIPLEX 780 Desktop	INTEL P-IV HT 3 GHZ & CORE DUO 2.80 GHZ 2GB DDR2 RAM	180
F. HP Compaq dx7400 MICROTOWER	INTEL CORE 2 DUO 1.60 GHZ 1 GB DDR2 RAM	
G. HP COMPAQ DX 7200 MICROTOWER	INTEL P-IV HT 3 GHZ	

Software:

- a. Windows 98(SE)
- b. Red Hat Linux 703 professional
- c. Norton systems works
- d. Personal oracle 8015 (Win 98 compatible)
- e. Visual studio .Net professional (Single user)
- f. MS office XP (Prof)
- g. Macromedia flash
- h. ADOBE Photoshop CS2 version 9 educational paper license
- i. ADOBE Photoshop CS2 version 9 Edu media kit on CD
- j. Windows 2000 (OEM Pack)
- k. Win 2000 server plus (Academic editions) Client license
- l. Oracle 10G database std-I edition on linux
- m. McAfee Active Virus Scan P:1 Gold(101 user)
- n. Adobe Acrobat Professional 9
- o. Extra Cyber Emulator
- p. Matlab R2008a (Client Server) (30 user)
- q. Simulink (5 user)
- r. Signal Processing Toolbox(5 user)

- s. ATS for oracle std-I for 1 year
- t. Media for oracle in CD
- u. Internet developer suite on windows XP OS
- v. Sound forge (latest version) Edu full box on CD
- w. Rational Rose
- x. Microsoft windows XP prof. Upgrade OLP NL-AE
- y. Microsoft office 2003 prof. OLP NL-AE
- z. Microsoft studio 8 Edu paper license
- aa. Microsoft windows XP prof. Media kit on CD
- bb. Microsoft office 2003 prof. Media kit on CD
- cc. Microsoft studio 8 Edu media kit on CD
- dd. 1SE Design Suite Foundation 8.1i,9.1i,10.1i,11.1i
- ee. Chip scope Pro
- ff. Embedded Development kit
- gg. Plan Ahead
- hh. System Generator
- ii. Accel DSP
- jj. Model XE Simulator

Electronics Equipment:

Sl. No.	Name of the Item	Qty
1	Microcontroller Kit SDA 51.	12
2	P-N Sequence generator.	04
3	Function Generator	09
4	Test ROM for NIFC- 27.	01
5	26 pin I/O connector.	15
6	PMS DSP 320C 30Trainer KIT.	06
7	Parallel Port Cable for DSP C-30.	06
8	Input /Output Cable.	06
9	Power Supply for SDA –51.	12
10	8085 Microprocessor Trainer kit.	18
11	8086 Microprocessor Trainer kit.	06
12	Digital Trainer kit	08
13	Digital Communication Trainer kit	15
14	Traffic Light simulator Interface Kit (ALS -NIFC-11).	06
15	DAC for ADC Temperature Sensor Dual slope ADC interface for μ P trainers(ALS-NIFC-10).	04
16	Interface to study A/D and D/A converter(NIFC-27).	02
17	JP6 of Interface card to Trainer Kit Connector.	02
18	Test ROM for NIFC- 01and NIFC-11.	01
19	CROSS COMPILER FOR DSP	01
20	DIGITAL STORAGE OSCILLOSCOPE	01
21	CATHODE RAY OSCILLOSCOPE	11
22	SPECTRUM ANALYZER	01
23	Vector Signal Generator	01
24	Spartan-3 AN FPGA Development Board	05
25	Spartan-3 FPGA Development Board	01
26	Virtex-5 FPGA Development Board	02
27	Vector Signal Analyzer	01
29	Agilent N5182A-403 Calibrated AWGN	01

Support staff position

TECHNICAL ASSISTANT				
Name	Designation	Highest Qualification	Contact No	E-mail Id
Soma Sardar	Technical Assistant	D.C.S.T, MCA, M.TECH	9433487298	somabeit@gmail.com
Soumen Gope	Technical Assistant	D.C.S.T, B.TECH, M.TECH	9433985637	soumencse@gmail.com
Souvik Patra	Technical Assistant	D.C.S.T, B.TECH, M.TECH	9433730433	souvik.patra804@gmail.com
Subhajit Biswas	Technical Assistant	D.C.S.T, AMIE(PURSUING)	9830146357	subhajitbesu@gmail.com
Snehashis Saha	Technical Assistant	M.Sc(Math),P.G.D.C.A, M.SC(Computer)	9830573478	snehasissaha@yahoo.com
Amiya Ratan Rout	Technical Assistant	M.Sc(Computer),M.TECH	9232606401	shiboham@gmail.com
Samaresh Hazra	Technical Assistant	D.C.S.T, M.Sc(Computer), AMIE, M.TECH	9231596396	samaresh.hazra@gmail.com
Bishnu Pada Choudhury	Technical Assistant	B.Sc, MCA	9432926952	bisbnu1@yahoo.com
Suman Chakraborty	Technical Assistant	B.TECH, M.TECH	9831399726	sumanrbrbehala@gmail.com
Sanchayita Dhara	Technical Assistant	D.E.T.C, AMIE(Pursuing)	9433957440	sanchayita.dhara@gmail.com
OFFICE STAFF				
Malay Dhir	Office Assistant	B.com	9831365531	malay_dhir@yahoo.co.in
Suman Sarkar	Group D	Madhyamik	9007612086	sarkar_becit@yahoo.co.in
Dinabandhu Sadhukhan	Group D	Madhyamik	9062477213	

Detailed Publication: Year: 2012- – 2013

International Journals/Edited Volumes

1. Nachiketa Das, Pranab Roy, and Hafizur Rahaman, “Bridging Fault Detection in Cluster Based FPGA by Using Muller C Element”, Journal of Computers & Electrical Engineering (Elsevier), 2013, (Accepted).
2. Nachiketa Das , Pranab Roy and Hafizur Rahaman, “Built-In-Self-Test Technique for Diagnosis of Delay Faults in Cluster Based Field Programmable Gate Arrays”, IET Computers & Digital Techniques, 2013 (Accepted).
3. P. Ghosal, H. Rahaman, Koyel Mukherjee and Dibyendu Ballabh, “A low power, low jitter DLL based low frequency (250 kHz) clock generator”, Int. J. Signal and Imaging Systems Engineering, Vol. 7, No. 1, pp.3-11, 2013.
4. Kamalika Datta, Indranil Sengupta, and Hafizur Rahaman, “A Particle Swarm Optimization based Reversible Circuit Synthesis”, Journal of Low Power Electronics, Vol. 9 No. 3 , October 2013.
5. Indrajit Banerjee and Hafizur Rahaman, “Effective fault detection and routing scheme for wireless sensor networks”, Computer and Electrical Engineering (Elsevier), vol.39 (2013), (Accepted) (With PhD Student).
6. Dipak K. Kole, Hafizur Rahaman, Debesh K. Das, and Bhargab B. Bhattacharya, “Derivation of Test Set for Detecting Multiple Missing-Gate Faults in Reversible Circuits”, Computer and Electrical Engineering (Elsevier), vol.39 (2013), pp. 225-236, 2013 (With PhD Student).
7. Indrajit Pan, Ritwik Mukherjee, Hafizur Rahaman, Tuhina Samanta, Parthasarathi Dasgupta, “Optimization algorithms for the design of digital microfluidic biochips: A survey”, Computers & Electrical Engineering(Elsevier), 39(1): 112-121 (2013), 2013, (PhD. Student).
8. Santi P. Maity, Seba Maity, Jaya Sil, and Claude Delpha, Collusion resilient spread spectrum watermarking in M-band wavelets using GA-Fuzzy Hybridization, Journal of Systems and Software, Elsevier Science, vol. 86, no. 1, 47-59, 2013.
9. Santi P. Maity and Malay K. Kundu, Distortion free image-in-image communication with implementation in FPGA, International Journal of Electronics and Communication Engineering., Elsevier, vol. 67, no. 5, pp. 438-447, 2013.
10. Santi P. Maity, Seba Maity, Jaya Sil and Claude Delpha, Optimized Spread spectrum watermarking for fading-like collusion attack with improved detection, Special Issue on Wireless Personal Communications Journal, Springer Verlag, vol. 72, no.3, pp. 1737-1753 .
11. Debaprasad Das and Hafizur Rahaman, “Modeling of Single-Wall Carbon Nanotube Interconnects for Different Process, Temperature, and Voltage Conditions and Investigating Timing Delay”, Journal of Computational Electronics (Springer), Volume 11, Issue 4 (2012), pp. 349-363. (With PhD Student).
12. Debaprasad Das and Hafizur Rahaman, “Delay Uncertainty in Single- and Multi-wall Carbon Nanotube Interconnects”, LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp. 289-299, July 2012.
13. Hafizur Rahaman, Jimson Mathew, A. M Jabir and Dhiraj. K Pradhan. VLSI Architecture for Bit Parallel Systolic Multipliers for Special Class of GF(2m) using Dual Bases”, LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp.358-369, July 2012.
14. Pranab Roy, Hafizur Rahaman and Parthasarathi DasGupta, “Two-level Clustering-based Techniques for Intelligent Droplet Routing in Digital Microfluidic Biochips”, Integration, the VLSI Journal (Elsevier), Vol.45, issue 3, June 2012, pp.316-330. (With PhD Student).
15. Sudip Ghosh, Somsubhra Talapatra, Navonil Chatterjee, Santi P Maity and Hafizur Rahaman, “FPGA based Implementation of Embedding and Decoding Architecture for Binary Watermark by Spread Spectrum Scheme in Spatial Domain”, Bonfring International Journal of Advances in Image Processing, Vol. 2, No. 4, pp.1-8, December 2012.

16. Debaprasad Das, Avishek Sinha Roy and Hafizur Rahaman, "Design of Content Addressable Memory Architecture using Carbon Nanotube Field Effect Transistors", LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp.233-242, July 2012.
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Visitors to the Department

The department has been privileged to receive a good number of important visitors both from India and abroad. Illustrious visitors to the University during 2010-11 included:

Prof. Krishnendu Chakraborty, IEEE Fellow, Department Computer Science and Engineering, Duke University, Durham, USA has visited department of Information Technology and School of VLSI BESUS and delivered an invited lecture on ‘Design and test issues and challenges in Micro-fluidic Biochips’ on 05th August 2010.

Prof. Krishnendu Chakraborty and Prof. Bhargab B Bhattacharyya have been appointed distinguished Research Professors of Department of Information Technology, BESUS.

Delivered Invited talk:

Seminar, symposium/conference attended/organized in 2012-2013

Research Promotion Workshop-2013: (As Co-convenor) Research Promotion Workshop on Introduction to Graph and Geometric Algorithms, March 14-16, 2013, Bengal Engineering and Science University, Shibpur, Howrah, India.

WALCOM-2013: (As a member of organizing committee) 7th International Workshop on Algorithms and Computation, February 14-16, 2013, Indian Institute of Technology, Kharagpur, India.

ISED-2012: (As organizing chair) International Symposium on Electronic System Design, December 19-22, 2012, Bengal Engineering and Science University, Shibpur, Howrah, India.

ICVGIP-2012: (Attended) The Eight Indian Conference on Computer Vision, Graphics, and Image Processing, December 16-19, 2012, Indian Institute of Technology, Bombay, India.

VDAT-2012: (As organizing chair) 16th International Symposium on VLSI Design and Test, July 1-4, 2012, Bengal Engineering and Science University, Shibpur, Howrah, India.

Research Promotion Workshop on introduction to Graph and Geometric Algorithms, March 14-16, 2013, Bengal Engineering and Science University, Shibpur, Howrah, India.

Workshop on Non-uniform Cellular automata, 25th March, 2013.

Placements: 2012-2013

Number of admitted students	52
Number of students who obtained jobs as per the record of placement office	42
Number of students who found employment otherwise at the end of the final year	6

Students' activities:

Students organized Tech Fest “**INSTRUO 11**” during 2011. INSTRUO -11 March 4th - 6th March 2011.

10 years Celebrations: X-ANNOS-2011

X annos 2011 marked the celebration of completion of 10 years for the department of Information Technology, BESU. The event took place between 11-13th March simultaneously at Institute Hall, Alumni Seminar Hall and Madhusudan Bhavan respectively. X-annos is a combination of two latin words. The 'X' part means the numeral 10 and 'annos' means years. Hence X -annos signifies celebrating 10 years of our age. The event started on Friday, 11th of March with some mesmerizing performances performed by the Undergraduate and Post graduate students of the department. Saturday kicked off with a very interesting seminar on Web 2.0 by IBM followed by a technical quiz contest that happened at Alumni Seminar Hall. The treasure hunt competition was also a grand success with students hunting for ‘treasures’ throughout the universities and finally grabbing their treasure. The day finally ended with some very good cultural performances by the students at Madhusudan Bhavan.

The final day kicked off at Institute Hall with the X-annos open quiz which was very popular, considering a total of 25 teams participating from the college. This was followed by a Lunch session at Madhusudan Bhavan, in the presence of some of the distinguished alumni of the department.

The final event Antakshari was conducted at Institute Hall again and the day wrapped up with a closing ceremony in the presence of honorable Vice Chancellor Dr Ajay Kr Ray, Head of the department Prof Hafizur Rahman, and convener Prof Prasun Ghoshal.

X annos would not have been possible without the valuable contribution of the sponsors-HP Procurve, IBM and IMS. Contributions from The PDSIT(Purabi Das School of Information Technology) were invaluable too. Generous contributions from alumni as well as the students from the department made it a grand success. The event was followed actively on the official website: <http://it.becs.ac.in/xannos/xannos.html>

Social Commitments and Community services

Department of Information Technology organized ‘Teachers Training on Open Source software (Linux) ‘for Howrah District School Teachers sponsored by DIT, Govt. of West Bengal during December 1st -6th, 2010.

Department of Mathematics

Since the inception of B. E. College the Department of Mathematics has earned, over the years, a glorious heritage of conducting research activities in various fields of Pure and Applied Mathematics. The department also undertakes teaching of Mathematics, including Statistics, Operations Research, Numerical Analysis and Computational Techniques using computers, to undergraduate and postgraduate students in various branches of Engineering and Architecture. With the introduction of the post graduate course M.Sc. in Applied Mathematics (in the year 2000), the research activities of the faculty members of the department have been increased substantially. Past and present members of faculty of the department have been conducting research in different branches of Pure and Applied Mathematics. The M.Sc. students who have graduated from this department have proved their credentials by establishing themselves as successful researchers in various research institutions and universities, and as teachers in college education as well as in school education and also in the corporate sector. Three D. Sc. and 62 Ph. D. have been awarded from this department during the last four decades. This year, three research scholars have been awarded Ph.D. from this department. At present sixty research scholars (most of whom are part time) are working in various fields of Mathematics in this department.

Undergraduate Level

- ## Postgraduate Level

- ## Doctoral Level

- Page 167 of 350

Faculty position:

Sanctioned faculty post...17.... Vacant Post 02.....

Faculty profile (in the following table)

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Basudeb Mukhopadhyay	Professor	Ph.D	Elasticity, Thermo elasticity, Thermo visco elasticity, Micropolar elasticity	bmukherjee2006@yahoo.co.in
Binayak Sammadar Choudhury	Professor	Ph.D	Functional Analysis, Topology, Nonlinear Dynamics, Mathematical Economics, Quantum Information theory, Fuzzy systems, Stochastic differential equation	binayak@.becs.ac.in, binayak12@yahoo.co.in
Asit Kumar Chongdar	Professor	Ph.D	Lie theory and Special Functions.	chongdarmath@yahoo.co.in
Guruprasad Samanta	Professor & Head	Ph.D.	Mathematical Biology and Operations Research	g_p_samanta@yahoo.co.uk
Murari Mitra	Professor	Ph.D.	Reliability Theory, Mathematical Statistics, Operations Research, Nonparametric Inference	murarimitra@yahoo.com
Tapan Roy	Professor	Ph.D.	Fuzzy and Intuitionistic Fuzzy set Theory, Inventory, Transportation, Reliability Optimization, Information Theory, Portfolio Optimization, Fuzzy and Stochastic Optimization	roy_t_k@yahoo.co.in
Sanat Majumder	Professor	Ph.D.	Information, Optimization, O.R, Entropy Optimization and its applications in different branches of Science and Technology	majumder_sk@yahoo.co.in
Asoke Kumar Dhar	Professor	Ph.D.	Non-linear waves in Ocean	asoked @math.becs.ac.in
Jagabandhu De	Asst. Professor	Ph.D.	Elasticity & Plasticity, Mathematical Methods, Fracture Mechanics, Fluid Mechanics	jagabandhu_de@yahoo.com
Parbati Saha	Asst. Professor	Ph.D.	Computational Intelligence	parbati_saha@yahoo.co.in

Tapan Kar	Asst. Professor	Ph.D.	Mathematical Ecology, Dynamical systems, stability and bifurcation theory, population dynamics, mathematical modelling in ecology and epidemiology, management and conservation of fisheries, bio-economic modelling of renewable resources	t_k_kar@yahoo.com
Pritha Das	Asst. Professor	Ph.D.	Mathematical biology, Neural network, Nonlinear data analysis	prithadas01@yahoo.com
Shariful Alam	Lecturer	Ph.D.	Financial Mathematics	salam50in@yahoo.co.in
Ujjal Debnath	Lecturer	Ph.D.	General Relativity, Cosmology.	ujjaldebnath@yahoo.com
Smita Pal (Sarkar)	Lecturer	M.Sc.	Mathematical Theory of Elasticity & Plasticity	smita1308gmail.com

Research area (only mention broad titles without description in detail): Mathematical Biology , Operations Research, Fuzzy and Intuitionistic Fuzzy set Theory, Inventory, Transportation, Reliability Optimization, Information Theory, Portfolio Optimization, Fuzzy and Stochastic Optimization, Information, Optimization, Entropy Optimization, Mathematical Ecology, Dynamical systems, stability and bifurcation theory, population dynamics, mathematical modelling in ecology and epidemiology, management and conservation of fisheries, bio-economic modelling of renewable resources, Neural network, Nonlinear data analysis General Relativity, Cosmology, Lie theory and Special Functions, Functional Analysis, Topology, Nonlinear Dynamics, Mathematical Economics, Quantum Information theory, Mathematical theory of Elasticity , Thermo elasticity, Thermo visco elasticity, Micropolar elasticity, Fracture Mechanics, Fluid Dynamics, Non-linear waves in Ocean, Computational Intelligence, Reliability Theory, Mathematical Statistics, Nonparametric Inference

Sponsored Research: (mention area)

Ongoing (Prof value)	Sponsoring agency
Incorporating ecosystem objectives into the management sustainable marine fisheries: Ecological economic modeling with some case studies along the costal side of West Bengal. – Rs.12,00,000/-	UGC
Dark energy models and accelerating universe Rs.16,00,000/-	CSIR

No of publications: (This year only)

Journal57; Annexure I
Conference.....; Annexure II
Books/Monographs;
(List to be included)

Seminar / Workshops/ Conferences/ Training programme organized by the department (in last year) : Ph.D course work

Others: Students awarded Ph.D.(Sc) in 2012-13

Soumen Shaw, Samir Kumar Bhandari, Prasanta Kumar Maity

Annexure I

1. Piyali Bagchi Khatua, Shuvendu Chakraborty and Ujjal Debnath , Dilaton Dark Energy Model in $f(R)$, $f(T)$ and Horava-Lifshitz Gravities, *International Journal of Theoretical Physics*, Vol. 51, No. 2, (2012) 405-417
2. Samarpita Bhattacharya and Ujjal Debnath, Thermodynamics of Modified Chaplygin Gas and Tachyonic Field, *International Journal of Theoretical Physics*, Vol. 51, No. 2, (2012) 565-676
3. Samarpita Bhattacharya and Ujjal Debnath, Study of Thermodynamics in Generalized Holographic and Ricci Dark Energy Models, *International Journal of Theoretical Physics*, Vol. 51, No. 2, (2012) 577-688.
4. Rahul Ghosh, Surajit Chattopadhyay and Ujjal Debnath, A Dark Energy Model with Generalized Uncertainty Principle in the Emergent, Intermediate and Logamediate Scenarios of the Universe, *International Journal of Theoretical Physics*, Vol. 51, No. 2, (2012) 589-603.
5. Jibitesh Dutta and Ujjal Debnath, Reconstruction of Potentials as well as Dynamics of Scalar Fields in DGP Braneworld Model, *International Journal of Theoretical Physics*, Vol. 51, No. 2, (2012) 639-651.
6. Ujjal Debnath, Holographic Dark Energy Interacting with Two Fluids and Validity of Generalized Second Law of Thermodynamics, *Astrophysics and Space Science*, Vol. 337, No. 1, (2012) 503-508.
7. Arundhati Das, Surajit Chattopadhyay and Ujjal Debnath, Validity of Generalized Second Law of Thermodynamics in the Logamediate and Intermediate Scenarios of the Universe, *Foundations of Physics*, Vol. 42, No.2, (2012) 266-283.
8. Ujjal Debnath, Surajit Chattopadhyay, Ibrar Hussain, Mubasher Jamil and Ratbay Myrzakulov , Generalized Second Law of Thermodynamics for FRW Cosmology with Power-Law Entropy Correction, *European Physical Journal C*, Vol. 72, No. 2, (2012) 1875 (1-6).
9. Ujjal Debnath, Mubasher Jamil and Surajit Chattopadhyay, Fractional Action Cosmology: Emergent, Logamediate, Intermediate, Power law Scenarios of the Universe and Generalized Second Law of Thermodynamics, *International Journal of Theoretical Physics*, Vol. 51, No. 3, (2012) 812-837.
10. Jhumpa Bhadra and Ujjal Debnath, Dynamical System Analysis of Interacting Variable Modified Chaplygin Gas Model in FRW Universe, *European Physical Journal Plus*, Vol. 127, No. 3, (2012) 30 (1-15).
11. Piyali Bagchi Khatua and Ujjal Debnath , Statefinder Description in Generalized Holographic and Ricci Dark Energy Models, *International Journal of Theoretical Physics*, Vol. 51, No. 4, (2012) 1155-1172.

12. Jhumpa Bhadra and Ujjal Debnath, Accretion of New Variable Modified Chaplygin Gas and Generalized Cosmic Chaplygin Gas onto Schwarzschild and Kerr-Newman Black holes, *European Physical Journal C*, Vol. 72, No.2, (2012), 1912 (1-9).
13. Mubasher Jamil, M. Raza and Ujjal Debnath, Statefinder Parameter for Varying G in Three Fluid System, *Astrophysics and Space Science*, Vol. 337, No. 2, (2012), 799-803.
14. Shuvendu Chakraborty and Ujjal Debnath, The Effects of Tachyonic and Phantom Fields in the Intermediate and Logamediate Scenarios of the Anisotropic Universe, *International Journal of Theoretical Physics*, Vol. 51, No. 4, (2012), 1224-1238.
15. Shuvendu Chakraborty and Ujjal Debnath, Role of Chameleon Field in presence of Variable Modified Chaplygin gas in Brans-Dicke Theory, *Canadian Journal of Physics*, Vol. 90, No. 2, (2012), 131-135.
16. Prabir Rudra, Ritabrata Biswas and Ujjal Debnath, Dynamics of Modified Chaplygin Gas in Brane World Scenario: Phase Plane Analysis, *Astrophysics and Space Science*, Vol. 339, No. 1, (2012) 54-64.
17. Piyali Bagchi Khatua and Ujjal Debnath, Some Features of New Holographic Dark Energy Model in Horava-Lifshitz Gravity, *Astrophysics and Space Science*,
a. Vol. 339, No. 1, (2012) 65-78.
18. Ujjal Debnath, Prabir Rudra and Ritabrata Biswas, Nature of Singularity formed by the Gravitational Collapse in Husain Space-Time with Electro-Magnetic Field and Scalar Field, *Astrophysics and Space Science*, Vol. 339, No. 1, (2012), 135-141.
19. Chayan Ranjit, Shuvendu Chakraborty and Ujjal Debnath, Higher Dimensional Cosmology with Some Dark Energy Models in Emergent, Logamediate and Intermediate Scenarios of the Universe, *International Journal of Theoretical Physics*, Vol. 51, No. 7, (2012), 2180-2207.
20. Shuvendu Chakraborty, Ujjal Debnath, Mubasher Jamil and Ratbay Myrzakulov, Statefinder Parameters for Different Dark Energy Models with Variable G Correction in Kaluza-Klein Cosmology, *International Journal of Theoretical Physics*, Vol. 51, No. 7, (2012), 2246-2255.
21. Shuvendu Chakraborty, Ujjal Debnath, Mubasher Jamil, Variable G Correction for Dark Energy Model in Higher Dimensional Cosmology, *Canadian Journal of Physics*, Vol. 90, No. 4, (2012), 365-371.
22. Surajit Chattopadhyay, Ujjal Debnath and Samarpita Bhattacharya, Study of Thermodynamic Quantities in Generalized Gravity Theories, *International Journal of Theoretical Physics*, Vol. 51, No. 10, (2012), 3168-3185.
23. Shuvendu Chakraborty, Ujjal Debnath and Chayan Ranjit, Observational Constraints of Modified Chaplygin Gas in Loop Quantum Cosmology, *European Physical Journal C*, Vol. 72, No. 8, (2012), 2101 (1-8).
24. Jhumpa Bhadra and Ujjal Debnath, Dynamical Study of DBI-essence in Loop Quantum Cosmology and Braneworld Model, *European Physical Journal C*, Vol. 72, (2012) 2087 (1-13).
25. Prabir Rudra, Ujjal Debnath and Ritabrata Biswas, Presence of Dark Energy and Dark Matter: Does Cosmic Acceleration signifies a Weak Gravitational Collapse?, *Astrophysics and Space Science*, Vol. 342, No. 2, (2012), 557-574.
26. Piyali Bagchi Khatua and Ujjal Debnath, Natures of Statefinder Parameters and Om Diagnostic for Cardassian Universe in Horava-Lifshitz Gravity, *International Journal of Theoretical Physics*, Vol. 51, No. 12, (2012), 3701-3720.
27. Kazuharu Bamba, Ujjal Debnath, Kuralay Yesmakhanova, Petr Tsyba, Gulgasyl Nugmanova and Ratbay Myrzakulov, Periodic Cosmological Evolutions of Equation of State for Dark Energy, *Special issue "Modified Gravity: From Black Holes Entropy to Current Cosmology" of Entropy*, Vol. 14, (2012) 2351 – 2374.
28. Surajit Chattopadhyay, Ujjal Debnath and Samarpita Bhattacharya, Study of Thermodynamic Quantities in Horava-Lifshitz and f(R) Gravity Theories, *Journal of Physics: Conference Series*, Vol. 405, (2012) 012007.

29. G. P. Samanta, Analysis of nonautonomous two species system in a polluted environment, *Mathematica Slovaca*, Vol.62, No.3, p.567-586, 2012.
30. G. P. Samanta, Permanence and extinction for a nonautonomous SVIR epidemic model with distributed time delay, *World Journal of Modelling and Simulation* , Vol.8, No.1, p.3-18,2012.
31. Jhuma Bhowmick and G.P.Samanta, Optimal Inventory Policies for Imperfect Inventory with Price Dependent Stochastic Demand and Partial Backlogged Shortages, *Yugoslav Journal of Operational Research*, 22,(2012),199-223.
32. G.S.Mahapatra, T.K.Mandal and G.P.Samanta, An EPQ Model with Imprecise Space Constraint Based on Intuitionistic Fuzzy Optimization Technique, *J. of Mult.-Valued Logic & Soft Computing*, Vol.19, No.5-6, p.409-423, 2012.
33. G.S. Mahapatra, T.K. Mandal and G.P. Samanta, Fuzzy parametric geometric programming with application in fuzzy EPQ model under flexibility and reliability consideration, *Journal of Information and Computing Science*, 7(3), 2012, 223-234.
34. Swarnali Sharma and G.P.Samanta, *Dynamic Behaviour for Heroin Epidemic Models, Heroin: Pharmacology, Effects and Abuse Prevention*, Edited by M.B.Guthrie and B.M.Wooten, Nova Science Publishers, Inc., New York, 2012.
35. Kar, T. K. and Mondal Prasanta, A mathematical study on the dynamics of an eco-epidemiological model in the presence of delay, *Applications and Applied Mathematics: An International Journal* 7(1)(2012)300-333 (USA).
36. Kar, T. K. and Ghorai, Abhijit and Batabyal, Ashim. Global dynamics and bifurcation of a tri-trophic food chain model. *World J. Modelling and Simulations*, 8(1)(2012)66-80 (World Academic Press).
37. Kar, T. K. and Ghosh Bapan, Sustainability and Optimal control of an exploited prey predator system through provision
38. Chakraborty, K, Jana, Soovoojeet and Kar, T. K, Global dynamics and bifurcation in a stage-structured prey-predator fishery model with harvesting, *Applied Mathematics and Computation* 218(2012)9271-9290(Elsevier).
39. Kar, T. K. Ghorai, Abhijit and Jana, Soovoojeet. Dynamics of pest and its predator model with disease in the pest and optimal use of pesticide. *Journal of Theoretical Biology* 310(7)(2012)187-198 (Elsevier).
40. Jana, S. and Kar T . K., The Optimal allocation of ocean space for the purposes of fishery and ecotourism management, *Marine Science* 2(5)(2012)85-93(Scientific and Academic Publishing).
41. Chakraborty, K, and Kar, T. K, Economic perspective of marine reserves in fisheries: A bioeconomic model, *Mathematical Biosciences* 240(2012)212-222(Elsevier).
42. Kar, T. K. and Mondal, Prasanta, Global dynamics of a tuberculosis epidemic model bifurcation and the influence of backward bifurcation, *Journal of Mathematical Modelling and Algorithms* 11(4)(2012)433-459 (Springer).
43. Jana, S. Chakraborty, M. Chakraborty, K. and Kar, T. K. Global stability and bifurcation of time delayed prey-predator system incorporating prey refuge. *Mathematics and Computers in Simulations* 85(2012)57-77(Elsevier).
44. Chakraborty, K, Jana, S. and Kar, T. K, Effort dynamics of a delay induced prey-predator system with reserve, *Nonlinear Dynamics* 70(2012)1805-1829 (Springer).
45. S. Shaw & B. Mukhopadhyaya-Periodically varying heat source response in a functionally graded micro-elongated medium- *Applied mathematics and computation (USA)*, Vol. 218, 2012.
46. S. Shaw & B. Mukhopadhyaya- Electromagnetic effects on Rayleigh surface wave propagation in a homogeneous isotropic thermo-micro-stretch half space- *Journal of engineering physics and thermo physics (Russia)*, Vol. 85, No. 1, 2012.
47. S.K.Mazumder,R..Kar, Entropy of State Tran. Prob. Matrix ,*IJNI(Int)*, 2012
48. S.K.Mazumder,R. Kar,Entropy & Utility in Decision Process,*JAMB(Int.)*,2012
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55. S.K.Mazumder,S,Bhadra,Analysis of parametric prog.....*IJTAS(Int.)*,2012

Department of Mechanical Engineering

About the Department

The inception of the Mechanical Engineering Department may be traced back to 1921 when a diploma course in Mechanical Engineering was started in this Institute. The first degree course in Mechanical Engineering was started from 18th July, 1930. Over the last eight decades, the Department of Mechanical Engineering consolidated to its present condition offering 8-Semester Undergraduate Courses with an approximate current intake of 66 students annually and 4-Semester Postgraduate Courses with an intake of 27 students annually. The post-graduate course in the department started in the year 1954. Currently PG course is offered in three specializations, namely, Machine Design, Heat Power Engineering and Production Engineering, leading to the degree of Master of Engineering. Six PhD scholars enrolled in the department during 2012-13.

Academic Programmes:

Undergraduate Level

i. Degree offered	Bachelor of Engineering (Mechanical)
ii. Sanctioned students' intake	60
iii. Additional intake through lateral entry in 3 rd Semester	06

Postgraduate Level

i. Degree offered	Master of Engineering (Mechanical)
ii. Sanctioned students' intake	27
iii. Specialisations in	Machine Design, Heat Power Engineering and Production Engineering

Doctoral Level

i. Degree offered	Ph.D.
ii. No of candidates enrolled	06
registered	07

Faculty position:Sanctioned faculty post...**26**.... Vacant Post ...**09**.....

Name	Designation	Highest Qualification	Areas of Interest	Contact Information E-mail/Tel. No.
Dr. S.K. Saha	Professor and Head	Ph. D.	Heat Power Engineering.	sujoy_k_saha@hotmail.com
Dr. D. Datta	Professor	Ph.D.	Ultrasonic Nondestructive evaluation, Composite Materials, Machine Design	debasis_datta@rediffmail.com
Dr. S.K. Guha	Professor	Ph. D.	Machine Design & Bearing Lubrication	gsk@mech.becs.ac.in
Dr. S.K. Karmakar	Professor	Ph.D.	Tribology (Friction, Wear Modelling, Contact Mechanics, Machine Design	skk@mech.becs.ac.in
Dr. A.K. Dutta	Professor	Ph.D.	M/C. Design	apurba@mech.becs.ac.in
Dr. B.K. Bhattacharya	Professor	Ph.D.	Production Engg.	bidyut@mech.becs.ac.in
Dr. B.K. Mandal	Professor	PhD	Numerical Heat Transfer, CFD, Combustion	bijan@mech.becs.ac.in Mobile:9830017592
Dr. S. Chatterjee	Professor	Ph.D.	Nonlinear Dynamics of mechanical and Micro-mechanical systems	shychat@gmail.com 2668-4561; extn: 357 Mobile: 9831689337
Dr. S. Chakraborty	Professor	Ph.D.	Power Plant Engineering, CFD, Biomedical	<u>somnathbec@rediffmail.com</u>
Sri A.K. Chowdhury	Associate Professor	M.E.	M/C. Design, Combustion	achinkumar_becs@rediffmail.com
Dr. P.P. Dey	Associate Professor	Ph.D	CAD/CAM, Fracture Mechanics	ppdey2000@yahoo.com
Dr. S. Ghosh	Associate Professor	Ph.D	Power Plant Engineering, Renewable Energy	sudipghosh.becollege@gmail.com 91-33-2668-4561, Extn:279
Sri A Guha	Assistant Professor	M. Tech.	Advanced Machining, Fluid flow	aguha_me@rediffmail.com

Dr. S C Mondal	Assistant Professor	Ph.D	Production Engg.	sc_mondal1@igmail.com
Dr. A. Ganguly	Assistant Professor	Ph.D	Heat Power Engineering, Greenhouse Technology	aritra78@gmail.com 9433032840
Sri U. Rana (on study leave)	Assistant Professor	M. Tech.	Thermal Engineering, CFD	urana1980@rediffmail.com 9732177964
Sri R.N. De	Assistant Professor	M.E	Production	rathin5500@yahoo.com 9231532180 (M)

Awards and Laurels: One of the faculty members Aritra Ganguly received his Ph.D (Engineering) on 03rd October 2012.

Research area (only mention broad titles without description in detail):

Numerical Heat Transfer
Multi-phase Flow and CFD
Combustion and alternative fuels
Biofluid Dynamics
Multiphase flow
Renewable Energy
Greenhouse Technology
Tribology
Dynamics, Vibration and Control
Composite Materials
NDT
Non-Conventional Machining

Research facilities: (name specific equipment)

1	Surface Profilometer (created under DST-FIST)
2	Pin-on-disc Machine (created under DST-FIST)
3	High-temp high-vacuum tribometer (yet to be installed)
4.	Ansys software (created under AICTE project)
5	Athena Visual Studio software (created under UGC grant)
6	g-PROMS (created under UGC grant)
7	Aspen simulation software (created under UGC grant)
8	Variable compression ratio internal combustion engine
9	Different heat transfer equipment test rigs
10	Vapour absorption AC test rig
11	MPFI engine model
12	Several models of power plant equipments

Name of the laboratories: No new laboratory was established during the period.

Support staff position:

(i) Sanctioned technical post...08..

(ii) Technical staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Ashish Kumar Paul	Tech Asst Gr I	DME	94333-43232	
Bijit Kumar Dey	Tech Asst Gr II	M.E	94334-13093	bijitde@yahoo.com
Subhasish Pradhan	Tech Asst Gr II	DME, BSc	94344-67729	
Nani Gopal Roy	Tech Asst Gr II	M.E	94331-03465	
Kankar Mohan Das	Tech Asst Gr II	DME	98304-36517	
Pradip Kumar Dey	Mechanic	ITI	99037-70323	

Sponsored Research: (mention area)

Ongoing	Sponsoring agency
Tribology and Vibration control FIST, 16,800,000 INR	DST, GOI
Modeling of Mass Transport through Arterial Wall during Initiation and Progression of Atherosclerosis, 539,000 INR	AICTE (RPS scheme)
Characterization of Damage in Armour subjected to Ballistic Impact through Non-Destructive Evaluation (NDE), 5,65000 INR	Proof and Experimental establishment , DRDO, Ministry of Defence, GOI
Heat Transfer and Pressure Drop Characteristics of Turbulent Flow through a Circular Tube Fitted with Helical Ribs and Twisted Tapes with Oblique Teeth, 19,55000	DST, GOI

Industry-Institute Interaction

A two-week Refresher Course was successfully organized by Mechanical and Aerospace Engg. & Applied Mechanics Dept for twenty one Engineers working in Larson and Toubro Limited (L&T) from 18-30th June, 2012.

Dr. P.P.Dey worked as the Coordinator for the above course.

No. of publications: 2012-13

Journal: 15

Conference: 03

(List to be included)

1	On the Stiffness-Switching Methods for Generating Self-Excited Oscillations in Simple Mechanical Systems	Journal of Sound and Vibration	2012	331 (8)	1742-1758
2	Nonlinear dynamics of two harmonic oscillators coupled by Rayleigh type self-exciting force	Nonlinear Dynamics	2013	72(1-2)	113-128
3	Resonant Locking in Viscous and Dry Friction Damper Kinematically Driving Mechanical Oscillators	Journal of Sound and Vibration	2013		3499-3516
4	Biomechanical remedies for degeneration of cervical spine – a review of literature”, Journal of Medical Imaging and Health Informatics	Journal of Medical Imaging and Health Informatics (JMIHI)	2012		Accepted for publication
5	Morphometric Analysis of the Cervical Spine of Indian Population by Using Computerized Tomography	Journal of Medical and Allied Sciences (JMAS)	2012		Accepted for publication
6	Study on Pressure Characteristics of Fluid Passing through a Sudden Expansion with Central Restriction and Fence	International Journal of Emerging Technology and Advanced Engineering	2012	2(8)	109-116
7	Numerical Simulation of Laminar Diffusion Flame with Finite Rate Chemistry and Variable Property Formulation	Computational Thermal Sciences	2012	4(1)	67-76
8	Modelling Robustness in Serial Multistage Manufacturing Processes’, International Journal of Production Research,	International Journal of Production Research	2013		In press
9	Gasification of biomass in a fixed bed downdraft gasifier – a realistic model including tar	Bioresource Technology	2012		In press

10	Biomass Fuelled Indirectly Heated Gas Turbine Based Power and Cogeneration Plant: Simulated Thermodynamic Performance Prediction	International Journal of Earth Sciences and Engineering, Special issue on Recent Advances and Challenges in Energy	2012		Published in special issue
11	Construction of 2-D parametric surfaces bounded with four irregular curves	Int. J. Computer Aided Engineering and Technology	2012	4(5)	474-478
12	Effect of crop transpiration on the microclimate of a naturally ventilated greenhouse	International Journal of Emerging Technology and Advanced Engineering	2013		Special issue
13	Tool path generation for algebraically parameterized surface	Journal of Intelligent Manufacturing	2013		Accepted
14	A new boundary interpolation technique for parameterisation of planar surfaces with four arbitrary boundary curves'	IMechE Part C	2013		Accepted
15	Development of non Masing characteristic model for LCF and ratcheting fatigue simulation of SA333 C-Mn steel	Mechanics of Materials	2013	65	88-102

List of Conferences

1	Non-linear dynamics of time-delayed feedback control system by FFT based IHB method	Fourth International Conference on Structural Stability and Dynamics	Malaviya National Institute of Technology, Jaipur	January 2012	Presented and published.
2	Modeling and experimental validation of an evacuated tube solar water heater for the climatic conditions of gangetic Bengal	Proceedings International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas	Kolaghat	December 2012	Presented and published.
3	A finite element analysis of cold extrusion of aliminium and its thermal effect	Proceedings of ACMFMS 2012	IIT Delhi	2012	Presented and published.

Seminar / Workshops / Conferences / Training programme organized by the department (in last year)

The Department organised an international conference “International Conference on Energy Resources and Technologies for Sustainable Development (ICERTSD)” from 7-9th February 2013.

*Department of
Metallurgy and Materials Engineering*

ABOUT THE DEPARTMENT:

The Department of Metallurgy started its journey at the Bengal Engineering College in 1939 with the introduction of a three year degree course in Metallurgy under the Calcutta University. Bengal Engineering College is one of the oldest engineering institutions in India and the department is the second oldest metallurgy department of the country.

In 1953 the Department introduced a 2-year Postgraduate degree programme in Physical Metallurgy which now became a 4-semester course at the All India level. It may be mentioned that this department was the first to introduce a postgraduate course in metallurgy in this country.

Prof. N. N. Sen who later became Principal of the College, was the first Professor and Head of the Department of Metallurgy, Chemistry and Geology. In 1965 Chemistry was made a separate department and Geology was attached to the Department of Mining.

In 1949, Prof. W. Baukhloh of Technische Hochschule, Berlin joined the Department as a Professor of Metallurgy and many foreign trained faculties joined the Department. There was a spurt in the research activity in the Department since 1949 particularly after Dr. A. K. Seal joined the Department after completing his Ph.D in Sheffield University; In fact, the Department owes much of its eminence and wide-spread fame due to the tireless efforts of Dr. A. K. Seal and the gifted and dedicated faculty in the Department.

Over the years the Department has produced a good number of eminent metallurgists working with distinction in India and abroad who have made significant contribution in the fields of Metallurgy and Materials Science. The Department has, so far, produced good number of Ph.Ds, and several Ph.D. programmes are running in the Department.

This Department has always been very active in incorporating the recent trends in the fields of Metallurgy and Materials Science and in evolving suitable means for effective technology transfer to the existing industries. The Department has already pioneered in the development of certain important steels and alloys like HSLA steels, maraging steels, shape memory alloys etc. These developments have had a tremendous impact on the total development of the subject in the national scenario and by this it has contributed significantly to the cause of Metallurgy and Materials Science of India today. The Department has always worked with inadequate resources but still has achieved academic distinction. All efforts have been successful solely due to excellent

interaction with industries, institutions and research houses created by a band of devoted faculty members. The department feels proud to announce its collaborative ventures with organisations like TISCO, SAIL, ISRO, BARC, NML, ICDC, NMRL.

The Department is now actively engaged in modernizing the existing laboratories along with the development of newer ones in accordance with the current trends in Metallurgy and Materials Science. The department has been receiving aids towards Modernization of various Laboratories as well as in the form of Sponsored Research Grants from various sources. This has enabled us to consolidate the undergraduate and postgraduate training the research in Metallurgy and maintain our tradition as one of the leading centers for metallurgical education and research in the country. During the Golden Jubilee celebration of the Department in 1989-1990, M/s. M. N. Dastur & Co. showed its affection towards the Department by advancing funds for Research on Materials Science and Engineering. Further, the Chair of Tata Golden Jubilee Professor was instituted during the same year by an endowment of Tata Steel, to lead advanced research and consultancy work.

The Department to-day is thus in a position to undertake various advanced research and consultancy work in various field, to fulfill the vision of those who were pioneer in establishing and in nurturing the Department. A vigorous Ph.D. programmes continues in the Department and a large number of Ph.D. candidates are pursuing their Ph.D programmes. Faculty members of the Department also received awards, medals, fellowships from Government of India and other professional bodies. Some faculty members are also pursuing collaborative programmes with foreign universities.

ACADEMIC PROGRAMMES:

The Department offers the following courses:

1. 4-year Undergraduate Programme leading to B.E. Degree in Metallurgy and Materials Engineering
2. Regular 4-semester Postgraduate Programme leading to Masters Degree in Metallurgy and Materials Engineering (Physical Metallurgy).
3. 6-semester Part-time PG Course leading to Masters Degree in Industrial Metallurgy.

Number of students admitted at under graduate level - 30

Number of students Passed out at Master's Level- 4

Number students enrolled Ph. D. programme- 3

Number of students completed Ph.D. programme- 1

FACULTY POSITION:

Sanctioned faculty post14

Vacant Post 5

Faculty profile

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail:
Sanjoy Sadhukhan	Associate Professor & Head	M.Tech	Physical Metallurgy, Materials Characterization, Mechanical testing, Heat treatment	033-2668-4561 to 63 (Extn: 236) skhan_besus@yahoo.co.in
Dr. <u>S. Chatterjee</u>	Professor	Ph.D	Microalloyed Steel, Advance joining technique	033-2668-4561 to 63 (Extn: 236) schatterjee@metal.becs.ac.in
Dr. <u>P. P. Chattopadhyay</u>	Professor	Ph.D	Phase Transformation	033 2668-4561 to 63 (ext-236) ppc@metal.becs.ac.in
Dr. <u>A. Basumallick</u>	Professor	Ph.D	Nanostructured Materials, Electronic and Magnetic materials	033-2668-4561 to 63 (ext- 236) abasumallick@metal.becs.ac.in
<u>Sumit Ghosh</u>	Associate Professor	M.E.	Development and Characterization of in situ metal matrix nanocomposites	033 2668-4561 to 63 (Ext - 236) g_sumit@becs.ac.in
Dr. <u>Swarup Kr. Ghosh</u>	Associate Professor	Ph.D	Phase Transformation, Ferrous and non-ferrous alloys, ANN modelling study	(033) 26684561 to 63, (Extn: 236) skghosh@metal.becs.ac.in
<u>Manojit Ghosh</u>	Associate Professor	Ph.D	TMSof Aluminium Alloys Texture study Powder Metallurgy of self lubricating bearing	033-2668-4561 to 63 (ext- 236) manojit_ghosh1@rediffmail.com
Dr. <u>Debdulal Das</u>	Assistant Professor	M.Tech	Phase Transformation Wear of Materials Nanomaterials & Nanocomposites	033-2668-4561 to 63 (ext- 236) debdulal_das@metal.becs.ac.in
Dr. Sukumar Kundu	Assistant Professor	Ph.D	Physical Metallurgy, Advance Joining technique, Wear resistance materials,	033-2668-4561 to 63 (ext- 236) erskundu@yahoo.com

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail:
Dr. <u>P. S. Banerjee</u>	Adjunct Professor	Ph.D	Extractive metallurgy, Foundry, Corrosion	033-2668-4561 to 63 (ext- 236) psban_2000@yahoo.co.in
Prof. H. S. Ray	Adjunct Professor	Ph.D.	Extractive Metallurgy	033-2668-4561 to 63 (ext- 236)
Prof. U. K. Chatterjee	Adjunct Professor	Ph.D.	Corrosion	033-2668-4561 to 63 (ext- 236)
Dr. S.K. Bhattacharya	Steel Chair Professor	Ph.D.	Steel Making	033-2668-4561 to 63 (ext- 236)
Dr. N. Bandyopadhyay	Tata Steel Chair Professor	Ph.D.	Steel Making and Characterization	033-2668-4561 to 63 (ext- 236)

Technical and Non technical existing supporting Staff: 19 (Technical Staff: 10, Office)

AWARDS AND LAURELS:

1. Indo-US Research Fellowship by Indo-US Science and Technology Forum, Recipient: Dr. S. Kundu

AREAS OF RESEARCH

1. High strength low alloy steel
2. Ultra low carbon bainitic steel
3. Ultra high strength steel
4. Dual phase steel
5. Nano Materials
6. Shape memory alloys
7. Diffusion bonding
8. Friction of Stir Welding
9. Metal matrix composite
10. Texture of metal and alloys
11. Aluminum based alloy

RESEARCH FACILITY:

Upgradation of Research facilities in the The Department of Metallurgy and Materials Engineering is a continuous process for creating a better environment for academics and research. A number of new equipment and instruments are acquired regularly for various laboratories, pertaining to rapidly expanding research horizons. A major research area for materials development and characterization comprises the broad fields of Metallography and Optical and Electron microscopy laboratories, the X-ray laboratory and the Differential Scanning Calorimetry (DSC) laboratory. The Physical Metallurgy laboratory, which has traditionally been the most important one in the Department, consists of an adequate sample preparation section, including Electro-polishers; a number of heat treatment furnaces with programmable control; high temperature (1700°C) furnaces capable of powder sintering.

The optical microscopy section has been modernised with a number of Research grade microscopes with micro-hardness testing facility. The acquisition of the Scanning Electron Microscope with EDS system has given a new impetus to advanced research. For research in the field of Mechanical Metallurgy, the

department has two Instron Testing machines, one static and the other, a dynamic machine with servo-hydraulic drive. A laboratory scale Rolling mill, various hardness testers, Impact testing machine etc are the other facilities in this area.

Recent additions have been made to augment the gamut of research areas. The Wear Testing facility enables investigations in the field of Tribology. Researches have been in progress in the field of nano-structured materials, produced by different routes. Planetary Ball Mills have been installed for the mechanical alloying route for powders. A device for evaluating magnetic properties of materials is another notable addition in the field of research on new materials. The X-ray diffraction unit for phase identification and the Differential Scanning Calorimeter for characterization are the important facilities, which are now used intensively for meaningful research.

The Department also has a large computer laboratory with internet connectivity, which shall induce further in researches on simulation and modelling.

Procurement of several other equipments, which is in the pipe line, shall further boost the research capability of the Department in near future.

The Department can boast of a rich tradition of research, mostly with practical and industrial applications. Sponsored and Collaborative projects have been taken up and completed for organisations like Bhabha atomic Research Centre (BARC), Indian Space Research Organisation (ISRO), UGC, AICTE, Ministry of Steel, Govt. of India, Ministry of Defence, Govt. of India, Defence Research and Development Laboratory, Naval Research Laboratory etc.

The important Projects of the Department are mentioned in a separate section to give a glimpse of the wide range of vigorous research activity of the faculty members of the small but dynamic Department.

Instrument and Equipment facilities:

1. Air Induction furnace
2. Heat Treatment Furnaces (up to 17000C), Sintering furnace
3. Abrasive cutter, Grinding and Polishing facilities, Electropolisher
4. Optical Microscopes, including Research microscopes (Carl Zeiss, Leica)
5. Hardness Testers
6. Micro-hardness Testers (Leica & Reichart)
7. Scanning Electron Microscope with EDS facility
8. Differential Scanning Calorimeter
9. Instron Testing machines - Static & Dynamic (Servo-hydraulic)
10. Impact Testing machine
11. Diffusion bonding set-up for joining dissimilar metals
12. X-ray Diffraction unit ((Philips)
13. Planetary Ball Mill for nano-material preparation and Mechanical alloying Wear Testing machine
14. Computer laboratory
15. Magnetic hysteresis measuring device
16. Friction stir welding Machine

NAME OF THE LABORATORIES

1. Optical metallographic Laboratory
2. Heat Treatment Laboratory
3. Computer Laboratory
4. Corrosion Laboratory
5. X-ray Laboratory
6. SEM Laboratory
7. Melting and casting
8. Foundry Laboratory
9. Smithy Laboratory
10. welding Laboratory

CONSULTANCY WORK

SUPPORT STAFF POSITION:

- (i) Sanctioned technical post : 26
- (ii) Technical staff profile

Name	Designation	Highest Qualification	Contact No.
Sri Salil Kr. Dalui	Tech. Asst. II	BE (Met.Eng.)	09831435065
Sri Swapan Kr. Jana	Tech. Asst. II	Diploma (Mech.)	09231791660
Sri Santanu Chattopadhyay	Supdt. Tech	Diploma (Mech.)	09830229800
Sri Rash Behari Nayak	Supdt. Tech	Diploma (Mech.) & Adv. Diploma in Foundry Tech.	09231828193
Sri Jayanta Kr. Chandra	Supdt. Tech	Diploma (Mech.) & Adv. Diploma in Foundry Tech.	09433739104
Sri Sujit Kr. Roy	Supdt. Tech	Non-Matriculate	09143469096
Sri Bagala Prasad Patra	Tech. Asst. II	H.S. & NCVT	09635860758
Sri Ranjit Karmakar	Workshop Instructor	Non-Matric	09433609711
Sri Rupchand Naskar	Workshop Instructor	ITI	07872331640
Sri Srikanta Adak	Workshop Instructor	ITI	09143757199

SPONSORED RESEARCH:

1. “Influence of Ag and Sn on Microstructure and Texture in Al-Zn-Mg Alloys” sponsored by UGC, Govt. of India, PI:M. Ghosh, Co-PI: S. Sadhukhan
2. A comparative assessment of Fatigue performance and damage mechanisms of directly air-cooled & TMT steel rebars, sponsored by Tata Steel Ltd., PI: D. Das
3. Phase transformation during laser surface hardening of low carbon steel, sponsored by Tata Steel Ltd., PI: S. K. Ghosh
4. Evaluation of fatigue behavior of low (0.2 wt.%) C medium (5-10 wt.%) Mn steels, sponsored by Institution of Engineers (I), PI: D. Das
5. Enhancement of non-equilibrium solubility of binary immiscible systems by ternary addition, sponsored by Institution of Engineers (I), PI: P. P. Chattopadhyay

INDUSTRY-INSTITUTE INTERACTION

1. Colorado School of Mines, Golden, USA
2. University of Queensland, Australia
3. University of New South Wales, Sydney, Australia
4. Australian National University, Australia
5. Tata Steel, Jamshedpur
6. IISc Bangalore
7. IIT Kharagpur
8. IIT Kanpur
9. NML, Jamshedpur
10. Jadavpur University

NO OF PUBLICATIONS: (this year only)

Journal: 15

Details of Journal publication 2012-2013

1. “Application of combined model approaches to the simulation of microstructure evolution during processing of aluminium alloys” A. Miroux, M. Ghosh, S. Kurukuri, R.K. Dutta, M. de Jong, A. Bahrami, L.A.I. Kestens, A.H. van den Boorgaard, P.E.J. Rivera-Diaz-Del-Castillo, M.H.F. Sluiter, A.J. den Bakker, Proceedings of the 2013 TMS Annual Meeting & Exhibition, The Minerals, Metals & Materials Society (TMS), San Antonio, Texas, USA, 2013,
2. P. S. Bandyopadhyay, S. K. Ghosh, S. Kundu and S. Chatterjee: Phase Transformation and Mechanical Behavior of Thermomechanically Controlled Processed High Strength Ordnance Steel, Materials Chemistry and Physics, 138 (1) (2013) 86-94.
3. S. K. Ghosh, S. Jha, P. Mallick, and P. P. Chattopadhyay: Influence of Mechanical Deformation and Annealing on Kinetics of Martensite in a Stainless Steel: Materials and Manufacturing Processes, 28 (2013) 249–255.
4. S. Banerjee, S. K. Ghosh, S. Datta and S. K. Saha: Segmentation of Dual Phase Steel Micrograph: An Automated Approach, Measurement 46 (2013) 2435–2440.
5. S. Mandal, A. Chakraborty, S. K. Ghosh and S. Chatterjee: Thermomechanically Controlled Processed Low Carbon Ultra High Strength Steel: Microstructure and Mechanical Properties, Proceedings of the International Conference on Science and Technology of Ironmaking and Steelmaking (STIS 2013), December 16-18, 2013, Jamshedpur, India.
6. S. Chatterjee, S. K. Ghosh and P. S. Bandyopadhyay: Thermomechanically Controlled Processed Ultra High Strength Steel, Proceedings of the International Conference on Processing and Manufacturing of Advanced Materials (THERMEC’ 2013), December 2-6, 2013, Las Vegas, USA.
7. Solubility and magnetic properties enhancement in bi-phase nanostructure Cu–Fe–Mn alloy B.N. Mondala, A. Basumallick, D.N. Nath, P.P. Chattopadhyay Journal of Magnetism and Magnetic Materials, Volume 341, September 2013, Pages 40–44
8. Microstructure and mechanical properties of Al/Fe-aluminide in-situ composite prepared by reactive stir casting route Subhanshu Chatterjee, Arijit Sinha, Debdulal Das, Sumit Ghosh, Amitava Basumallick, J. Mater. Sci. Engg A Volume 578, 20 August 2013, Pages 6–13
9. Partha Sarkar, A. Basu Mallick, R.K. Roy, A.K. Panda, A. Mitra: Structural and Giant Magneto-impedance properties of Cr-incorporated Co–Fe–Si–B amorphous microwires. Journal of Magnetism and Magnetic Materials 324 (2012) 1551–1556.
10. Bhavya Bhushan, Zhenxing Wang, Johan van Tol, Naresh S. Dalal, Amitava Basumallick, Nagasampagi Y. Vasanthacharya, Sanjay Kumar, and Dipankar Das; Tailoring the Magnetic and Optical Characteristics of Nanocrystalline BiFeO₃ by Ce Doping: Journal of the American Ceramic Society, pp 1–8, 2012.
11. “Energy Consumption In Indian Non-Ferrous Industries: Need for Bench Marking of Data”, M. Ghosh, D. De. Sarkar, P.S. Banerjee and H.S. Ray, International Journal of Metallurgical Engineering, 1(6), 78-82, 2012.
12. “Al-Fe-Si Intermetallics in Sc-added Cast Al-4.5Zn-2Mg Alloy”, S. Sadhukhan, S. Biswas, M. Ghosh, K. Biswas, International Journal of Metallurgical Engineering, 1(4), 44-47, 2012

13. "Microstructure-Texture-Fracture Toughness Property Correlation in Annealed Al-6Mg Alloy with Minor Scandium and Zirconium Additions", R. Sen, M. Ghosh and S. Kaiser, *Fatigue & Fracture of Engineering Materials & Structures*, 35, 1071-1078.
14. "Examining Energy and Environment Issues in Non-ferrous Metallurgy in the Light of Industrial Metabolism" M. Ghosh, P.S. Banerjee and H.S. Ray, *Proceedings of the International Conference on Energy and Environmental issues in Non-ferrous Industries: Compilation of Benchmarks*, 2012, 103-110
15. "Bench Marking of Energy Consumption Data For Indian Non-ferrous Industries", M. Ghosh, D. De. Sarkar, P.S. Banerjee and H.S. Ray, *Proceedings of the 16th International Conference on Non-ferrous Metals and Alloys*, 2012, pp Tech 16/1-tech16/8

M. Seminar/ workshops/Conferences/Training programme organized by the department(in last year)

- 1. Metallum 2012, September 20-21, 2012**
- 2. International Workshop on High Performance Steels, November 21-22, 2012**
- 3. International Conference on Energy and Environmental Issues in Non-ferrous Industries: Compilation of Benchmarks, December 7-8, 2012**

Department of Mining engineering

Department of Mining Engineering Bengal Engineering and Science University, Shibpur, was established in the year 1906. This department is the oldest mining engineering department in this country. Both under graduate and post graduate courses are being offered by this department, also this department is an approved QIP centre for post –graduate studies. The department also runs the course on M.tech in Geoinformatics The placement, at present, is hundred percent. Faculties of this department are involved in interdisciplinary research activities. There is significant number of research projects in the last few years which, so far, produced several PhD scholars, and also, at present, number of research scholars is also pursuing their PhD programmes. The major research areas of the faculty members are : Remote sensing and GIS applications, mine safety, workload assessment with physiological performance evaluation of miners, Environmental aspects of mining , Geo- mechanics , Mine closure policy design , Environmental modeling , Coalbed methane and Carbon sequestration. Mineral beneficiation. The major sources of funding of these research projects are DST, UGC, AICTE, MOEF, ISRO, World Bank, and BP International. A number of research publications have come out of these intensive research endeavors by the faculty members.

Undergraduate Level

- | | | |
|------|---|----------------------------|
| i. | Degree offered | B.E. in Mining Engineering |
| ii. | Sanctioned students intake | 30 |
| iii. | Additional intake through lateral entry in 3 rd Semester | 3 |

i.	Degree offered	M.E. in Mining Engineering
		M.Tech in Geoinformatics
ii.	Sanctioned students intake	18 (M.E. in Mining), 18 (M.Tech in Geoinformatics)
iii.	Specialisations in	Mining Engineering
		Geoinformatics

i.	Degree offered	Ph.D in Mining Engineering
ii.	No. of candidates enrolled	: 5
	Registered	: 7
	Awarded	: 1

Faculty position :

Sanctioned faculty post 12 Vacant Post 3

Faculty profile (in the following table)

Name	Designation	Highest Qualification	Specialisation/Research Area	Contact No E-mail
S. Sinha	Professor & Head	PhD	Opencast. Environment	suranjan1980@gmail.com
P.K.Paul	Professor	PhD	Metal Mining. GIS and Remote Sensing	Prabirpaul59@gmail.com
N.C.Dey	Professor	PhD	Coal Mining. Safety and Ergonomics	netaidey@hotmail.com
I.N.Sinha	Professor	PhD	Mine Environment	indranath.sinha@gmail.com
P.Dutta	Associate Professor	PhD	Rock Mechanics. Coal Bed Methane	dutta.pratik@gmail.com
S.Mukhopadhyay	Associate Professor	PhD	Mineral Dressing	sudipta1973@yahoo.com
A. Ghosh	Assistant Professor	PhD	Mine Planning	apurnag2000@yahoo.com
G .C.Roy	Assistant Professor	PhD	Coal Mining. Mining Machinery	gcroy_besus@yahoo.co.in
Md.M.Islam	Assistant Professor	M.Tech	Rock Mechanics, Management	miraj77@gmail.com

Award s and Laurels :

J.G. Kumarmangalam award to Prof. N.C.Dey

Research area (only mention broad titles without description in detail)

1. GIS and Remote Sensing
2. Ergonomics and Safety
3. Coal Bed Methane
4. Rock Mechanics
5. Mine Planning
6. Ventilation Planning

Research facilities : (name specific equipment/picture.)

GIS and Remote Sensing : The department has well established GIS and Remote Sensing research laboratories. The facilities include GIS software's like ARCMAP, ILWIS, GEOMEDIA etc. and Remote Sensing software's like ERDAS, ENVI etc. The department has AO scanner, AO plotter, workstations, handheld GPS and other associated software.
Safety and Ergonomics: The department has a good infrastructure for research and consultancy in the field of safety and ergonomics. The infrastructure include Oxylog consumption monitor, whole body vibration meter, hand arm vibration meter, mobile heart rate monitor. Asman Hygrometer etc
Coal bed Methane and Carbon sequestration: The department has a Gas Flow Characterization Laboratory for studies on unconventional gas reservoirs. The facilities include high-pressure adsorption isotherm test set up and core flooding experimental facility for evaluation of permeability. State-of-the-art instruments like Gas Chromatograph, syringe pump, and data acquisition system are available in the Laboratory.

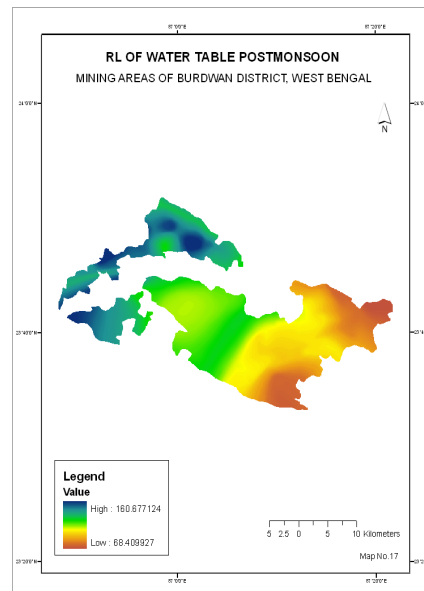
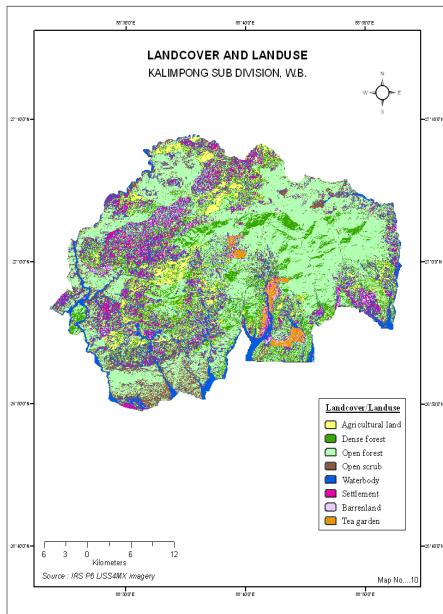
Rock Mechanics : The department has well established rock mechanics laboratory which includes, UTM, Rock drilling and cutting machines, Shear testing apparatus, Triaxial set up and software necessary for analysis.
Mine Planning: The department uses SURPAC and MINEX software for mine planning and design.
Survey : The department has well established survey laboratory. The equipment in lab includes, total station, electronic theodolite, DGPs and single frequency GPS.

Name of the laboratories :

Mine Survey Laboratory	<ol style="list-style-type: none"> 1. Dual frequency GNSS Receivers for DGPS survey 2. Single frequency GNSS receivers for DGPS survey 3. Hand held GPS 4. Robotic Total Station 5. Total Station 6. Electronic Theodolite 7. Levels 8. LISSCAD software 9. Ski Pro software
Computer Laboratory	<ol style="list-style-type: none"> 1. PC's 2. Server 3. Surpac 4. Minex 5. RocScience
Gas Flow Characterization Laboratory	<ol style="list-style-type: none"> 1. Gas Chromatograph 2. Adsorption Isotherm set up 3. Syringe pump 4. Core Flooding set up
Rock Mechanics laboratory	<ol style="list-style-type: none"> 1. 100 ton UTM 2. Rock drilling and cutting machine 3. Rock permeability testing setup 4. Shear box test setup 5. Triaxial test setup
GIS and Remote Sensing laboratory	<ol style="list-style-type: none"> 1. ARCMAP 11 (3 users) 2. ERDAS 2011 (5 users) 3. Envi 5.0 (10 Users) 4. Geomedia Professional 5. Raster to vector software 6. ILWIS 7. Modflow 8. A0 Scanner 9. A0 Plotter 10. Servers 11. Workstations
Mineral Dressing Laboratory	<ol style="list-style-type: none"> 1. Jig Based Pilot Plant 2. Hydrocyclone test rig 3. Jaw crusher 4. Raymond Mill 5. Pulverizer

Safety and Ergonomics Laboratory	<ol style="list-style-type: none"> 1. Oxygen consumption monitor (Oxylog) 2. Whole body vibration meter 3. Hand arm vibration meter 4. Mobile heart rate monitor(Polar) 5. ECG, Asman Hygrometer 6. TMT 7. Globe thermometer 8. Goniometer(digital + axis)
Mine Ventilation Laboratory	<ol style="list-style-type: none"> 1. Blast vibration measuring Instrument 2. Gravimetric Dust Sampler 3. Gas Chromatograph 4. Rescue Apparatus 5. Crossing Point Apparatus 6. High volume air sampler





Consultancy Work

1. Geotechnical study of rock and gassiness determination for Moonidih U/G coal mines.
2. Geotechnical properties of rock mass and top soil for the Bomi iron ore project of Liberia by Western Clusters Ltd.

Support staff position:

Sanctioned technical post: 5

Technical staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Prasanta Gope	Tech-Asst-(Gr-I)	Diploma in Mining		
Janardan Kar	Tech-Asst-(Gr-II)	Diploma in Mining		
Amitava Chowdhury	Tech-Asst-(Gr-II)	Diploma in Mining		
Saibal Ghosh	Sr. Instrument Mechanic	I.T.I		

Sponsored Research : (mention area)

Ongoing	Sponsoring agency
Ergonomics	DST
Mine closure	MOEF
Environment	DST
Mineral Dressing	UGC
GIS and Remote Sensing	MOEF
Ergonomics	UGC
Coal Bed Methane	DST

Industry – Institute Interaction**No. of publications : (This year only)**

Journal 8

Conference 8

Seminar/Workshops/Conferences/Training programme organized by the department (in last year).

1. 23rd National Convention of Mining Engineers and National Seminar on Development of coal and mineral resources- Economic, Technological, and environmental issues, on the subject.
2. Two months Certificate course on GIS.

Department of Physics

About the department

The department of Physics has a century old past and has come through the era of revolutionary thoughts in the world of physics to the present century of technological revolution. As far back in 1926, Prof. Satyendra Nath Bose and Prof. Meghnad Saha, then post graduate students of Calcutta University used to come to this department to study original works of Max. Planck and Albert Einstein. Our library was so rich even at that time under the able leadership of Prof. Bruhl. They also used to do their M.Sc. practical in the laboratory of this physics department. An unforgettable name in the history of the department is Prof. S.S. Boral, who initiated the course on Electronics and Telecommunications which itself finally branched out to be one of the advanced engineering department of the university. Our department can justifiably feel proud of eminent teachers like Prof. P.K. Chattopadhyay, Prof. B.R. Gupta, Prof. N.C. Mukherjee, Prof. M. Mitra and others who taught the undergraduate engineering students of B.E. College and made a strong base for their further studies. Our present faculty members are also faithfully tracing their paths.

The year 2000 was a landmark for our department when the M.Sc. course in Applied Physics was introduced. New faculty members started joining the department, having expertise in modern thrust areas of physics and related technology. On the one hand, theoretical works are being pursued in the field of *Nuclear and High energy physics* and *Atomic and Molecular physics*; on the other hand in view of latest technological advancement, different studies are carried out in the field of *Fiber Optics*, *Electroceramics*, *Spectroscopy of Laser and Luminescent materials*, *Transport phenomena in solids*, *Synthesis of Nanomaterials by sol gel route and their characterization*, *Silicon nanostructure based : Light emitters, Detectors, Sensors etc.* At the same time, experimental works are undertaken creating a rich environment of advanced research. In the last five years the faculty members of the department have contributed more than 100 research papers in international journals of repute and international conference proceedings. Many of our students are engaged in research and some of them are also in scientific jobs in various premier research institutions of India, such as SINP, IACS, TIFR, BARC, IPR, CGCRI etc. A considerable number of them are pursuing Ph.D. programme in the department itself.

Academic Programmes:**Undergraduate Level**

- | | | |
|------|---|--|
| i. | Degree offered | BE (Physics course for 1 st , 2 nd semesters (all) and 3 rd Semester (EE and ME)) |
| ii. | Sanctioned students' intake | 500 approximately |
| iii. | Additional intake through lateral entry in 3 rd Semester | |

Postgraduate Level

- | | | |
|-----|-----------------------------|------------------|
| i. | Degree offered | M.Sc. in Physics |
| ii. | Sanctioned students' intake | 25 |
| iv. | Specialisation in | Material Physics |

Doctoral Level

- | | | |
|-----|---------------------------|------|
| i. | Degree offered | Ph.D |
| ii. | No of candidates enrolled | 6 |
| | registered | 5 |
| | awarded | - |

Faculty position:

Sanctioned faculty post: 14 Vacant Post ...4 (3 assistant profs+ 1 associate prof.).....

Faculty profile (in the following table)

Name	Designation	Highest Qualification	Specialization/research area	E-mail
Dr.Sukhen dusekhar Sarkar	Professor	M.Sc., Ph.D	Nuclear Physics Nuclear Structure & Nuclear Astrophysics	ss@physics.becs.ac.in
Dr. Bichitra Kr. Guha	Professor	M.Sc., M.Phil., Ph.D	Solid State Physics Electroceramics	bkg@physics.becs.ac.in
Dr.(Mrs.) Dipali Banerjee	Professor	M.Sc., M.Phil., Ph.D	Solid State Physics Transport properties of solids	banerjee_dipali@yahoo.co.in
Dr. Sampad Mukherjee	Asstt. Professor.	M.Sc., Ph.D	Solid State Physics Synthesis and characterization of nano materials	smukherjee0309@yahoo.co.in smukherjee.besu@gmail.com
Dr. Mousumi Basu	Asso. Professor & Head	M.Sc., M.Tech., Ph.D	Fibre Optics in linear and nonlinear domain	mbasu@physics.becs.ac.in , mousumi_basu@yahoo.com
Dr. Samar Jana	Asstt. Professor	M.Sc., Ph.D	Spectroscopy of Laser and Luminescent materials	samarjana@yahoo.com , sjana@physics.becs.ac.in

Dr. Debasis Ray	Asstt. Professor	M.Sc., Ph.D	Theoretical Atomic Physics Atomic Physics in Plasmas, Laser-atom interactions, Spectroscopy of confined quantum systems, Many-body techniques in atomic physics.	dray@physics.becs.ac.in
Dr. S. M. Hossain	Asstt. Professor	M.Sc., Ph.D	Optoelectronic Materials & Devices Nanostructure based Photonics, Photovoltaics and , Sensors.	shminhaz@physics.becs.ac.in
Dr. Krishnendu Mukherjee	Asstt. Professor	M.Sc., Ph.D	High Energy Physics,	kmukherjee@physics.becs.ac.in
Dr. Amit Kundu	Asstt. Professor	M.Sc., Ph.D	High Energy Physics, Cosmology	amit_kundu@physics.becs.ac.in

Research area (only mention broad titles without description in detail):

- i. Nuclear structure and nuclear astrophysics
- ii. High energy physics
- iii. Quantum field theory at finite temperature and density
- iv. Synthesis & characterization of thermoelectric nanomaterials and composites
- v. Magnetic properties of materials
- vi. Characterization of Fuel cells & its components
- vii. Preparation & characterization of oxide glass by sol-gel route
- viii. Spectroscopic investigation on rare earth and transition metals in search of LASER materials.
- ix. Fluorescence and phosphorescence study of rare earth materials.
- x. Design and optimization of optical fibers for dense WDM system.
- xi. Nonlinear pulse propagation through single mode optical fibers.
- xii. Atomic Physics in Plasmas, Laser-atom interactions.
- xiii. Spectroscopy of confined quantum systems, Many-body techniques in atomic physics.
- xiv. Nanostructure based Photonics, Photovoltaics and , Sensors.
- xv. Processing and characterization of electroceramic materials used as capacitor dielectrics, sensors and actuators etc.

Research facilities: (name specific equipment / picture etc.):

1. Microprocessor controlled 1800 ⁰ C box furnace
2. Hydraulic pressing machine.
3. Hp LCR Meter
4. Spectrophotometer (UV-Visible)
5. Luminescence Spectrometer
6. Electric Furnace (1400 ⁰ C)
7. IBM- Z pro work station
8. Dell T7500 work station
9. Ultrasonic PULSER/RECEIVER instruments (MAKE- MATEC INC.).
10. Magnetic susceptibility measurement
11. Closed cycle liquid helium cryostat
12. Vacuum coating unit
13. Magnet with power supply
14. GM Counter and radioactive sample with lead shield
15. Thermal conductivity measurement set up

Name of the laboratories:

1.	Synthesis and Characterization Of Oxide Glass Laboratory
2.	LASER and Luminescent Materials Research Laboratory
3.	Material Research Laboratory
4.	Fiber Optic Design Laboratory
5.	Electroceramics Laboratory

Laboratories for PG & UG studies

1.	General and electronics laboratory
2.	Optics laboratory
3.	Solid state laboratory
4.	Nuclear physics laboratory
5.	UG general laboratory

Support staff position:

Sanctioned technical post : 3

Technical staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Dr. Bibhas Ch, Mitra	TA-II	Ph.D	9434715128	bcmitra@yahoo.com
Mr. Amal Kr. Mandal	TA-II	M.Sc.	9830586320	akm627@yahoo.co.in
Mr. Sintu Das	TA-II	B.Sc.	9903262750	-
Mr. Amiya Kr. Paul	Junior Peon	H.S.	9433819077	amiyaamrita_01@yahoo.co.in
Mr. Asim Das Chakraborty	Junior Asst.	M.A.	9433126999	

Accelerator And Radiation Based Collaborative Research Scheme CRS Project Using DAE Facilities: <u>Title of the Project:</u> Study of shape coexistence in ^{153}Ho and few-valence particle nuclei around ^{146}Gd . One Project Fellow/Research Associate plus Contingency running	UGC-DAE CSR, Kolkata Centre
Fiber optics Title: Studies on dispersion managed fiber and waveguides in linear and nonlinear domain P.I : Dr. M.Basu Project cost: ~ Rs. 15.6 lakhs Running from 1 st March, 2010.	DST, Govt. of India
Fabrication and characterization of optical nano and micro fiber (OFNM). PI: Dr. S. Mukherjee Co PI: Dr. M. Basu Proj cost : Rs. 25.44 Lakhs Starting from Aug 2012	DAE / BRNS
: Dr. Dipali Banerjee (in collaboration with J.U) . 26,83,680/-	DST, Govt. of India
Development of Phosphoric Acid Gel Electrolyte Matrix and Study of its Effect on Performance of Fuel Cell. Co P.I : Dr. Dipali Banerjee (in collaboration with J.U) Rs. 9,32,000/-	DRDO (CARS)
Expert system based Statistical Analysis of Experimental Data on performance and endurance of phosphoric acid fuel cell: Development of performance indices and neuro-fuzzy rules P.I. Dipali Banerjee (in collaboration with J U) Rs 9,34 000/-	DRDO-CARS
“Solar Photovoltaic Hub at BESU” Co-P.I. - Dr. Syed Minhaz Hossain in collaboration with Center of Excellence for Green Energy and Sensor Systems, BESU, Rs. 8.5 crore (Ongoing)	DST
“Advanced research on thin silicon solar cell and PV systems” Co-P.I. - Dr. Syed Minhaz Hossain in collaboration with Center of Excellence for Green Energy and Sensor Systems, BESU, Rs. 13 crore (Ongoing)	MNRE

No. of publications: (This year only)

Journal9.....;

Conference.....7

Archive:2

Books/Monographs1.....;

List of Publications:

Journal

1. "Nonlinear pulse reshaping in a designed erbium doped fiber amplifier with a multicladded index profile" Navonil Bose; Dipankar Ghosh; Sampad Mukherjee; Mousumi Basu , Opt. Eng. 52 (8), 086104,(2013).
2. "Heat transport in a three dimensional slab geometry and the temperature profile of Ingen – Hausz's experiment " Shiladitya Acharya and Krishnendu Mukherjee, Int. J. Mod. Physics, B 27, 1350057 (2013); 1392003 (2013).
3. Morphology dependent ammonia sensing with 5 sulfosalicylic acid doped nanostructured poly aniline synthesized by several roots, Krishanu Chatterjee, Palash Dhara, Saibal ganguly, Kajari Kargupta, Dipali Banerjee, Sensors and Actuators, B 181, (2013), 544-550.
4. Reduced order inferential model based optimization of Phosphoric acid Fuel cell (PAFC) stack , Ganguly Saibal, Das Sonali, Kargupta Kajari, Banerjee Dipali, Industrial and Engineering Chemistry Research (in Press).
5. "Thermoelectric Performance of Electrodeposited Nanostructured Polyaniline Doped with Sulfo-Salicylic Acid Krishanu Chatterjee¹, Mousumi Mitra¹, Saibal Ganguly², Kajari Kargupta³, Dipali Banerjee^{1*} Journal of Applied Polymer Science DOI: 10.1002/app.39920.
6. "Reduction of graphene oxide through a green and metal-free approach using formic acid" Mousumi Mitra, Krishanu Chatterjee, Kajari Kargupta, Saibal Ganguly, Dipali Banerjee Diamond & Related Materials 37 (2013) 74–79.
7. "Synthesis, characterization and enhanced thermoelectric performance of structurally ordered cable like novel polyaniline – bismuth telluride nanocomposite" Krishanu Chatterjee, Mousumi Mitra, Saibal Ganguly, Kajari Kargupta, Dipali Banerjee, Nanotechnology 24 (2013) 215703.
8. Superdeformation and α -cluster structure in ^{35}Cl , Abhijit Bisoi, M.Saha Sarkar, **S. Sarkar**, S. Ray, M. Roy Basu, Debasmita Kanjilal, Somnath Nag, K. Selvakumar, A. Goswami, N. Madhavan, S. Muralithar, and R. K. Bhowmik, Phys. Rev. C **88**, 034303 (2013).
9. "Photoluminescence from Oxidized Macroporous Silicon: Nano-Ripples and Strained Silicon Nanostructures", M. Ray, A. Jana, U. Ghanta, N. R. Bandyopadhyay, S. M. Hossain; IEEE Transactions on Device and Materials Reliability, Vol. 13, Issue 1, page 87-92, (2012).
10. Influence of the microwave plasma CVD reactor parameters on substrate thermal management for growing large area diamond coatings inside a 915 MHz and moderately low power unit -- Awadhesh K. Mallik, Kalyan S. Pal, Nandadulal Dandapat ,Bichitra K. Guha, Someswar Datta, Debabrata K. Basu, Diamond Related Materials, 30(2012), 53-61.

B. PUBLICATIONS (CONFERENCES, SYMPOSIA ETC.)

1. *Efficient Parabolic Similariton Geneartion by Third Order Dispersion Compensation*, Debasruti Chowdhury, Navonil Bose, **Mousumi Basu**, Sampad Mukherjee Paper Number: OLT-20-9403, Presentation Type: Oral, CODEC -2012, International conference on computers and devices for communication, Kolkata, West Bengal, December, 2012.
2. “Ammonia Sensing of Nanostructured Polyaniline with Organic and Inorganic dopants.” Kajari Kargupta, Krishanu Chatterjee, Saibal Ganguly, Dipali Banerjee. *Nanomaterials: Application & Properties '2012*, Ukraine, September 17– 22, 2012.
3. “Thermoelectric Characterization of Nanostructures of Bismuth Prepared by Solvothermal Approach.” Dipali Banerjee, Palash Dhara, Krishanu Chatterjee, Kajari Kargupta, Saibal Ganguly. *Nanomaterials: Application & Properties '2012*, Ukraine, September 17– 22, 2012.
4. “Ammonia sensing performance of Polyaniline-graphene nanocomposite”- M. Mitra, K. Chatterjee, D. Banerjee, K. Kargupta, S. Ganguly, *Third National Seminar on Condensed Matter Physics including Laser Application*, Burdwan University, 5-7th march, 2013.
5. “Enhanced electrical conductivity of novel cable-like polyaniline-bismuth telluride nanocomposite”, K. Chatterjee, M. Mitra, M. Rahman, D. Banerjee, K. Kargupta, S. Ganguly, *Third National Seminar on Condensed Matter Physics including Laser Application*, Burdwan University, 5-7th march, 2013 (awarded best poster presentation).
6. “**Photoluminescence Mechanism in Silicon Quantum Rods Studied by Time-Resolved Spectroscopy**”, U. Ghanta, M. Ray, S. M. Hossain; AIP Conf. Proc. 1536, 277 (2013).
7. “**Effect of uv Laser Radiation on the Photoluminescence Properties of Silicon Quantum Dot Colloids**”, U. Ghanta, M. Ray, N. R. Bandyopadhyay, S. M. Hossain; National Conference on Nanomaterials & Devices (NCONAD-2013), October 3-5, 2013, NIT Srinagar, Page No. 61.

In Archive

1. Pairing and shell evolution in neutron rich nuclei, M.Saha Sarkar and **S. Sarkar**, arXiv:1204.5127v1 [nucl-th] 23 Apr 2012
 2. Understanding Nuclei in the upper *sd* – shell, M.Saha Sarkar, Abhijit Bisoi, Sudatta Ray, Ritesh Kshetri, and **S. Sarkar**; in Proceedings of Frontiers in Gamma-Ray Spectroscopy 2012 (FIG12), New Delhi, March 5th - 7th, 2012, <http://www.iuac.res.in/FIG12/proceedings.htm>; arXiv:1308.0207v2 [nucl-ex] 3 Aug 2013
- Books:*
1. Pairing and shell evolution in neutron rich nuclei, Maitreyee Saha Sarkar, **Sukhendusekhar Sarkar**, *Fission and Properties of Neutron-Rich.Nuclei*, Proceedings of the Fifth International Conference: Sanibel Island, USA 4 -10 November 2012, Editors: J H Hamilton, A V Ramayya, World Scientific, (2013), Pg. 498.

Seminar / Workshops/ Conferences/ Training programme organized by the department (in last year)

1. Organised one day symposium on “The ‘God’ Particle and The Mystery of the Universe” on 30th November, 2012 on the occasion of 155th birth anniversary of Acharya J C Bose . (Speakers: Prof. Dipak Ghosh and Prof. Partha Majumdar).
2. Refresher workshop for school leaving students “ Foundation of Physics” from 24th December, 2012 to 31st Dec, 2012.
3. Seminar of Journal club on April 25, 2012, on “ Atomic clusters : A possible building motif for inorganic nanomaterials” by Dr. Debesh Ranjan Roy.
4. Seminar of Journal club on March 25, 2013, on “ Shedding light on the Universe’s first sources of light through radio observations of neutral Hydrogen ” by Dr. Kanan Kr. Datta.

Technology Developed/ Innovations: Innovative experiments developed as part of project works of M. Sc (Applied Physics), such as,

Others: Faculty members contributed to other public services by participating in public seminars, UGC Staff College etc., and delivering talk there.

1. Dr. S.M Hossain visited State University of New York at Buffalo (UB) as a visiting professor and taught undergraduate physics for two semesters (Fall-2012) and Spring (2013).
2. Dr. S.M.Hossain delivered an Invited talk at the 28th annual convention of IAPT at Kolkata on 27th October-2013.

***Department of Human Resource
Management***

About the department

The erstwhile Training and Placement department of the Institute was rechristened as Department of Human Resource Department in the year 1994 -95 and is headed by one Professor and supported by one Assistant Training Officer and other staff. The Department has its current activities in the following areas :

- Job Placements of students of the university through Campus and Off-campus selection processes.
- Vacation / Summer Training of the students of the University
- Government of India Apprenticeship Programme
- Grooming up (Personality/Soft-Skill/ Performance Effectiveness) Programme for the Students
- Facilitation for other career options : Preparatory programme for Competitive Exams and other Educational options abroad
- Industry-Contact programmes / Academic collaborations
- Entrepreneurship Development Programme
- IPR Awareness and Facilitation
- Career Counseling
- Industry Liaisoning

Academic Programmes

This is a service department catering to all UG, PG and Ph. D students. The Department has also started offering Ph.D programme under Faculty of Social and Management Sciences.

Faculty position : 1 (One)

Sanctioned faculty post.: 1 (One)

Faculty Profile (in the following table) –

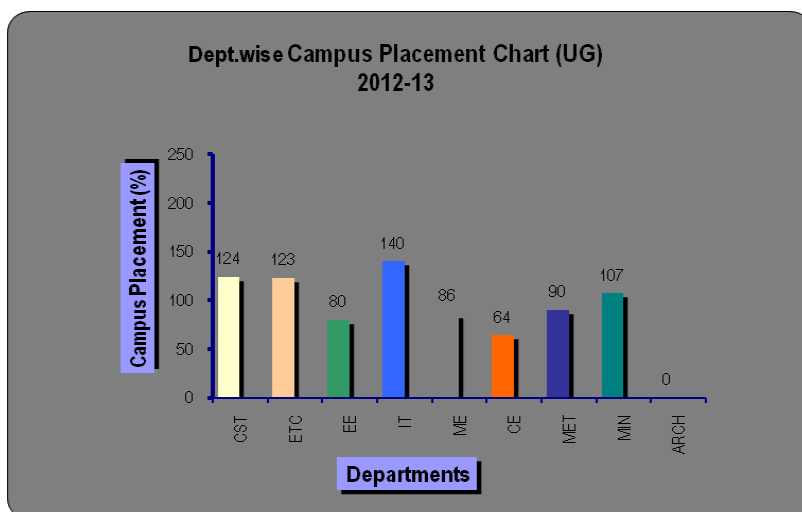
Name	Designation	Highest Qualification	Specialisation / Research Area	Contact No. E-mail
M.K.Sanyal	Professor	Ph.D	Entrepreneurship. IPR, Environmental Planning	9831352950 hodhrm@becs.ac.in

Others

Vital Information :

- Number of Company Visited for Campus Selection Process for UG Students :
- **69+3 (Off-Campus)**
- Total Number of Offers made to UG Students through Campus Selection process : **467**
(Including Dream Slot Offers)
- Number of Company Visited for Campus Selection Process for PG Students : **16**
- Total Number of Offers made to PG Students through Campus Selection process : **82**
(including dream slot offers)
- Range of Pay Packages Offered : **Rs. 12.0 Lakh** (Annual CTC) – **Rs. 3.0 Lakh** (Annual CTC)

- **Department-wise
Placement (UG) in %**



Vacational Training

During the year around 250 seats were organized in 30 organizations for summer placements of the students of pre-final year from 7 engineering disciplines in addition to facilitating a few other students having internships in different academic Institutions and R & D organizations both in-country and abroad.

Grooming Activities organized by HRM Department

- Mentorship for Student Entrepreneurship Development Project RECOM at BESUS.
- Special Counselling and Remedial Training Programme for facilitating Final Year UG and PG students securing professional engagements at the end of academic tenure. The programme, funded by TEQIP, continued for a duration of 3 months and included counseling sessions, training need analyses, formulation of and conducting need-based customized training modules and remedial classes by faculty members of academic departments.
- Presentation by Sussex University on educational opportunities in foreign Universities.
- Internship Programme for undergraduate students at University of Windsor.
- Presentation Career Opportunities at BARC/ Department of Atomic Energy – GoI.
- **Industry promoted students' activities facilitated by HRM Department**
- TCS DAY Celebrations
- EMPOWER - Ericsson's University Program
- Presentation on Scope of Mechanical engineers in EIS (engineering & Industrial Services) domain of IT on 21 September, 2012
- Campus Connect Programme by Alstom India on 12 December, 2012.
- Signing of Memorandum of Understanding for ICICI Trinity – the University level Innovation Programme.
- Award of Cognizant Foundation Scholarship.
- TCS-100 Best : Student Award for Academic Excellence

Activities related to Students career where HRM was represented

- Industry Meet on Placement issues organized by Maruti Suzuki Limited, TCS etc.
- National Employability Conclave 2012-13 05.02.2013. Training Session on “ Best Practices for improving efficiency in training and placement activities.
- Interaction Session with Cognizant Academy Leaders on 16.04.2012.

Classes taken by HRM Faculty

- Entrepreneurship and HRM Course for MSc. Students.
- Course on IPR for M.Sc. Students at Kolkata University

Academic Participation of HRM Faculty Members:

- Board Member for Viva-Voce Test of Patent Agent examination nominated by Controller General of Patent Design and Trademark, GoI.
- Selection Committee member for Engineering Colleges
- Resource Person for Training Programme on Green Building and GRIHA Rating Systems sponsored by MNRE-GoI.
- WBUT Expert for Inspection of affiliated Colleges.
- Examiner for Ph.D viva at Mechanical Engineering Department of Jadavpur University.
- Key Resource Person for TEQIP sponsored Workshop on Research Competency Development at MCKV18.July, 2012.
- University nominated Resource Person for Technopreneur Promotion Programme (TePP) administered by CGCRI
- Member of the Governing Body of affiliated College of WBUT as nominated by the VC of WBUT.
- Guest of Honour at World IP Day organized by Indian Patent Office on 26 April, 2012
- External Examiner and Paper setter for WBUT
- AICTE Expert for inspection of Colleges.
- Faculty Evaluator for Course Module on “English for Engineers” developed by IEEE.

Projects under HRM Department

- Setting up of **Centre for Green Technology Business Incubation** – Proposal submitted to NSTEDB-Govt. of India – awaiting approval.

Department of Students Activities

HISTORIC PROFILE

On recommendation of the first Review Committee(1953), PICSA department was started as the Proctorial Department in 1956 with the objective of improving the personal qualities of students and looking after their discipline, welfare, and extra-curricular activities. The department was later renamed as the department of Students' Activities with the redesignation of the Proctor in 1985 to Professor-in-charge of Students Activities. The department functions under the direct supervision of the Professor-in-charge of Students' Activities.

BROAD PERSPECTIVES

Improving the personal qualities of students and looking after their discipline, welfare and extra-curricular activities.

- Election to the Students' Union, Sports, Cultural Activity, Quiz Fest, Tech Fest, Gardening, Blood Donation Camp, Annual reunion, Seminars etc.
- Smooth and successful conduct of Additional Elective PT/NCC course for 1st year BE students.
- Allotment of Hall/Hostels. Supervision of Halls / Hostel is made regularly by Superintendents, selected specially from the Faculty members & Officers of the university community.
- Management and Supervision of Messes – through Joint Mess Committee

HOSTEL & MESS AFFAIRS

Presently total student strength – 3000 nos. (including UG & PG Day Scholars and Research Scholars). There are 15 nos. Halls/Hostels, (09 nos. Hostels for UG students, 02 nos. Hostels for UG and PG combined Students, 02 no. only for PG students and 02 nos. only for the girls.) Each Hall/Hostels is under the direct supervision of a Superintendent selected from the members of the faculty and officers. Hostels and



Messes are supervised by the respective Mess Committee. A joint Mess Committee is a common forum for smooth running of the messes where the Professor-In-charge of Student Activities acts as the Vice-Chancellor's nominee. There is also Executive Committee constituted to expedite the work relating to the service condition of the mess employees and other Hostel/Mess related works.

Faculty / Staff Profile

Faculty Position : 3

Officer :1

Physical Training Instructor

(part Time) : 1

Football Coach (Part Time) : 1

Support Staff : 15

Athletic Club and Facilities

The University has an Athletics Club and has got the facilities for almost all outdoor and indoor games. At present there are two permanent Physical Instructors who is assisted by 7(seven) ground workers. The college has spacious ground like “Oval” & “Lords” and also three Tennis, Volleyball and Badminton Courts, a Swimming Pool (renovation going on in full swing) and a Very Well equipped gymnasium. The University engages eminent Personalities in games and sports as coaches. Various events for games and sports are organized by Athletic Club, BESUS in our campus every year. During this period our students not only took part in games and sports activities organized by the University but also actively participated in sports events organized by other Institutions such as CAB, IFA, BIT Mesra Ranchi etc.



SPORTS & GAMES FACILITIES AVAILABLE IN UNIVERSITY

Managed through Athletic Club

OVAL and LORDS ground Used for PT/NCC classes, Football, Cricket, Athletics (300 mtr. Track with 6 lanes). Out-door Tennis Court , Hard Court , Grass Court , Out-door Volleyball Court, Table Tennis Board, Badminton Court, Swimming Pool (Being renovated) for swimming, Gymnasium , Multi- Gym, Central facility for Boys – 1 no. with 16 stations. Exclusively for Girls with vibrator apparatus – 1 no. Weight Training apparatus Sufficient



Dumbell, Barbell, Weight Plate, Waist-Belt, Rope etc.

Now a days, the students strength of the university is increasing in regular basis. So, the games and sports facility available in the university is not sufficient enough to overcome the problems of the students by giving them enough scope for practicing regularly.

CENTRAL FACILITIES

- a. Institute Hall with a capacity of 300 spectators with all modern facilities.
- b. A well equipped Gymnasium.
- c. Students Canteen- 2 nos.
- d. Well maintained multi use Sports Field.
- e. One multi purpose building with Badminton Court.
- f. Swimming Pool –Being renovated.
- g. Students' Union Office (UG & PG separately).
- h. NCC Unit Office (Registered to BN. Bengal NCC).

THE AMENITIES:

1. University Guest House
 2. . Hospital with Indoor and Outdoor Facilities.
 3. . Extension Service to Community:
- a. The Udayan Sob-peyechir Asar- specially developed for children fitness, general health, games & sports, drawing & painting and cultural activities of the University Employees Community.
 - b. The Vivekananda Youth Circle (for Boys) and Sister Nivedita Study Circle (for Girls) – for holistic development of personality of children of university community.

N.B. Academic Assignment:

- I. PT/NCC Examination for 2nd Semester students – In the month of April.
- II. PT/NCC Examination for 1st Semester students – Last week of November – 1st week December.

**SPORTS ACTIVITIES FOR THE SESSION
2012 – 2013
INTRA MURAL COMPETITIONS:**

Intra University / College Tournaments (Organized):

Annual Athletic Meet – 2012 on 06.02.2012

Inter Hostel Table Tennis Tournament 2012-13 from 28.01.2012 – 31.01.2012.

Inter Hostel Volleyball Tournament 2012-13 from 11.03.2012 – 20.03.2012.

Inter Year Football Tournament 2012-13 from 22.03.2012 – 26.03.2012.

Inter Hostel Football Tournament 2012-13 from 08.04.2012 – 24.04.2012.

Inter Hostel Badminton Tournament (M) 2012-13 from 08.04.2012 – 11.04.2012.

Inter Hostel Badminton Tournament (W) 2012-13 on 12.04.2012.

Inter Department Football Tournament for 1st Semester Students 2012-13 from 29.08.2012 – 03.09.2012.

(a) Invitation Cricket Tournament from 11.03.2013 – 15.03.2013.

(b) Invitation Football Tournament from 01.04.2013 – 05.04.2013.

EXTRA MURAL COMPETITIONS:

Inter University / College Tournaments (Participated):

I. East Zone Inter University Table Tennis Tournament 2012-13 held at Calcutta University from 16.01.2013 – 20.01.2013.

II. Inter College / University PCM Memorial Football Tournament held at Indian Statistical Institute, Kolkata from 08.04.2013- 22.04.2013.

III. East Zone Inter University Football Tournament 2012 -13 held at West Bengal State University, Barasat From 03.10.2012 – 07.10.2012.

IV. Academic Activity

PT/NCC/NSS Examination for 2nd Semester Students held on 16. 04. 2012- 19. 04. 2012

National Service Scheme (NSS)

1. Garment Distribution Camp held on 13.02.2012 at BESU Netaji Bhawan.

Some photographs of various events during 2012-13



Others Activities :

In addition to games and sports activities, other activities like Quiz, drama, cultural evenings, Gardening Competition, blood donation camp. etc. are also being organized through out the year.



STUDENTS' ACTIVITY CENTRE

To develop the creative aspects of the students such as creative art, painting, drama, dance, debate etc, the following societies have been formed last year:

- i) Art and Photography Society
- ii) Dramatics Society
- iii) Music Society(Vocal/Instrumental)
- iv) Innovation Society
- a) Robotics Society
- b) Technology Society
- v) Dance & Choreography Society
- vi) Open Software System Society
- vii) Quiz, Debate & Creative writing Society

It is very heartening to note that some of the societies like Quiz, Debate, Robotics and Drama society have become very vibrant under the guidance of a faculty member.

SCHOLARSHIPS:

The University takes special care for those students who are economically challenged. This department takes an active part to ensure that financial condition should not be a major hindrance for continuation of studies. It is worth mentioning that in the current year 202 students were recipients of Merit and Maintenance Scholarship. The value of full Scholarship is Rs-12000/- (i.e tuition fee for the year) This is also worth mentioning that Global Alumni Association contributes immensely for the meritorious and economically challenged students. This year 130 students were benefited by our Global Alumni Association.

*School of
Community Science and Technology*

About the School

Bengal Engineering & Science University, Shibpur has a fairly long tradition of rendering community service in a modest manner besides conducting academic programme. Community service rendered by the faculty members consists of formulation and implementation of specific programme of technology innovation and technology transfer to the Rural Sector. In response to the demand for proper co-ordination and integration of such activities of the faculty at University level, School of Community Science & Technology (SOCSAT) was created in 2004 at University for facilitating the development and growth of the unorganized sector in our country.

The objective of the school is to foster sustainable development of different marginalized communities by empowering stakeholders with inputs from institutionalized Science & Technology Community.

The school since then made significant progress in the frontier areas of basic and applied research in juxtaposition with various training programmes that are congruous with the objectives of the school. In this respect various science awareness programmes, several training programme on Advanced Pottery, Metal Art, Batik, Jute diversification including Advance Food Processing & Preservation Technology were organized by this school. The objectives of these programmes are to impart training to the marginalized people especially women Self-Help Groups of Howrah district in order to promote technology and create entrepreneurship. The training on food processing will improve the technical skills and knowledge in the processing of fruits and vegetables to the women of the rural areas and to take up income generating activities. As a result, two SHGs named Suktara and Prayas comprising those women were formed in Howrah District with the initiative of this School.

In this backdrop, the Academic Council of the University approved a four semester M.Sc. Course on **“Food Processing& Nutrition Science”** which had been started from the **Academic session (2007-2008)**. Around 100 students obtained MSc degree from this University under this course and placed in the Food Processing industries, R&D organization in food sectors, Academic institutes involved in R&D activities including PhD programmes and the Food analysis laboratories.

Besides above **Government of India’s Corporate Social Responsibility(CSR) scheme**, The Garden Reach Shipbuilders & Engineers Limited (GRSE),Kolkata, a Govt. of India undertaking under the Ministry of Defence, entrusted SOCSAT with a CSR project to impart “Skill development/Vocational Training to the unemployed youth around the locality in Metiabruz, Kolkata” where the GRSE plant is situated. The objective of the proposed programme is to appropriately train the unemployed youth for their employment in appropriate trade and /or to enable them to start entrepreneurship.

Objective of the school:

- a. To promote awareness amongst different targeted communities about the role of science & technology in solving environmental, health and developmental problems. Awareness and training programs related to science, technology and environment would be initiated, encouraged, supported and implemented.
- b. Searching for solutions that people and communities can implement themselves by continuously developing scientific & technological know-how through rigorous research using University's infra-structural facilities — academia to community transfer of scientific and technological knowledge.
- c. Development of positive long-term relationships that will contribute to collect, preserve, disseminate, and upgrade (if necessary) the scientific and technical information and knowledge of traditional communities, thereby reviewing priorities in research and development — community to academia transfer of knowledge.
- d. Promote interdisciplinary research and education within the school to encourage better understanding of community related environmental issues.
- e. Provide strategic leadership and direction in the innovation and cost-effective use of modern scientific & technical methods to improve the efficiency of government program delivery and administration at the community level.
- f. To investigate the key ethical issues related to the implementation of modern technologies with regards to moral and ethical obligations of different communities.
- g. Science education, at all levels of a community is to be revamped, and with gender equity, so as to establish an atmosphere which will enhance the nation's capacity and capability to develop and sustain basic and applied sciences, toward meeting the needs of the twenty-first century.
- h. provide quality post-graduate education in Food and Nutrition Science
- i. To develop and modernize the multidisciplinary post-graduate curriculum to keep in tune with the rapid developments in this area.
- j. To integrate postgraduate education with basic and applied research through combination of lecture courses with laboratory work, projects, example classes and supervisions in small groups.

Academic Programmes

Postgraduate Level

- i) **Degree Offered:** Master of Science in Food Processing and Nutrition Science.
- ii) **Sanctioned Students' intake:** 25 nos. students per year
- iii) **Additional intake through other programmes** N.A
- iv) **Specialisation in** (a) Microbial Enzyme Technology (b) Nutritional Biochemistry

Doctoral Level

Degree Offered: Ph.D Science

No of candidates enrolled: 17

Registered: 07 **Awarded:** 0 **Submitted:** 0

Faculty position:

Faculty profile (In the following table)

Name	Designation	Highest Qualification	Specialisation/Research Area	Contact no. E-mail
Prof.S.K.Mukherjea	Professor & Director	Ph.D	Computational Fluid Dynamics	mksujay@gmail.com
Prof.D.K.Bhattacharyya	Adjunct professor	PhD (Science)	Oil Technology	dkb_olitech@yahoo.co.in
Dr. Minakshi Ghosh	Assistant Professor (Contractual)	Ph.D. (Science)	Analytical Chemistry/ Extraction Technology	g_minakshi2000@yahoo.com
Dr. Jayati.Bhowal	Assistant Professor (Contractual)	PhD (Science)	Biochemistry and Microbiology	bjayati@yahoo.com



Awards and Laurels:



1. A Novel Approach for Making Soy Yogurt Containing Rice Bran Oil and Sesame oil as Superior Quality Probiotic Yogurt” by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya
(Awarded as Best Poster in the poster presentation session)
2. “A Novel Approach to Develop Antioxidant Enriched Rice Bran Oil “by Sanjukta Kar*, Samadrita Sengupta, D.K.Bhattacharyya. (Awarded 2nd prize in the poster presentation session in GNIT, 2013)
3. “Development of Green Technology for Making Nano Starch Crystals And their film Forming Properties” by Tanima Bhattacharya, Nilratan Bandyopadhyay, Dipa Roy, Dipak Kumar Bhattacharyya ,**Certified as Award of Excellence** in the poster presentation session in Engineering and Technology Category in 20th State Science and Technology congress 2013,
4. “Technology of Production of Synbiotic Dahi ” by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya .(Certified as **Award of Excellence in the poster presentation session** in Life Science Category in 20th State Science and Technology congress 2013,



Research area




- I. Nanotechnology in food products
- II. Extrusion technology in food
- III. Development and evaluation of nutritionally enriched spread products
- IV. Isolation and utilization of non oil constituent of oil bearing materials
- V. Technology developments for Non- Dairy products of superior Nutritional Quality at significantly reduced cost.
- VI. Technology development particularly microbial fermentation process for making value- added products from waste fruits and vegetables for food applications.
- VII. Microbial oils for functional Food and Nutraceuticals from Micro organisms screened and isolated from soils mainly.
- VIII. Colour from soil microbes for food uses and microbial enzymes such as Lactase, Lipases and phospho lipases for food industries.
- IX. Shelf life both oxidative and microbial of non- dairy food products and food products in general.
- X. Production and application of bioactive peptides from natural and microbial sources for food use.



Research facilities:

Name of Equipment	Few words	Pictures
Twin Screw Extruder	<p>Twin screw extrusion is used extensively for mixing, compounding, or reacting polymeric materials. The flexibility of twin screw extrusion equipment allows this operation to be designed specifically for the formulation being processed. the configurations of the screws themselves may be varied using forward conveying elements, reverse conveying elements, kneading blocks, and other designs in order to achieve particular mixing characteristics.</p>	
Centrifuge	<p>In Centrifuges the centrifugal force is mechanically generated by turning the equipment containing the fluid in a circular path causing the fluids to separate. This method has been used in the laboratories and primitive industries for over a century. It has mainly been used to separate fluids in static state, i.e. ,specific volumes which needed to be separated.</p>	

<p>Vacuum Tray Drier</p>	<p>Under the condition of vacuum, the boiling point of raw material will decrease and make the pushing force become greater. Therefore for a certain amount of heat radiation, the conducting area of evaporator can be saved. The heat source for operation of evaporation may be low pressure steam or surplus heat steam. The heat loss of evaporator is less. During the period of drying, there is no impurity material mixing. It belongs to static drier. So the shape of raw material to be dried can not be destroyed.</p>	
<p>Hot Air Oven</p>	<p>This electrical device is used in sterilization. The oven uses dry heat to sterilize articles. Generally, they can be operated from 50 to 300 °C (122 to 572 °F). There is a thermostat controlling the temperature. These are digitally controlled to maintain the temperature.</p>	

<p>Laminer Flow</p>	<p>Horizontal Laminar Airflow Table Top Workstation provides a HEPA filtered clean work area that is ideal for operations requiring a particle-free, bacteria-free, clean air environment. . The clean work area provides an excellent work space for small laboratory appliances, microscopes, pipetting, or similar applications.</p>	 <p>A photograph showing a person wearing a pink lab coat and a hairnet, working inside a laminar flow hood. The hood is yellow and blue, with a mesh screen at the front. Inside the hood, there are several glass beakers and bottles, some containing orange and green liquids. The person is using a pipette to transfer liquid from a bottle into a beaker. The hood has a label that reads 'MICROBIAL FILTER'.</p>
<p>BOD Incubator</p>	<p>Finer Microstructural details can be examined by Scanning Electron microscopy. Local chemical constituents are measured through Energy Dispersive X-ray (EDS) Spectroscopy. The Electron Back Scattered Diffraction Pattern (EBSP) can be examined.</p>	 <p>A photograph of a B.O.D. Incubator machine. The machine is white with a blue top and bottom section. The top section has a digital display and several control buttons. The front panel has a label that reads 'B.O.D. INCUBATOR' and a logo for 'TMC'. The machine is standing on a blue base with a grid of holes.</p>

Microwave	<p>This instrument measures the chemical composition of metals and alloys by optical emission through Spectroscopic analyses.</p>	
Reynolds apparatus	<p>To determine the Reynold's number and hence the type of flow either Laminar or turbulent and also to determine upper & lower critical Reynold's number's & velocities.</p>	
Sieves Shaker with Brass Sieves	<p>Used to agitate sieves for determining gradation in soils and finest modules in aggregates. Unique orbital motion ensures precise gradation. Quick release adjustable clamps secure sieves firmly in position. Hold feature on the 15-minute timer permits continuous agitation. Holds up to eight sieves plus a dust pan and accepts either eight or twelve inch sieves.</p>	

Colorimeter	<p>A device used in colorimetry. In scientific fields the word generally refers to the device that measures the absorbance of particular wavelengths of light by a specific solution. This device is most commonly used to determine the concentration of a known solute in a given solution by the application of the Beer-Lambert law, which states that the concentration of a solute is proportional to the absorbance.</p>	
Microscope	<p>An instrument used to see objects too small for the naked eye. The science of investigating small objects using such an instrument is called microscopy. Microscopic means invisible to the eye unless aided by a microscope.</p>	

Name of laboratories:

1. **Food Processing Lab:**
2. **Food Preservation Lab:**
3. **Microbiology Lab.**
4. **Unit Operation Lab:**
5. **Chemical Analysis Lab**
6. **Student Computer Lab.**

Sponsored Research (during 2011-2012):

Sl. No.	Title of Research Project	Sponsoring Agency	Year of Start and duration
01.	Development of technology to make low cost nutritionally effective ‘ready to eat’ protein rich human food from oil seeds or deoiled edible seed cakes (seed meals) by co-extrusion with cereals Value: 10.70 lakhs.	Ministry of Consumer Affairs, Food & Public Distribution, Government of India	January 2012

Industry-Institute Interaction

Corporate Social Responsibility (CSR) project to impart “*Skill development/Vocational Training to the unemployed youth around the locality in Metiabruz, Kolkata*” by Garden Reach Shipbuilders & Engineers Limited (GRSE), Kolkata, a Govt. of India undertaking under the Ministry of Defence.

Value: 32.00 lakhs

No. of Publications (during 2012-2013)

(Journal only)

Sl. No.	Title of Research paper	Title of the Journal	Year	Vol./ issue No	Page Nos.
01.	Study on the effects of drying process on the composition and quality of wet okara Samadrita Sengupta, Minakshi Chakraborty, Jayati Bhowal and D. K. Bhattacharyya,	International Journal of Science, Environment and Technology,	2012	Vol. 01 No. 04	319-330
02.	Utilization of Seed Protein Concentrates in making Protein Rich Biscuits Sanjukta Kar, Poulomi Roy, Minakshi Ghosh, D.K.Bhattacharyya,	Indian Journal of Information Science and Applications,	2012	Vol. 02 No. 01	07-14
03	Utilization of Fruit Wastes in Producing Single Cell Protein Amit Kumar Mondal, Samadrita Sengupta, Jayati Bhowal, D. K. Bhattacharyya,	Int. J. of Science, Environment and Technology.	2012	Vol. 01 No. 05	430-438

04	Studies On Preparation Of Functional Lipid And Micronutrient Enriched Bhola Bhetki Fish (Nibea soldado) Spread Tanima Bhattacharya, Minakshi Ghosh, Jayati Bhowal and D.K. Bhattacharyya,	Journal of Food Processing and Technology ,Open access scientific reports,	2012	Vol. 01 No. 06	01-06
05	Development of New Kinds of Soy Yogurt Containing Functional Lipids as Superior Quality Food . Samadrita Sengupta, Jayati Bhowal, D. K. Bhattacharya	Annals of Biological Research , Scholars Research library	2013	Vol. 04 No. 04	144-151.
06	Preparation of Some Nutritionally Superior Quality Mayonnaise Products Jayita Das, Tanima Bhattacharya, Sanjukta Kar, Minakshi Ghosh, D.K. Bhattacharyya,	International Journal of Applied Sciences & Engineering	2013	Vol. 01 No. 01	15-20
07	Utilization of Moringa Leaves as Valuable Food Ingredient in Biscuit Preparation Sanjukta Kar, Atrayee Mukherjee, M.Ghosh, D.K.Bhattacharyya	Int. Journal of Applied Science and Engineering	2013	Vol. 01 No. 01	29-37

Seminar/Workshops/Conferences/Training programme organised by the Department (during 2011-2012)

- Skill development/Vocational Training to the unemployed youth around the locality in Metiabruz, Kolkata” , Garden Reach Shipbuilders & Engineers Limited (GRSE),Kolkata, a Govt. of India undertaking under the Ministry of Defence.from January 03,2013
- **Technology Developed/Innovations.**
- Technology of production of functional food products such as non dairy yogurts, soy and other peanut butter like spread products of superior quality.
- Twin Screw Extrusion Technology
- Microbial fermentation process for making value- added products from waste fruits and vegetables for food applications

Others:

- **Dr.Avery Sengupta,,Post Doctoral fellow of UGC-Dr. D.S.Kothari PDF,under Prof.D.K.Bhattacharyya,August,2012**

- **Abstract accepted in conferences National/International**

1. Development of New Kinds of Soy Yogurt Containing Functional Lipids as Superior Quality Probiotic Food. Samadrita Sengupta, Jayati Bhowal, Minakshi Ghosh and Dipak Kumar Bhattacharyya, 11th International Conference on Functional foods and Chronic Inflammation: Science and Practical Application August 21-23, 2012 University of San Diego, San Diego, California, USA.
2. Technology For Preparation Of Functional Lipid And Micronutrient Enriched ..Bhola Bhetki Fish (*Nibea soldado*) Spread, Tanima Bhattacharya, Minakshi Ghosh, .Jayati Bhowal and Dipak Kumar Bhattacharyya 11th International Conference on .Functional foods and Chronic Inflammation: Science and Practical Application .August 21-23, 2012 University of San Diego, San Diego, California, USA.
3. Development of Some Bioactive food compounds based Soy Spreads. Sanjukta Kar, M. Ghosh, D.K. Bhattacharyya, J. Bhowal, abstract accepted in 11th International Conference on "Functional Foods and Chronic Inflammation: Science and Practical Application", to be held at the University of San Diego, California, USA, during August 21-23, 2012.
4. Preparation of Health Beneficiary Soy Yogurt by Incorporating *Spirulina platensis* Samadrita Sengupta, Jayati Bhowal, Minakshi Ghosh and Dipak Kumar Bhattacharyya, abstract accepted in 12th International Conference on “Functional Food Ingredients and Nutraceuticals in Chronic Disease: Science and Practice”, to be held in Southern Methodist University, Dallas, TX, USA on November 29-December 1, 2012.
5. A Novel Approach for Making Soy Yogurt Containing Rice Bran Oil and Sesame oil as Superior Quality Probiotic Yogurt” by SamadritaSengupta, Jayati Bhowal and D. K. Bhattacharyya , 67th Annual Convention of Oil Technologist’s Association of India, held at ITC Maratha, Mumbai, Nov,23-24, 2012. (Awarded as Best Poster in the poster presentation session)
6. “New Approach for Preparation of Seed Protein Isolate Base Edible Films: ComparativeStudy of the Thermal Properties of the Films” by T.Bhattacharya, N.R.Bandyopadhyay, D.Roy, D.K. Bhattacharyya, M. Kundu and B. C. Mitra , 67th Annual Convention of Oil Technologist’s Association of India, held at ITC Maratha, Mumbai, Nov,23-24, 2012.
7. “Technology Development for Producing Bitter and Flavour free Mustard Spreads” by Sanjukta Kar, M. Ghosh and D. K. Bhattacharyya , 67th Annual Convention of Oil Technologist’s Association of India, held at ITC Maratha, Mumbai, Nov,23-24, 2012.
8. “Development of Nutritionally Enriched Health Beneficial Peanut Butter like Spread Products” by Sanjukta Kar*, Minakshi Ghosh and D.K. Bhattacharyya in 100th Indian Science Congress, 2013.

9. "Technology of Production of Synbiotic Dahi" by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya .(Certified as Award of Excellence in the poster presentation session in Life Science Category in 20th State Science and Technology congress 2013, held at BESUS)
10. "Preparation of Protein rich Soy based products made by extrusion technology" by Minakshi Ghosh*, Samadrita Sengupta, Sanjukta Kar, N. R. Bandyopadhyay, D.K.Bhattacharyya, Jayati Bhowal in Life Science Category in 20th State Science and Technology congress 2013, held at BESUS.
11. "Development of Green Technology for Making Nano Starch Crystals And their film Forming Properties" by Tanima Bhattacharya, Nilratan Bandyopadhyay, Dipa Roy, Dipak Kumar Bhattacharyya ,Certified as Award of Excellence in the poster presentation session in Engineering and Technology Category in 20th State Science and Technology congress 2013, held at Besus.
12. "Micronutrients Enriched Egg Protein Based Spread Products " by Sanjukta Kar*, Minakshi Ghosh and D.K. Bhattacharyya in Life Science Category in 20th State Science and Technology congress 2013, held at BESUS.
13. "Process Development for Upgrading the Quality of Mustard Meal for Food Uses" by Sudhasri Sahu*, Sanjukta Kar, M.Ghosh, D.K.Bhattacharyya in Life Science Category in 20th State Science and Technology congress 2013, held at BESUS.
14. 'Study on preparation of breakfast cereal by Twin Screw Extrusion Technology using Jackfruit seed flour and soy flour' by Priyadarshini Chakraborty, M.Ghosh , N.R.Bandyopadhyay, D.K.Bhattacharyya, in the poster presentation session in Engineering and Technology Category in 20th State Science and Technology congress 2013, held at Besus.
15. *"A Novel Approach to Develop Antioxidant Enriched Rice Bran Oil "*by Sanjukta Kar*, Samadrita Sengupta, D.K.Bhattacharyya. **(Awarded 2nd prize in the poster presentation session in GNIT, 2013)**

*School of
Disaster Mitigation Engineering*

PRESENT CONTEXT AND FUTURE SCOPE

The source of man's unhappiness is his ignorance of Nature.

— Paul Henry Thiry d' Holbach

INTRODUCTION

Even in this era of being netizens, despite tremendous effort and advancement in the spheres of science, engineering and technology, many a time people have succumbed to the vagaries of nature. Globally, natural disasters account for nearly 99% of all the disaster-affected people in the last decade.¹ The further disturbing fact is that even in a region like South Asia, where poverty, deprivation, and death due to disasters are a common enough feature of life, India remains the worst-affected country. In fact, between 1997 and 2006, disasters reportedly killed 83,252 people and affected another 704.21 million in India.² Experiences and study tell us that the actual figures greatly exceed the documented ones. This type of devastating forces of nature certainly points out the immediate need of expertise to combat the major natural disasters, viz. earthquake, flood, drought and cyclone; and, minor natural disasters, viz. heat wave, cold wave, landslide, avalanche, tornadoes and hailstorm. In this context, Bengal Engineering and Science University, Shibpur with the help of a group of distinguished faculty members pursuing their research in the area of Earthquake, Windstorm, Hydrology, Stability of Land slopes etc., wholeheartedly desires to extend the academic expertise to cater to the need of minimizing the devastating effect of such calamities.

The geographical location of our state is in a peculiar situation; the northern portion of it is surrounded by a number of active faults in the Himalayan Region, and the North Indian Ocean Cyclone Region is at its south. The entire North Bengal is surrounded by a number of active faults in the Himalayan region, and hence is included in the Zone IV of the Indian earthquake code.³ Broadly speaking, the earthquake tremors of the active faults of this region results into landslides; again, the landslides on their turn compounded with deforestation causing soil erosion, results into flood in the lower districts of the state. Again the threat of super-cyclones has of late become an annual



Fig.1: Map of West Bengal

¹ World Disaster Report, 2007

² Ibid

³ IS: 1893 (Part 1) – 2002

feature during the months of May or November. The different facets of natural disasters, which are threatening the nation as a whole and the state as a particular, need to be tackled in a holistic manner.

The Issue of Earthquake

Earthquakes unleash energies on the scale of nuclear explosions. While they rarely announce their arrival in advance, even the strongest earthquakes are over in a matter of moments. Tectonic motion cannot be prevented, but the probability of the occurrence of earthquakes of different magnitudes can be estimated. Safety measures can then be undertaken in advance. Damage control is a life-saving and cost-effective alternative to reconstruction. This is more so important because, of all disasters, only earthquakes permanently reconfigure a landscape. However, for survival of structures in



Fig. 2: Devastating Earthquake in Gujarat

the event of earthquake following measures should be immediately taken —

- i) Seismic microzonation of the area in question to assess the seismic vulnerability of various locations; and,
- ii) Formation of appropriate guidelines, rules and regulation for the survival of buildings and other utility structures during earthquakes.

The Issue of Landslide



Fig. 3: Front pictorial view of the Penegal landslide at Sikkim⁴

sudden downhill movements of earth or other solid material, and are usually caused by rain, thaws, or forces increasing the top material weight, lubricating the material layers, or making the slope too steep. They can be triggered by earthquakes, saturation with heavy rain, or crashing waves. History's largest and most destructive landslides are

A landslide is a sudden collapse of a large mass of hillside. There are many different types of landslides, where not only earth, but rock, mud, and debris flow down the side of a slope. All earth and material on a slope has an “angle of repose,” or an angle at which that material will remain stable. Loose dry rock remains in place at angles up to 30 degrees, but wet clay will start to slip at more than 1 or 2 degree inclinations. Landslides are the

⁴ www.rurkiu.ernet.in/.../slide7a.jpg

due to earthquakes that started the material moving. Excessive rain or snowmelt, however, is also known to saturate and lubricate soil on steep angles. Rapid temperature changes can also cause land slide by alternately shrinking and expanding soil formations, or by forming ice heaves between layers of rock. Forest fires are indirectly responsible for landslides because they take away slope vegetation, making erosion easier. Man can also cause slides by mining the earth, underground excavation, pumping and draining groundwater levels, or overdeveloping hillsides.

Complete prevention of landslides and toe erosion is not a feasible proposition but the aim of prevention can be partly achieved by any one or more of the following means —

- i) Easing of slopes;
- ii) Bitumen asphalt mulching or grouting by use of asphaltic cement bitumen emulsion on outback bitumen;
- iii) Afforestation;
- iv) Provision of stilling pools or hydraulic jump immediately below the site of toe erosion;
- v) Removal of all obstacles like huge boulders in the way of the current;
- vi) Provision of chutes and sloping aprons.

Relevant data in respect of geology, hydrology and seismology of the areas enables engineers to determinate correct design parameters and to assess forces to be countered upon by the structure correctly.

The Issue of Flood

The term "flood" is a general or temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters or from the unusual and rapid accumulation or runoff of surface waters from any source.

Flooding and flash flooding are the deadliest of natural disasters. Floodwaters claim thousands of lives every year and render millions homeless. One of the more frightening things about flooding is that it can occur nearly anywhere, at any time. It can result from excess



Fig. 4: Crossing the flood – Effect of Teesta⁵

water jams on rivers, even moderate rain, or a single very heavy downpour.

Destruction of Natural Terrain: Growth of Unplanned Settlement

It is observed that for the establishment of large scale settlements, often the natural slope is destroyed by cut and fill method, and, man-made new terrains are created. These man-made terrains have a cumulative effect on accumulation of rain water and disposal of the same to the nearest river bed. But going against nature ultimately proves fatal. The study team will demarcate areas which should only be used for the purpose of shelter-construction, and, shall propose methodologies to avoid the destruction of natural terrain.

⁵ www.azeecon-lwf.com

OBJECTIVES

With this petite introduction regarding different facets of natural disasters, the objectives of the School of Disaster Mitigation Engineering, which was set up in 2007 by the University, are stated below.

Technology Development

- To study the structural and architectural details of the low-cost non-engineered structures at the coastal regions.
- To work out architectural plan and the design procedure of the anchorages for the roofs, bonds for walls etc. from the viewpoint of wind engineering through a computational study.
- To carry out the tests of model buildings in wind tunnels to check the adequacy of the suggested design procedures.
- To advocate seismically resistant economically viable design methodology of structures.
- To put forward improved design methodology of dams and embankments to ward off the dreadful effect of flood.
- Finally to arrive at the drawings and structural detailing of some typical domestic units that can be directly constructed.
- To construct one or two pilot structure at the site to study the performance of the same in real situation.

Technology Transfer

Various developed methodologies are required to reach at the hand of practicing engineers. Hence, a number of Tailor-made Short Term Courses are to be conducted on regular basis by the research group at the School and the practicing engineers are the expected participants. Outcomes of the research work will also be published and attempted to be included in the Code.

ACHIEVEMENTS IN THE AREA

- More than 50 research publications in Journals and Conferences of International and National repute.
- A number of research projects funded by *Board of Research in Nuclear Sciences, Council of Scientific and Industrial Research, University Grants Commission, Department of Science and Technology* and *All India Council of Technical Education*.
- Research involvement of four doctoral students in the field.
- Recognition of a faculty member as Young Scientist by Department of Science and Technology, Government of India, for his research in this field.
- Award of Sir Arthur Cotton Memorial Medal by institution of Engineers (India) for a publication in the field of Earthquake Engineering in Institution's Journal. This was judged as the best paper in Civil Engineering for the year.

ANNUAL REPORT (2007-10) : SCHOOL OF DISASTER MITIGATION ENGINEERING

1. As per resolution in BOM, dated 24.11.05, the School was proposed to be established.
2. Dr. B. C. Chattopadhyay, Professor, Department of Civil Engineering, was appointed Director of School from 15-03-2007 vide RDO/ 2/ 767/ 4/ 0/ 6 dated 15-03-2007 from Registrar, BESUS.
3. An Working Committee to help the Director was framed on 21-03-2007 consisting of Dr. S. C. Dutta, Professor, Department of Civil Engineering; Dr. N. R. Bandopadhyay, Professor and Director, School of Material Science and Engineering; Dr. A. Ghosh, Assistant Professor, Department of Civil Engineering; Dr. P.K. Das, Assistant Professor, Department of Applied Mechanics and Drawing; Mr. R. Roy, Assistant Professor, Department of Applied Mechanics and Drawing; Mr. P. Mukhopadhyay, Assistant Professor, Department of Architecture, Town

and Regional Planning; and, Mr. S. Kar, University Engineer. The Committee met from time to time to discuss and finalise needed actions.

4. The first priority before Director was to help TEQIP to procure a 1.5m x 1.5m Horizontal Shaking Unit with payload of approximately 7 tonne, capable of producing around 1.5g of PGA for testing the seismic performance of model structures. The proposal for procurement of such a facility with its detailed specification was prepared by Dr. S. C. Dutta. The whole equipment was finalised to be procured through AIMIL Ltd. for USA.
5. Housing was planned for the said Shaking Unit on the plot near Old Hospital Building of the University. Necessary planning, designing, tendering and construction were made through University Engineer with financial help by authority of the University. A 4.2m x 8m shed was finally constructed for housing.
6. All internal detailing of the Work Station will be done in near future.
7. The equipment was installed and demonstrated before the members of Working Committee on 28-05-2008. The details of the equipment installed are appended at the end of the report.
8. The School is allotted third floor of the second newly constructed Eight Storied Building vide order AT/ 38 – 19/ 2007/ 427 dated 27-11-2007.
9. Request was made to the Convenor LIPMU for procuring Vibration Shaker of low capacity for pursuing doctoral thesis of Mr. P. Mukhopadhyay on 02-07-2007.
10. Dr. S. C. Dutta, Professor of Civil Engineering was appointed new Director of the school vide AT/ BOM – 43/ 2008/ 461 dated 03-06-2008.
11. Dr. Ambarish Ghosh, Professor of Civil Engineering was appointed new Director of the school vide RMS-1/4018 dated 08.01.10
12. A Working group has been formed with the permission of the Vice Chancellor for smooth functioning of the School. The working group consists of the following personalities:
Prof. N. R. Bandopadhyay, School of Material Science and Engineering
Prof. P K Das, Dept. of AEAM
Prof. Rana Roy, Dept. of AEAM
Prof. Mukhopadhyay, Dept of Arch. Town and Regional Planning
Prof. S Dalui, Dept, of Civil Engg.
Er S Kar, University Engineer, BESUS

The following analyser has been purchased for the model studies

- (a) OR36-FREQ-4 & OR-36/8-XPD-B: 4 channel analyzer
- (b) 731-207: Seismic Accelerometer
- (c) Pore pressure sensor
- (d) Multichannel display for pore pressure sensor

HORIZONTAL SHAKE UNIT

INTRODUCTION

For the last few years there were several fatal earthquakes throughout the world which came as an ultimate disaster over the human civilization and took toll thousands of life and caused enormous damage in the properties. Modern civilization demand urban & rural development in very quick pace which ultimately results in increasing number of engineering structures as well as non-engineering structures throughout the world. At the same time it is increasing the probability of damage occurred due to earthquake. This situation is boosting up the research & development works in 'Disaster Management & Studies' field to develop knowledge and technologies which will be used to develop smart structures which can withstand earthquake shocks and thus minimize the overall damage.

To study the earthquake, prime & most important challenge is simulation of earthquake signal. The system used for this purpose is called a Seismic Vibration Shaker which generates real time to & fro motion and earthquake like movement on a Square Table. The structure under test is placed on the table and hence it is being excited by the table movement. Dynamic response of the structure is then studied and thus one can analyze its various structural parameters and design aspects.



FIG. A: SINGLE AXIS SEISMIC SHAKE TABLE WITH BASE PLATE

SERVO HYDRAULIC CONTROLLED SHAKER SYSTEM

Total System Consist of following two main parts —

- (a) Mechanical & Hydraulic Part, and,
- (b) Controller Part.

The installed horizontal shaking unit has the following applications:

- Earth Quake Signal Simulation & Control.

- Structural Vibration Study.
- Reliability Study of Engineering and Non-Engineering Structures.

(A) Mechanical and Hydraulic Part

The sub-parts of the mechanical and hydraulic part are as follows —

- Horizontal single Axis Seismic Table 1.5 m x 1.5 m.
- Hydraulic Linear Actuator.
- Hydraulic Service Manifold.
- Hydraulic Power Supply.
- Servo Control System.
- Hydraulic Oil Cooling System (Heat Exchanger + Pump)

Photographs of the different sub-parts of the mechanical and hydraulic part are given below.

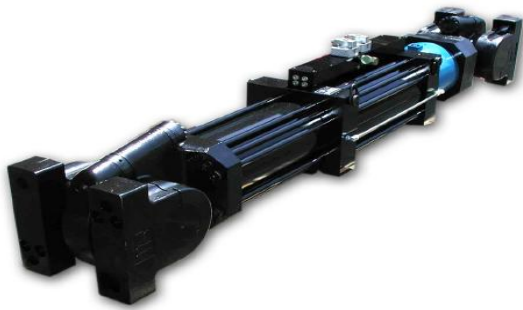


FIG. B1: SERVO HYDRAULIC LINEAR ACTUATOR



FIG. B2: SERVO HYDRAULIC LINEAR ACTUATOR ASSEMBLY



FIG. C1 & C2: HYDRAULIC SERVICE MANIFOLD



FIG D: HYDRAULIC POWER SUPPLY



FIG. E1 & E2: SERVO CONTROL SYSTEM

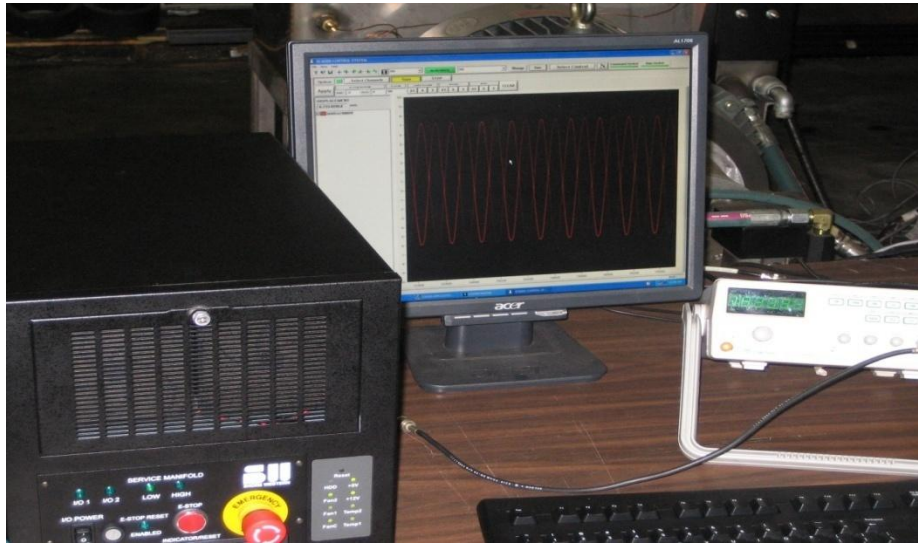


FIG. E3: SERVO CONTROL SYSTEM



FIG. F1 & F2: HYDRAULIC OIL COOLING SYSTEM (HEAT EXCHANGER + PUMP)

Controller Part (JAGUR Main Controller, Data Acquisition & Analysis):

- i. 8 inputs Channels & 1 Output channel.
- ii. Data Acquisition and analysis Software.
- iii. Sine, Random & Shock Vibration Control Hardware along with Software.
- iv. Random Vibration Control Software.
- v. MIMO Shock Vibration Control Software (Multi Shaker Controller)
- vi. Earthquake signal simulation through close loop control system.
- vii. Controller cum Data Acquisition and Analyzer System.
- viii. MATLAB Software.
- ix. Can control additional 5 number Actuators.

Photograph of the different sub-parts of the Controller Part are given below.



FIG. G: HEART OF SEISMIC SHAKER (JAGUAR CONTROLLER)

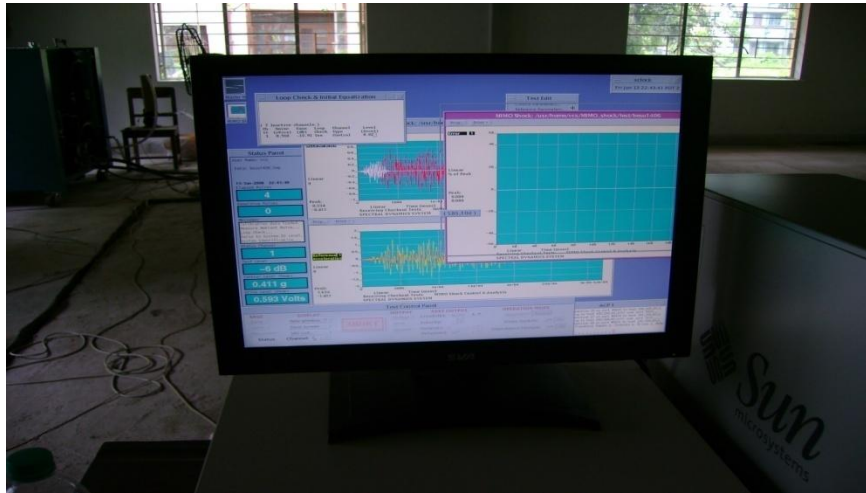


FIG. H1 : EARTHQUAKE SIGNAL ON JAGUAR DISPLAY

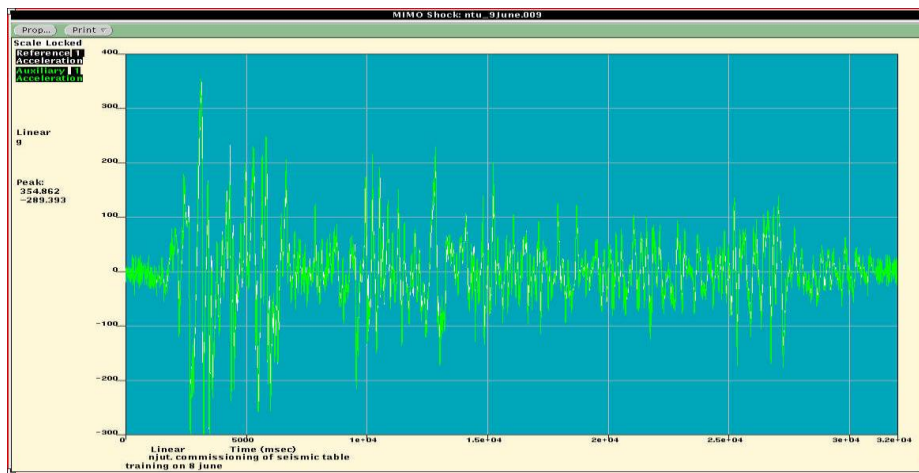


FIG. H2: EARTHQUAKE SIGNAL ON JAGUAR DISPLAY





**FIG. I1 & I2: COMPLETE SYSTEM
TRAINING AND DEMONSTRATION ON 28TH MAY, 2008**



FIG. J1: TRAINING AND DEMONSTRATION



FIG. J2: TRAINING AND DEMONSTRATION

TRAINING AND DEMONSTRATION ON 28TH MAY, 2008



FIG. J3: TRAINING AND DEMONSTRATION



FIG. J4: TRAINING AND DEMONSTRATION



FIG. J5: TRAINING AND DEMONSTRATION



FIG. J6: TRAINING AND DEMONSTRATION



FIG. J7: TRAINING AND DEMONSTRATION



FIG. J8: TRAINING AND DEMONSTRATION

***School of Ecology, Infrastructure and
Human Settlement Management***

About the School:

Environment and ecology of the globe in the era of globalization and rapid urbanization are subjected to unprecedented stress. The resource destructive development practices compel the human settlements growing beyond the thresholds of sustainability. To address the environmental and ecological challenges confronting the developmental process today, formation of a multidisciplinary research group for adopting alternative approaches for planning and management of human settlements and infrastructure development was felt necessary in this 150 year old University with diversified human resource pool. The **School of Ecology, Infrastructure and Human Settlement Management** came into existence to conduct interdisciplinary and cutting edge research, post graduate studies and extend technical support services on issues having the critical interface of ecology, human settlements and infrastructure development.

Thrust Areas for Research, Consultancy and Training:

- Spatial and Environmental Planning
- Community-Based Natural Resource Management
- Infrastructure and Utilities Planning
- Carrying Capacity Assessment for Urban Settlements
- Human Settlement Planning for Ecologically Fragile Areas
- Environmental Risk Mitigation for Low-Income Settlements
- Historic Architecture and Principles of Sustainability
- Vernacular Architecture and Sustainability
- Planning for Heritage Conservation
- Climate Change and Human Settlements
- Rehabilitative Planning for Climate Refugees
- Natural Resource Extraction and Livelihood Sustainability of Local Communities
- Green Building Techniques
- Institutional Reform and Capacity Building for Urban, Rural and Natural Resource Governance

Academic Programme:Degree Offered: **PhD in Engineering**Number of candidates enrolled/registered: **5****Faculty profile:**

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Sudip K Roy	Director	Ph.D.	Traffic & Transportation Planning and Engineering Infrastructure Planning	royksudip@gmail.com 9830233172
Souvanic Roy	Professor	Ph.D.	Environmental Planning, Urban Planning, Natural Resource Management	souvanic_roy@yahoo.co.in 9836093392
Manas Sanyal	Professor	Ph.D.	Spatial and Environmental Planning	Sanyal_manas@yahoo.co.in 9831352950
Suranjan Sinha	Professor	Ph.D.	EMP and SIA in Mining Areas and Natural Resource Economics	Suranjan1980@gmail.com 9433401631
Subrata Pal	Assistant Professor	Ph.D.	Transportation Planning	subrata2412@gmail.com 9831017508
Soumen Mitra	Assistant Professor	Master of Town and Regional Planning	Environmental Planning and GIS Applications	mitrasmen@yahoo.co.in 9831443101

Research Projects:

- I. Development of public transport system planning method for incremental growth of small and medium cities of eastern and north-eastern States' presented before the Programme Advisory Committee and likely to be funded DST, Govt. of India
- II. 'Utility and Robustness Based Approach for Planning of Capital Intensive Transportation
- III. Links (Bridges and Tunnels) in the Northeast' presented before the Programme Advisory
- IV. Committee and likely to be funded DST, Govt. of India

- V. Ecosystem Management and Role of Local Communities: Comparative Study of Canadian and Indian Perspective sponsored by Shastri Indo Canadian Institute
- VI. Development of Decision Support System for Urban Planning in Darjeeling Hills, West Bengal sponsored by AICTE
- VII. Development of Mine Closure Strategy for Sustainable Surface Coal Mining in West Bengal sponsored by MOEF, Govt. of India
- VIII. Collaborative Research Project on “Implementing Sustainable Behaviour through Sediment
- IX. Husbandry in West Bengal Sunderbans – Jointly with Queen’s University Belfast, UK
- X. Development of Models for Assessment of Carrying Capacities of Existing Towns and Cities sponsored by DFID

Sponsored Research:

Rehabilitative Planning for Cyclone Affected People in the Sunderban Region through Peoples Participatory Approaches sponsored by WWF Eastern Region

Design and Development of Green Building to Accommodate Guest House and Ancillary Infrastructure at New Digha sponsored by Students Health Home, Kolkata

Analyzing the Impact of Jawaharlal Nehru Urban Renewal Mission funded Slum Improvement Projects on Children Across Slums in India” funded by Bernard Van Leer Foundation, Hague, Netherlands.

Research facilities:

Instruments for physical and chemical analysis of water- Portable water analysis kit, soil analysis kit, sound level meter, PH meter, DO meter, Nephelo meter, TSS meter
Weather Sensors like Temperature, Humidity, Solar Radiation, Air Velocity and Direction, Rainfall Sensor, Data Logger and Data Acquisition System
Digital Thermo- Hygrometer, Digital Thermo- Anemometer, Sound Level Meter, Digital Lux Meter
Building and Settlement Level Energy Simulation Software
Statistical analysis software, ARGUS(Ground Water Modeling), ARMOD (Air Pollution Modeling), Map Source (GPS Software)

List of Journal Publications:

- I. Urban Water-Bodies and Wetlands: Management Needs and Challenges in Indian Cities: Souvanic Roy, Suchandra Bardhan and Krishna Ghosh in SPANDREL, Journal of School Planning and Architecture, Bhopal, Issue 2, Spring 2011

- II. Protected Area Governance in Thailand: Issues, Challenges and Institutional Responses: Souvanic Roy in Local Environment- The International Journal of Justice and Sustainability, 15 (9-10)
- III. Carrying Capacity Based Development Plan- A Tool for Sustainable Urban Planning and Management: A Case Application for a Typical Municipal Town in India: Manas Kumar Sanyal, Souvanic Roy, Sudip Roy and Subrata Kumar Paul in Journal of Xiamen International Forum on Urban Environment
- IV. Developing a Behavioural Model for Past and Future of Bengal Sunderban Deltaic Islands”: Julian Orford, Keith Bennett, S. Kumar and Souvanic Roy in Journal of IGCP Coastal and Marine Process Commission
- V. Growth of Housing Sector in India- Application of Cost-Effective Construction Technologies to Reduce Greenhouse Gas Emission: Nilanjan Sengupta (PhD Scholar) in Architectural Engineering Journal of Institution of Engineers (India), Vol. 91, October 2010 Issue
- VI. Alternative Housing Process for Upgrading Living Condition in Urban Fringes: Sourav Sen (PhD Scholar) in SPANDREL, Journal of School Planning and Architecture, Bhopal, Issue 2, Spring 2011

Conference Publications:

1. “Public Participation in Planning and Development: Experience of A Small City in India”: Souvanic Roy, Subrata Kumar Paul and Soumen Mitra. Paper published in the proceedings of the 44th EAROPH Regional Planning Conference in March 8-10, 2011 at Brunei, Darussalam
2. “Neoliberal Urbanisation and Coping Strategies: Indian Experience”: Souvanic Roy, Subrata Kumar Paul and Soumen Mitra . Paper published in the proceedings of the Asia Pacific Network for Housing Research (APNHR) Conference in January 8-10, 2011 at Hong Kong

Details of the Seminars, Workshops and Symposia organized :

SEIHSM has organized Three Programmes on Green Building and GRIHA Rating System sponsored by Ministry of New & Renewable Energy (MNRE as per the following schedule

- i. **One-day Awareness Programme on Green Building and Building Rating System on 7th March 2012 at BESU campus.**
- ii. **Two-day Seminar on Capacity Building on Green Building and GRIHA Rating System during 11-12 April, 2012 at Agartala**
- iii. **Three Day Training Programme for the Trainers & Evaluators on GRIHA Rating System during 24-26 July 2012 at BESU campus**

Academic /Research Collaboration, if any:

Collaborative Research with University of Victoria, British Columbia, Canada on Comparative Study of Ecosystem Management in India and Canada

***Purabi Das school of Information
Technology***

About the Department

The **Purabi Das School of Information Technology (PDSIT)** is established at Bengal Engineering and Science University, Shibpur (BESUS). The School is a collaborative effort of BECDU, Purabi Das Foundation (USA), Research Engineers Inc. (USA) and CMC Ltd. The School has been established with an aim to provide best quality teaching and training in the field of IT. The mandate before PDSIT is to establish itself as a leading centre of excellence. The other essential prerequisite is that - PDSIT should be financially self-supporting from the day one with no burden on the University or Government budget. In close collaboration with IT industries, PDSIT offers postgraduate degree courses.

Academic Programmes

Postgraduate Level

M.Tech in Information Technology The M.Tech program is a three-year, 6 semester Evening course. The student has to take a set of core courses and a set of electives. The course work is spread across the first to fourth semesters with an option of taking one elective in the fifth semester. This is followed by a project in the fifth and sixth semester in which the student can take up a project of his or her interest, supervised by a faculty member.

Student's intake

	P.G	Ph.D
Sanctioned students' intake	36	Awarded - 1 Registered - 2
Additional intake through lateral entry/ QIP	-	

Doctoral Level

PhD in Information Technology: The PhD. programs are postgraduate research oriented programs. The scholar works in an area of his/her interest under the supervision of a faculty member. The scholar has to obtain a minimum number of credits by taking courses. The highlight of the program is the independent research work taken by a scholar, leading to a dissertation at the end of the program. The average duration of a PhD. program is between four to five years.

PhD. Registered

1. Anirban Mukherjee, Thesis topic: Automatic Diagram Drawing Based on Natural Language Text Understanding.
2. Soumyabrata Ghosh, Thesis topic: "Theory and Application of Cellular Automata for Biological Sequence Analysis."

Faculty Position:**Sanctioned Faculty Post 2 Vacant Post 2****Faculty Profile (in the following table)**

Faculty Name	Designation	Highest Qualification	Specialization/ Research Area	Contact No. / Mail Id
Dr.Arindam Biswas	Director	Ph.D	Digital Geometry Image Processing and Pattern Recognition	abiswas@it.be cs.ac.in barindam@gmail.com Extn. no.864
Prof. Sekhar Mandal	Associate Professor	Ph. D	Image Processing and Pattern Recognition, Database Management Systems	sekhar@cs.becs.ac.in
Prof. Suryasarathi Barat	Professor (Visiting Faculty)	M.Sc. M.Tech	Data Base Management System,RFID & System Biology	Sbarat@hotmail.com
<u>Mr. Prasun Ghosal</u>	Assistant Professor	Ph.D	3D Integration of VLSI Physical Design Network-On-Chip Design of Embedded Systems	p_ghosal@it.becs.ac.in Extn. no.309
<u>Mr.Indrajit Banerjee</u>	Assistant Professor	M.Tech	Wireless ad-hoc Sensor Network	ibanerjee@it.becs.ac.in Extn. no.860
<u>Dr. Chandan Giri</u>	Assistant Professor	Ph.D	VLSI digital Circuit Testing System-On-Chip Testing Network-On-Chip Testing	chandangiri@gmail.com Extn. no.858
Mr. Pranab Roy	Assistant Professor	M.Tech	VLSI Physical Design (Bio-cheap)	Ronmarrine14@yahoo.co.in
Dr. Asit Kumar Das	Assistant Professor	Ph.D	Data mining and Pattern Recognition	akdas@cs.becs.ac.in
Prof. Apurba Sarkar	Assistant Professor	M.Tech	Digital Geometry	sarkar@cs.becs.ac.in , sarkarapurba@yahoo.co.in
Dr. Dipak Kumar Kole	Assistant Professor (Visiting Faculty)	Ph.D	Synthesis and Testing of Reversible Logic Circuits	dipak.kole@gmail.com

International Journal

1. N. Karmakar, A. Biswas, P. Bhowmick, and B. B. Bhattacharya, A Combinatorial Algorithm to Construct 3D Isothetic Covers, *International Journal of Computer Mathematics*, 2012 (accepted), DOI:10.1080/00207160.2012.734813.
2. M. Dutt, A. Biswas, and P. Bhowmick, Approximate Partitioning of 2D Objects into Orthogonally Convex Components, *Computer Vision and Image Understanding*, Vol. 117(4), pp. 326 - 341, 2013, DOI: 10.1016/j.cviu.2012.08.017.
3. A. Biswas, P. Bhowmick, M. Sarkar, and B. B. Bhattacharya, A Linear-time Combinatorial Algorithm to Find the Orthogonal Hull of an Object on the Digital Plane, *Information Sciences*, Elsevier, 2012, DOI: 10.1016/j.ins.2012.05.029.
4. P. Bhowmick, A. Biswas, and B. B. Bhattacharya, On the Representation of a Digital Contour with an Unordered Point Set for Visual Perception, *Journal of Visual Communication and Image Representation*, Vol. 22(7), pp. 590 – 605, 2011, DOI: 10.1016/j.jvcir.2011.07.005.
5. S. Chatterjee, R. Karim, A. Biswas, A. K. Ray, Image Processing of Ultrasound Color Doppler to Characterize Malignant Breast Lesion, *Advanced Materials Research Journal (AMR)*, Vol. 403 – 408, pp. 830 – 834, 2011, DOI: 10.4028/www.scientific.net/AMR.403-408.830, ISSN:1022-6680.
6. S. Chatterjee, A. K. Ray, R. Karim, and A. Biswas, Architectural Design to Characterize Malignant Breast Lesion, *International Journal of Computer Applications*, Vol. 31(11), pp. 8-15, 2011, DOI: 10.5120/3939-5529, ISBN: 978-93-80865-13-7.
7. M. Dutt, A. Sarkar, A. Biswas, P. Bhowmick, and B.B. Bhattacharya, Efficient Word Segmentation and Baseline Localization in Handwritten Documents Using Isothetic Covers, *International Journal of Digital Library Systems*, Vol. 2(3), pp. 1 – 13, 2011, DOI: 10.4018/jdls.2011070101.
8. M. Dutt, A. Biswas, P. Bhowmick, and B.B. Bhattacharya, On Finding an Orthogonal Convex Skull of a Digital Object, *International Journal of Imaging Systems and Technology*, Vol. 21(1), pp. 14 – 27, 2011, DOI: 10.1002/ima.20266.
9. A. Biswas, P. Bhowmick, and B. B. Bhattacharya, Construction of Isothetic Covers of a Digital Object: A Combinatorial Approach, *Journal of Visual Communication and Image Representation*, Vol. 21(4), pp. 295 – 310, 2010, DOI: 10.1016/j.jvcir.2010.02.001.
10. S. Pal, P. Bhowmick, A. Biswas, and B.B. Bhattacharya, Understanding Digital Documents Using Gestalt Properties of Isothetic Components, *International Journal of Digital Library Systems*, Vol. 1(3), pages 1 – 25, 2010, DOI: 10.4018/jdls.2010070101
11. A. Biswas, P. Bhowmick, and B. B. Bhattacharya, Archival Image Indexing with Connectivity Features using Randomized Masks, *Applied Soft Computing*, Vol. 8(4), pages 1625 – 1636, September 2008, DOI:10.1016/j.asoc.2007.05.020.
12. A. Biswas, P. Bhowmick, and B. B. Bhattacharya, Shape Codes and Their Applications to Image Retrieval, *Electronic Letters on Computer Vision and Image Analysis (ELCVIA)*, Vol. 7(2), pp. 62 – 75, 2008.
13. P. Bhowmick, A. Biswas, and B. B. Bhattacharya, Thinning-free Polygonal Approximation of Thick Digital Curves Using Cellular Envelope, *Electronic Letters on Computer Vision and Image Analysis(ELCVIA)*, Vol. 7(2), pp. 76 – 95, 2008.
14. Prasenjit Chanak, Hafijur Rahaman, Tuhina Samanta, Indrajit Banerjee “FTMRS: Fault Tolerance Routing Scheme for Wireless Sensor Network”, *International Journal of Wireless & Mobile Networks*, Vol. 5, No. 2, April 2013.
15. Indrajit Banerjee, Anirban Datta, Sonalisa Pal, Soujanya Chatterjee, Tuhina Samanta, “A Novel Fault Detection and Replacement Scheme in WSN”, *Second International Symposium on Intelligent Informatics (ISI'13)*, 23-24, August 2013.

16. Supantha Das, Indrajit Banerjee, and Tuhina Samanta, "Sensor Localization and Obstacle Boundary Detection Algorithm in WSN", Third International Conference on Advances in Computing and Communications (ACC-2013), 29-31 August 2013.
17. Indrajit Banerjee, Prasenjit Chanak, Tuhina Samanta, Hafijur Rahaman "EFDR: Effective Fault Detection and Routing Scheme for Wireless Sensor Network", International Journal of Computers & Electrical Engineering, Elsevier (Accepted), 2013.
18. Prasenjit Chanak, Tuhina Samanta, Indrajit Banerjee, "Quad Tree Approach for Obstacle Discovery and Tracking in Wireless Sensor Networks", IEEE SENSOR 2013, Baltimore, USA, 3-6 November 2013.
19. Ritwik Mukherjee, Hafizur Rahaman, Indrajit Banerjee, Tuhina Samanta, and Parthasarathi Dasgupta, "A Heuristic Method for Co-optimization of Pin Assignment and Droplet Routing in Digital Microfluidic Biochip" Accepted for appearing in Proceedings of International Conference on VLSI Design (VLSID 2012), to be held at Hyderabad, January 2012
20. Srimanta Halder, Monomita Mazumdar, Prasenjit Chanak, Indrajit Banerjee, "FTLBS: Fault Tolerant Load Balancing Scheme in Wireless Sensor Network" Advances in Computing and Information Technology, Advances in Intelligent Systems and Computing, Springer,
21. Monomita Mazumdar, Srimanta Halder, Prasenjit Chanak, Indrajit Banerjee, "DARIH: Distributed Adaptive Routing via Information Highway in Sensor Network", Advances in Computing and Information Technology, Advances in Intelligent Systems and Computing, Springer,
22. Indrajit Banerjee, Prasenjit Chanak, Hafizur Rahaman, and Nachiketa Das, "GBFTS: Group Based Fault Tolerant Scheme in Wireless Sensor Networks,"
23. Nachiketa Das, Hafizur Rahaman and Indrajit Banerjee "BIST to Diagnosis Delay Fault in the LUT of Cluster Based FPGA", International Journal of Information and Electronics Engineering, Vol. 2, No. 2, March 2012.
24. Prasenjit Chanak, Indrajit Banerjee, Tuhina Samanta, Hafijur Rahaman, "FFMS: Fuzzy Based Fault Management Scheme in Wireless Sensor Network", Eco-friendly Computing and Communication Systems, Communications in Computer and Information Science, Springer, Volume 305, 2012, pp 30-38.
25. Snehasu Bank, Surata Saha, Indrajit Banerjee, "An Analytical Model on Wireless Sensor Networks", International Conference on Computer Science and Engineering, April 28th, 2012. Pp:17-20.
26. Banerjee, Indrajit; Chanak, Prasenjit; Samanta, Tuhina; Rahaman, Hafizur, "Fuzzy rule-based faulty node classification and management scheme in wireless sensor network" Communicated to IEEE Transactions on Parallel and Distributed Systems.
27. Prasenjit Chanak, Tuhina Samanta, Hafizur Rahaman and Indrajit Banerjee, "Obstacle Discovery and Localization Scheme for Wireless Sensor Network", CODIS 2012, 28-29th December, 2012, pp-262-265.
28. Indrajit Banerjee, Indrani Roy, Ahana Roy Choudhury, Biswarup Das Sharma and Tuhina Samanta, "Shortest Path Based Geographical Routing Algorithm in Wireless Sensor Network", CODIS 2012, 28-29th December, 2012 pp-266-269.
29. **Prasun Ghosal**, and Tuhin Subhra Das, "*Improved Extended XY On-Chip Routing in Diametrical 2D Mesh NoC*", International Journal of VLSI design & Communication Systems (VLSICS) Vol.3, No.5, October 2012, pp. 191-200.; DOI : 10.5121/vlsic.2012.3516
30. **Prasun Ghosal**, Arijit Chakraborty, and Sabyasachee Banerjee, "*Particle Swarm Optimization of Speed in Unplanned Lane Traffic*", International Journal of Artificial Intelligence & Applications (IJAIA), Vol.3, No.4, July 2012, pp. 51-63. DOI : 10.5121/ijaia.2012.3404
31. **Prasun Ghosal**, Arijit Chakraborty, Sabyasachee Banerjee, and Satabdi Barman, "*Speed Optimization in Unplanned Traffic Using Bio-inspired Computing And Population Knowledge Base*", Computer Science

32. **Prasun Ghosal**, Arijit Chakraborty, and Sabyasachee Banerjee, "*Computational Optimization of Speed in an Unplanned Lane Traffic*", IEM International Journal of Management & Technology (IEMITMT) [ISSN: 2296-6611], pp. 160-163.
33. **Prasun Ghosal**, Arijit Chakraborty, Sabyasachee Banerjee, "*Design of Knowledge Based Efficient Speed Optimization Algorithm in Unplanned Traffic*", The IUP Journal of Computer Sciences, Vol. VI, No. 1, pp. 23-30, January 2012.
34. **Dipak K. Kole** and Amiya Halder, "*Automatic Brain Tumor Detection and Isolation of Tumor Cells from MRI Images*", International Journal of Computer Applications, Volume 39– No.16, pp. 26-30, February 2012.
35. Pritam Das, Ranjit Ghoshal, **Dipak K. Kole** and R N Ghosh, "*Measurement of Displacement and Velocity of a Moving Object from Real Time Video*", International Journal of Computer Applications, Volume 39 – No.13, pp.12-16, July 2012.
36. **Dipak K. Kole**, H. Rahaman, D. K. Das, and B. B. Bhattacharya, "*Derivation of test set for detecting multiple missing-gate faults in reversible circuits*", International Journal of Computers and Electrical Engineering (*Elsevier*), 2012.

International Conferences

1. A. Mukherjee, U. Garain, and A. Biswas, Evaluation of the Graphical Representation for Text-to-Graphic Conversion Systems, 10th IAPR International Workshop on Graphics Recognition, Lehigh University, Bethlehem, PA, USA, Aug. 20-21, 2013 (accepted).
2. J. K. Das, S. K. Saha, and A. Biswas, Depth from Images Of External Outdoor Scenes, 8th Indian Conference on Computer Vision, Graphics and Image Processing: ICVGIP'12, Mumbai, India, ACM, New York, NY, USA, , Article 17 , pp. 1-7, Dec. 16 - 19, 2012.
3. S. Phani, S. Lahiri, and A. Biswas, Culturomics On A Bengali Newspaper Corpus, International Conference on Asian Language Processing 2012 (IALP 2012), Hanoi, Vietnam, pp. 237-240, Nov. 13-15, 2012.
4. N. Karmakar, A. Biswas, and P. Bhowmick, Fast Slicing of Orthogonal Covers Using DCEL, 15th International Workshop on Combinatorial Image Analysis: IWCIA'12, Austin, Texas, USA, Lecture Notes in Computer Science (LNCS), Springer, Vol. 7655, pp. 16 – 30, Nov. 28–30, 2012.
5. M. Dutt, A. Biswas, P. Bhowmick, and B. B. Bhattacharya, On Finding Shortest Isothetic Path inside a Digital Object, 15th International Workshop on Combinatorial Image Analysis: IWCIA'12, Austin, Texas, USA, Lecture Notes in Computer Science (LNCS), Springer, Vol. 7655, pp. 16 – 30, Nov. 28–30, 2012.
6. S. Chatterjee, A. K. Ray, R. Karim, A. Biswas, Classification of Malignant Tumors Using Multiple Sonographic Features, IEEE Proceedings of the International Conference on Recent Trends in Information Systems (ReTIS-2011), pp. 252 – 256, Dec. 21 – 23, 2011, Jadavpur University, Kolkata, India.
7. S. Chatterjee, A. K. Ray, R. Karim, A. Biswas, Micro-calcification Detection to Characterize Malignant Breast Lesion, Annual IEEE India Conference (INDICON 2011), pp. 1 – 4, Dec. 16 – 18, 2011 Hyderabad, India.
8. S. C. Dutta, A. Biswas, S. Mitra, and C. Saha, Extraction of Lip Region from Video Sequences of Basic Facial Expressions, in Proc. of International Conference on Computational vision and Robotics: ICCVR'11, Aug. 13 – 14, 2011 (accepted).
9. N. Karmakar, A. Biswas, P. Bhowmick, and B.B. Bhattacharya, Construction of 3D Orthogonal Cover of a Digital Object, in Proc. of 14th International Workshop on Combinatorial Image Analysis: IWCIA'11, Madrid, Spain, Lecture Notes in Computer Science (LNCS), Springer, Vol. 6636, pp. 70 – 83, May 23 – 25, 2011, DOI:10.1007/978-3-642-21073-0_9.

10. S. Chatterjee, R. Karim, A. Biswas, A. K. Ray, Image Processing of Ultrasound Color Doppler to Characterize Malignant Breast Lesion, in Proc. of International Conference on Control, Robotics and Cybernetics: ICCRC'11, New Delhi, India, IEEE Catalog Number: CFP1176M-PRT, ISBN: 978-1-4244-9709-6, pp. VI: 159 – 162, Mar 21 – 23, 2011.
11. M. Dutt, A. Biswas, and P. Bhowmick, ACCORD: With Approximate Covering of Convex Orthogonal Decomposition, in Proc. of 16th IAPR International Conference on Discrete Geometry for Computer Imagery: DGCI'11, Nancy, France, Lecture Notes in Computer Science (LNCS), Springer, Vol. 6607, pp. 489 – 500, April 6 – 8, 2011, DOI:10.1007/978-3-642-19867-0_41.
12. S. Pal, P. Bhowmick, and A. Biswas, FACET: A Fast Approximate Circularity Estimation Technique, in Proc. of 2nd International Conference of Emerging Applications of Information Technology: EAIT'11, Kolkata, India, IEEE CS Press, pp. 106 – 109, February 19 – 20, 2011, DOI: 10.1109/EAIT.2011.45.
13. A. Sarkar, A. Biswas, P. Bhowmick, and B.B. Bhattacharya, Combinatorial Construction of the Orthogonal Concavity Tree of a Digital Object, in Proc. of 2nd International Conference of Emerging Applications of Information Technology: EAIT'11, Kolkata, India, IEEE CS Press, pp. 210 – 213, 2011, DOI: 10.1109/EAIT.2011.55.
14. S. Pratihari, S. Pal, P. Bhowmick, A. Biswas, and B.B. Bhattacharya, Recognition of Hand-drawn Graphs Using Digital-geometric Techniques, in Proc. of 12th International Conference on Frontiers in Handwriting Recognition: ICFHR'10, Kolkata, India, IEEE Computer Society, pp. 89 – 94, November 16 – 18, 2010, DOI: 10.1109/ICFHR.2010.20.
15. A. Sarkar, A. Biswas, P. Bhowmick, and B.B. Bhattacharya, Word Segmentation and Baseline Detection in Handwritten Documents Using Isothetic Covers, in Proc. of 12th International Conference on Frontiers in Handwriting Recognition: ICFHR'10, Kolkata, India, IEEE Computer Society, pp. 445 – 450, November 16 – 18, 2010, DOI: 10.1109/ICFHR.2010.76.
16. A. Biswas, M. Dutt, P. Bhowmick, and B. B. Bhattacharya, On Finding the Orthogonal Convex Skull of a Digital Object, in Proc. of 13th International Workshop on Combinatorial Image Analysis: IWCIA'09, Playa del Carmen, Mexico, Research Publishing Services, *Editors: Petra Wiederhold and Reneta P. Barneva*, pp.25 – 36, November 24 – 27, 2009.
17. S. Pal, P. Bhowmick, A. Biswas, and B. B. Bhattacharya, GOAL: Towards understanding of Graphic Objects from Architectural to Line drawings, in Proc. of 8th International Workshop on Graphics Recognition: GREC'09, La Rochelle, France, Lecture Notes in Computer Science (LNCS), Springer, Vol. 6020, pp.81 – 92, July 22 – 23, 2009, DOI:10.1007/978-3-642-13728-0_8.
18. A. Biswas, M. Sarkar, P. Bhowmick, and B. B. Bhattacharya, Finding the Orthogonal Hull of a Digital Object: A Combinatorial Approach, in Proc. of 12th International Workshop on Combinatorial Image Analysis: IWCIA'08, Buffalo, USA, Lecture Notes in Computer Science (LNCS), Springer, Vol. 4958, pp. 124 – 135, April 7 – 9, 2008, DOI:10.1007/978-3-540-78275-9_11.
19. A. Biswas, S. Khara, P. Bhowmick, and B. B. Bhattacharya, Extraction of Regions of Interest from Face Images Using Cellular Analysis, in Proc. of 1st Bangalore Annual Compute Conference: COMPUTE'08, Indian Institute of Science, Bangalore, India, ACM, Article No. 15, pp. 1 – 8, January 18 – 20, 2008, DOI: 10.1145/1341771.1341787.
20. B. B. Bhattacharya, A. Biswas, P. Bhowmick, and T. Acharya, A Fast On-chip Mean Filter Requiring only Integer Operations, in Proc. of SPIE, Vol. 6822, 682217, SPIE VCIP (Visual Communication and Image Processing) Conference, California, January 26 – 31, 2008, DOI: 10.1117/12.776602.

21. A. Biswas, P. Bhowmick, and B. B. Bhattacharya, Characterization of Isothetic Polygons for Image Indexing and Retrieval, in Proc. of International Conference on Computing: Theory and Applications: ICCTA'07, Kolkata, India, IEEE CS Press, pp. 590 – 594, March 5 – 7, 2007, DOI: 10.1109/ICCTA.2007.36.
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32. **Prasun Ghosal**, and Tuhin Subhra Das, "FL2STAR: A Novel Topology For On-Chip Rouing in NoC with Fault Tolerance and Deadlock Prevention", Accepted for publication in proceedings of 2013 IEEE

- International Conference on Electronics, Computing and Communication Technologies (CONNECT), Bangalore, India, Jan 17-19, 2013.
33. **Prasun Ghosal**, Arijit Chakraborty, and Sabyasachee Banerjee, "Honey Bee Based Vehicular Traffic Optimization and Management", In proceedings of Seventh International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA 2012), Advances in Intelligent Systems and Computing, Volume 202, 2013, pp 455-463.
 34. **Prasun Ghosal**, and Arunava Biswas, "Hexagonal Minimum Steiner Tree Construction for Y Architecture: A Case of Non-Manhattan Routing", In proceedings of IEEE Asia-Pacific Conference on Postgraduate Research in Microelectronics & Electronics (PrimeAsia 2012), BITS-Pilani, Hyderabad Campus, India, Dec 05-07, 2012.
 35. **Prasun Ghosal**, and Tuhin Subhra Das, "L2STAR: A Star Type Level-2 2D Mesh Architecture for NoC", In proceedings of IEEE Asia-Pacific Conference on Postgraduate Research in Microelectronics & Electronics (PrimeAsia 2012), BITS-Pilani, Hyderabad Campus, India, Dec 05-07, 2012.
 36. **Prasun Ghosal**, and Tuhin Subhra Das, "SD2D: A Novel Routing Architecture For Network-on-Chip", Accepted for publication in proceedings of 3rd International Symposium on Electronic System Design (ISED 2012), Kolkata, India, Dec 19-22, 2012.
 37. **Prasun Ghosal**, and Tuhin Subhra Das, "Network-on-chip Routing Using Structural Diametrical 2D Mesh Architecture", In proceedings of Third International Conference on Emerging Applications of Information Technology (EAIT 2012), Kolkata, India, Nov 29 - Dec 01, 2012, pp. 471-474.
 38. **Prasun Ghosal**, and Tuhin Subhra Das, "*Routing in NoC on Diametrical 2D Mesh Architecture*", In proceedings of 16th International Symposium on VLSI Design and Test (VDAT 2012), July 1-4, 2012, Howrah, India.
 39. **Prasun Ghosal**, Arindam Das, and Satrajit Das, "Obstacle Aware RMST Generation Using Non-Manhattan Routing for 3D ICs", In proceedings of The Third International Workshop on VLSI (VLSI 2012), July 13-15, 2012, Chennai, India.
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 41. **Prasun Ghosal**, Satrajit Das, and Arindam Das, "A New Class of Obstacle Aware Steiner Routing in 3D Integrated Circuits: A Farthest Pair Approach", In proceedings of The Third International Workshop on VLSI (VLSI 2012), July 13-15, 2012, Chennai, India.
 42. **Prasun Ghosal**, and Tuhin Subhra Das, "A Novel Routing Algorithm for On-chip Communication in NoC on Diametrical 2D Mesh Interconnection Architecture", In proceedings of the Second International Conference in Computing and Information Technology (ACITY), July 13-15, 2012, Chennai, India - Volume 3, Springer, pp. 667-676.
 43. **Prasun Ghosal**, Arijit Chakraborty, and Sabyasachee Banerjee, "Speed Optimization in an Unplanned Lane Traffic Using Swarm Intelligence and Population Knowledge Base Oriented Performance Analysis", In proceedings of First International Conference on Soft Computing, Artificial Intelligence and Applications (SCAI) - 2012, May 25-27, Delhi, India.
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 46. **Prasun Ghosal**, Arijit Chakraborty, and Sabyasachee Banerjee, "*Swarm Intelligence Based Speed Optimization Technique in a Lane Traffic Using Population Knowledge Base*", In proceedings of International Conference on Information Systems Design and Intelligent Applications (INDIA 2012), Springer, January 5-7, 2012, Visakhapatnam, India.
 47. Debjani Basu, Dipak K. Koley, H. Rahaman, "*Implementation of AES Algorithm in UART Module for Secured Data Transfer*", In Proc. of International Conference on Advances in Computing and Communications (ICACC 2012), pp. 142-145, August 2012.
 48. Oyshee Brotee Sahoo, Dipak K. Koley, H. Rahaman, "*An Optimized S-Box for Advanced Encryption Standard (AES) Design*", In Proc. of International Conference on Advances in Computing and Communications (ICACC 2012), pp. 154-157, August 2012.
 49. Poulami Ghosh, Rilok Ghosh, Souptik Sinha, Ujan Mukhopadhyay, Dipak K. Koley and Aruna Chakraborty, "*A Novel Digital Watermarking Technique for Video Copyright Protection*", In Proc. of International Conference of Advanced Computer Science & Information Technology (ACSIT-2012), pp. 601-609, October 2012.

50. Ujan Mukhopadhyay, Souptik Sinha, Poulami Ghosh, Rilok Ghosh, Dipak k. Kole and Aruna Chakroborty, ***“Enhancing the Security of Digital Video Watermarking using Watermark Encryption”***, In Proc. of International Conference on Conference on Computational Science, Engineering and Information Technology (CCSEIT-2012), pp. 145 -150, October 2012.
51. Joyati Mondal, Debesh Kumar Das, Dipak K. Kole and Hafizur Rahaman, ***“A Design for Testability Technique for Quantum Reversible Circuits”***, In Proc. of **10th EAST-WEST DESIGN & TEST SYMPOSIUM (EWDTS 2012)**, pp. 249-252, Ukraine, September 14-17, 2012.
52. Papiya Manna, Dipak K. Kole, Hafizur Rahaman, Debesh Kumar Das, and Bhargab B. Bhattacharya, ***“Reversible Logic Circuits Synthesis using Genetic Algorithm and Particle Swarm Optimization”***, International Symposium on Electronic System Design (ISED 2012), **IEEE Xplore Digital Library**, pp. 246-250, December 19-22, 2012.

Book Chapter:

1. A. Biswas, S. Pal, P. Bhowmick, and B.B. Bhattacharya, Geometric Analysis and Efficient Indexing of Digital Documents, *Machine Learning Techniques for Adaptive Multimedia Retrieval: Technologies, Applications & Perspectives*, C.-H. Wei (Ed.) (accepted), 2010.
2. **Prasun Ghosal**, Satrajit Das, and Arindam Das, “A Novel Algorithm For Obstacle Aware RMST Construction During Routing in 3D ICs”, In Natarajan Meghanathan et al. (Eds.): **Advances in Computing and Information Technology**, Vol. 2, Advances in Intelligent Systems and Computing Series 177, Springer, pp. 649-658.
3. **Prasun Ghosal**, Satrajit Das, and Arindam Das, “A New Class of Obstacle Aware Steiner Routing in 3D Integrated Circuits”, In Natarajan Meghanathan et al. (Eds.): **Advances in Computing and Information Technology**, Vol. 3, Advances in Intelligent Systems and Computing Series 178, Springer, pp. 697-706.
4. **Prasun Ghosal**, Arindam Das, and Satrajit Das, “Obstacle Aware RMST Generation Using Non-Manhattan Routing For 3D ICs”, In Natarajan Meghanathan et al. (Eds.): **Advances in Computing and Information Technology**, Vol. 3, Advances in Intelligent Systems and Computing Series 178, Springer, pp. 657-666.
5. **Prasun Ghosal**, and Tuhin Subhra Das, “A Novel Routing Algorithm For On-chip Communication in NoC on Diametrical 2D Mesh Interconnection Architecture”, In Natarajan Meghanathan et al. (Eds.): **Advances in Computing and Information Technology**, Vol. 3, Advances in Intelligent Systems and Computing Series 178, Springer, pp. 667-676.
6. **Prasun Ghosal**, and Tuhin Subhra Das, "Routing in NoC on Diametrical 2D Mesh Architecture", In H. Rahaman et al. (Eds.): **VDAT 2012, LNCS 7373**, pp. 381--382. Springer, Heidelberg (2012).
7. **Prasun Ghosal**, Hafizur Rahaman, Satrajit Das, Arindam Das, and Parthasarathi Dasgupta, "Obstacle Aware Routing in 3D Integrated Circuits", In P.S. Thilagam et al. (Eds.): **ADCONS 2011, LNCS 7135**, pp. 450–459, 2012. Springer-Verlag Berlin Heidelberg 2012.\
8. **Prasun Ghosal**, Tuhin Subhra Das, "Routing in Multi-core NoCs", In **Multicore Technology: Architecture, Reconfiguration and Modeling**, CRC Press, Editors: Muhammad Yasir Qadri & Steve J Sangwine. [In press]

Research facilities:

The PDSIT laboratory is equipped with 50 No of high configuration Desktop Computers.

- a) All computers are connected to Internet with the 1 Gbps. LAN Support.
- b) Department is equipped with WiFi connection.
- c) International Journal from IEEE, Elsevier, etc. is available on line.
- d) Laboratory is open from 8.00 AM to 9.00 PM.
- e) PDSIT has a Departmental Library.

Computing facilities in Promoda Lodh (Mobile Computing) laboratory:

Hardware and Software:

IBM X226 Server -- 2Nos.

IBM Websphere Everyplace Access Server and client.

Wireless Equipment:

IBM Think Pad W/High rate Wireless LAN
Linkys Network Adapter
IBM high rate Wireless
Palm M505
Palm Palm Portable , Palm Serial Cable, Palm Hatsync Cradle
Palm Flash Memory Pre - Installed on Palm
Palm Handheld Stylus Pack of 3,XIRCOM Wireless LAN Module
i PACK- 2NOS.

Special purpose facilities available in the school:

- ☐ Laser Printers connected to Network.
- ☐ Scanner is available.
- ☐ Web Camera (for project purpose)
- ☐ Students have the scope to modify, configure or administrate any Server or Workstation

Support staff position

(i) Sanctioned technical post : 3

(ii) Technical staff profile (in the following table) : Recruitment

Process is going on

(iii) Administrative Staff :

Staff Name	Designation	Highest Qualification	Contact No	E-mail Id
Office Staff				
Goutam Bandopadhyay	Accountant	B.Com (Distinction) M.Com, ICWAI (Inter) PGDCA	9433134162	gb8206@gmail.com
Susanta Sarma	Office Assistant	B.Sc.	9433609953	sarma.susanta15@yahoo.in
Amal Das	Technical Assistant	B.Tech (Computer Science)	9836787069	amaldas.cs@gmail.com
Rabindra Nath Das	Group D	Class - VIII	9836662273	

No of Publications : (This year only)

Journal : 36 Conference : 52

***Dr. M.N. Dastur School of
Materials Science and Engineering***

About the department

School of Materials Science and Engineering started functioning since 2001 as an multidisciplinary educational and research centre with a vision to create a vibrant, supportive community of materials scientists and engineers committed to expand fundamental understanding of materials, develop advanced technologies, and provide leadership through education and innovative research geared to meet the current and future needs of society. The School is an integral part of Bengal Engineering and Science University, Shibpur and aims at providing an ideal environment for interdisciplinary teaching and research. Since its inception the School has embarked on several programmes to facilitate fundamental developments in the physics and chemistry of materials alongside applications in manufacturing processes and engineering design. We actively seek applications from new undergraduates, research students and research fellows, and we are keen to investigate further opportunities for collaboration and scientific exchanges. Within a short span of less than 10 (ten) years, the school could make noteworthy progress in the field of materials education and research. The objective of the school is

- I. To provide a lively meeting ground for material scientists & engineers from industry and academia and increase the level of cooperation between the participating institutions both at national and international levels.
- II. To provide quality post-graduate education in materials science and engineering.
- III. To take materials research forward with a rapidly growing commitment to develop materials for sustainable development.
- IV. To develop and modernize the multidisciplinary post-graduate curriculum to keep in tune with the rapid developments in this area.
- V. To integrate postgraduate education with basic and applied research through combination of lecture courses with laboratory work, projects, example classes and supervisions in small groups.
- VI. To apply our technical expertise in materials science & engineering for addressing a broad range of issues of national and international priority, like energy and environment.
- VII. To promote international collaborative ventures involving scientists, engineers, policy makers and industrial entrepreneurs.
- VIII. To consider systematically the environmental and ethical consequences of frontier research in materials technology, and to limit these consequences to intended effects.

The school is in close touch with leading research institutions and industries in India like CSIR, DRDO laboratories and Tata Steels. It has also has research collaboration with various Universities abroad viz. UIC, UCI, USA and UNSW, Australia. During last five years School is working in the area of Silicon Nanostructures and Advance Nano composite. Extensive efforts are being given in this emerging field, which culminated to the initiation a project on '**Luminescent silicon nanostructures**' under DST-Nano STI program of Department of Science and Technology, Govt. of India and Indo-US Science and Technology Forum (IUSSTF). Further School has dealt with several research projects sponsored by DST, UGC, AICTE, DRDO etc and recently this school has been awarded with a **National Project for Expertise Augmentation** for worth of **Rs 6.50 crores** sponsored by **Ministry of Steel, Govt. of India**.

Academic Programmes

Postgraduate Level

i) **Degree Offered:** Master of Technology in Materials Science and Technology

ii) **Sanctioned Students' intake:** 18 nos. students per year (AICTE approved)

iii) **Specialisation in** (a) Materials Design & Application and

Doctoral Level

i) **Degree Offered:** Engineering

No of candidates enrolled: 04 Registrar: 06 Awarded: 05

Submitted: 06

Faculty position:

Sanction faculty post (permanent): 04, Vacant post: 03

Endowment Faculty: 01, Vacant: 0

Contractual Faculty: 01, Vacant: 0

Faculty profile (In the following table)

Name	Designation	Highest Qualification	Specialisation/Research Area	Contact no E-mail
Dr. S. Chatterjee	Director	Ph.D. (Engineering), PRS (in Science)	Phase Transformation, HSLA Steel, High Strength Steel, Diffusion Bonding of Similar and Dissimilar Materials, Friction Stir Welding of Similar and Dissimilar Materials	schatterjee46@yahoo.com directorsmse@gmail.com
Dr. N. R. Bandyopadhyay	Professor	Ph.D. (Engineering)	Physical Metallurgy of Steel, Materials Characterization, Nano-materials, Energy Materials	nrb@matsc.becs.ac.in nrbbesus@gmail.com
Dr. Mallar Ray	Assistant Professor (Endowment)	Ph.D. (Engineering)	Experimental and theoretical investigations on semiconductor and hybrid nanostructures.	mray@matsc.becs.ac.in
Dr. Arijit Sinha	Assistant Professor (Contractual)	Ph.D. (Engineering)	Nanomaterials Characterization, Composite Materials, Shape Memory alloys	arijit@matsc.becs.ac.in sinharijit@gmail.com
Dr. T.K. Roy	Adjunct Professor	Ph.D. (Engineering)	Making, shaping and treating of steel and conceptual plan Project monitoring	tkroy.tatachair@gmail.com
Prof. R. K. Ray	Adjunct Professor	Ph.D. (Engineering)	Physical Metallurgy and Materials Engineering	rkray@iitk.ac.in

Awards and Laurels:

S. Chatterjee

- Visited Ecole Polytechnique, Palaiseau, Paristech, **France**, Tata Steel, **The Netherland** and University Aachen, **Germany** for pursuing collaborative research during **June 21 to July 05, 2013**.

N. R. Bandyopadhyay

- Visited Dhaka, Bangladesh to delivered **Invited lecture** on “**Bio-materials for Implants: Metallic, Ceramic and Polymers**” at the International workshop on “**Tools Bio-materials & Implants**” during **May 17-18, 2012**

Prof. N. R. Bandyopadhyay holds the following positions:

- **Chairman, Committee for Advancement of Technology and Engineering (CATE) of The Institution of Engineers (I) (IEI)**
- **Vice-President, Materials Research Society of India (MRSI)**
- **Editor –in Chief, IEI- Springer Series D Journal for Metallurgical & Materials Engineering.**
- **Consulting Editor, Technorama, a flagship Journal of IEI for Professional Engineers and Decision Makers.**

Students



Mr. Tuhin Shuvra Basu, CSIR-SRF, MNDSMSE

- To give oral presentation on Electrical and Thermal Property of Silicon Metal Hybride System in Symposium F at EMRS Spring Meeting held in Strasbourg, France during May 27 to May 31, 2013 (Sponsored by DST, GoI under International Travel Support Scheme).
- Recipient of Best Paper Award entitled Enhancement of Open Circuit Voltage and Short Circuit Current of Silicon Solar Cell by incorporation of Silicon Nano-crystal by IEI (India)




Research area



- I. Nano-Semiconductor materials
- II. Advanced steel
- III. Composite materials
- IV. Energy materials
- V. Environmental materials
- VI. Super-conducting materials
- VII. Smart materials
- VIII. Biomaterials
- IX. Computational materials science
- X. High strength non-ferrous metals




Research facilities:

<i>Name of Equipment</i>	<i>Few words</i>	<i>Pictures</i>
Olympus Optical Microscope with Image Analyzer	Basic Instrument for materials characterization. Microstructure, which governs the materials (Metal, Ceramics, Polymer or Composites) property, can be examined.	 <p><u>Left Hand Side:</u> Olympus Optical Microscope with Image Analyzer , <u>Right Hand Side:</u> Leco Micro-Vickers Testing Machine</p>
Leco Micro-Vickers Testing Machine	Preliminary determination of mechanical properties of all kind of materials through measuring the hardness of the sample.	
Ducom Fretting Wear Testing Machine	Abrasive or wear resistance property under service condition is examined in fine details.	

and under Central Materials Research Facility

<p>Veeco Atomic Force Microscope</p>	<p>Surface Property determination through scanning probe microscopy / atomic force microscopy. Attachments for electrical and magnetic property characterization is available with the instrument</p>	
<p>CSM Nano-indentor</p>	<p>Nano scale indentation for mechanical property characterization.</p>	
<p>Hitachi Scanning Electron Microscope with Horiba EDS System and EBSP</p>	<p>Finer Microstructural details can be examined by Scanning Electron microscopy. Local chemical constituents are measured through Energy Dispersive X-ray (EDS) Spectroscopy. The Electron Back Scattered Diffraction</p>	

	<p>Pattern (EBSP) can be examined.</p>	
<p>Leco Glow Discharge Spectroscope</p>	<p>This instrument measures the chemical composition of metals and alloys by optical emission through Spectroscopic analyses.</p>	 <p>A photograph showing a man in a patterned shirt and light-colored trousers standing next to a large, white, industrial-grade instrument labeled 'GDS500A'. He is interacting with the control panel on the left side of the machine. The machine has a large, dark, rectangular opening on the right side. The setting appears to be a laboratory with large windows in the background.</p>
<p>Photoluminescence (PL) System</p>	<p>Optical Characterization Instrument</p>	 <p>A photograph showing a laboratory setup for Photoluminescence (PL) measurements. The equipment is arranged on a wooden table. On the left, there is a computer monitor and keyboard on a desk. In the center, a white electronic device (likely a power supply or amplifier) is connected to various cables and components. To the right, there is a small, white, box-like instrument (likely the PL system) with a blue label. The background shows a laboratory environment with large windows and a blackboard.</p>

FEI Tecnai G2 20 S-TWIN Transmission Electron Microscope (TEM) 200 KV with EDX	Very high resolution microstructural characterisation, electron diffraction and energy dispersive x-ray analytical facility for micro-chemical analysis	
Instron 8801 Axial Servohydraulic Dynamic Testing System ± 100 kN capacity	For tensile compression and other mechanical testing for determining YS, UTS etc.	
Instron 8862 Axial Servoelectric Dynamic Testing System ± 250 kN capacity	For tensile compression and other mechanical testing for determining YS, UTS etc with higher capacity	

Name of laboratories:

- I. **Nano Semiconductor Lab:**
- II. **Materials Characterisation Lab:**
- III. **Computational Materials Science Lab.**
- IV. **Tribology Lab:** Fretting Wear Tester (Ducom)
- V. **Low Length Advanced Materials Synthesis (SMALL) Lab.**

VI. Student Computer Lab.

Consultancy work

Sl. No.	Title of project	Name of the Industry	Year of Start and duration
01.	Sample preparation, Transmission Electron Microscopic (TEM) imaging and Energy Dispersive X-ray Spectroscopy (EDS)	Tata Steel Ltd, Jamshedpur	2012

Support staff position:

(i) Sanctioned technical post: 01

(ii) Technical staff profile

Name	Designation	Highest Qualification	Contact no	E-mail
Dr. Subhas Ganguly	Technical Assistant (On lien)	Ph.D. (Engineering)	2668-8140 (Office)	subhas@matssc.becs.ac.in

Sponsored Research (during 2012-2013):

Sl. No.	Title of Research Project	Sponsoring Agency	Year of Start and duration
01.	Development of high-strength low-carbon multiphase steels (YS~1000 MPa, UTS~1300 MPa and Elongation 40-50%) Value : Rs 628.00 lakhs	Ministry of Steel , Govt. of India	3 (Three) years
02.	Studies on Mechanical Properties Evaluation of Coatings by Instrumented Indentation Technique Value : Rs 7.70 lakhs	Gas Turbine Research Establishment (GTRE), Bangalore , DRDO	18 th Months
03.	Fabrication of cost effective oxygen reduction catalyst for low temperature fuel cells Value : Rs 1.50 lakh	The Institution of Engineers (India)	1 (One) year
04.	Development of a Jute Based Bi-Composite Utilizing Polyolefin and/or Polylactic Acid-its Characterisation and Industrial Process Development Value : Rs 1.50 lakh	The Institution of Engineers (India)	1 (One) year
05.	Conducting Polymer Nanowire based electrical biosensor for bacteria detection Value : Rs 1.00 lakh	The Institution of Engineers (India)	1 (One) year

Industry-Institute Interaction**No. of Publications (during 2012-2013)**

Sl. No.	Title of Research paper	Title of the Journal	Year	Vol./ issue No	Page Nos.
01.	Collective charge transport in semiconductor-metal hybrid nanocomposite	Applied Physics Letters	2013	102	053107-053107-5
02.	Sintering and densification behaviours of pure and alkaline earth (Ba^{+2} , Sr^{+2} and Ca^{+2}) substituted $La_2Mo_2O_9$	Journal of the European Ceramic Society	2013	33	79
03.	Performance enhancement of crystalline silicon solar cell by coating with luminescent silicon nanostructures	Journal of Electronic Materials	2013	3	
04.	Study of Structure – Properties (Corrosion and Mechanical) of TRIP-Assisted Steels by Nondestructive Testing	I-Manager's Journal on Mechanical Engineering	2013	3	37
05.	Interfacial reactions and strength properties in dissimilar titanium alloy/Ni alloy / microduplex stainless steel diffusion bonded joints	Materials Science and Engineering A	2013	560	288

06.	Effect of microstructure and reaction products on the strength properties of micro-duplex stainless steel Ni alloy interlayer Ti6Al4V diffusion bonded joints, Volume 560, 10 January 2013, Pages 288-295).	Materials Science and Engineering A	2013	-	-
07.	Photoluminescence From Oxidized Macroporous Silicon: Nanoripples and Strained Silicon Nanostructures	IEEE Transactions on Device and Materials Reliability	2013	1	-
08.	Structure-Properties Relationship of TRIP-assisted Steels by Non-destructive Testing Method	Chemical and Materials Engineering	2013	1	18
09.	Development and Characterization of Al ₂ O ₃ reinforced Al/Mg/Cu/Ti matrix composite	Journal of Materials Science and Technology	2013	DOI: 10.1016/j.jmst.2013.07.004.	-
10.	Effect of Space Charge Density and High Voltage Breakdown of Surface Modified Alumina Reinforced Epoxy Composites	Transactions on Electrical and Electronic Materials	2013	14	121
11.	Microstructure and mechanical properties of Al/Fe-aluminide in-situ composite prepared by reactive stir casting route	Materials Science and Engineering A	2013	578	6
12.	Enhanced shape recovery in cryogenically treated martensitic TiNi alloys	Materials Science and Engineering A	2013	580	273
13.	A Study on nanoindentation and tribological behavior of multifunctional ZnO/PMMA nanocomposite	Materials Letters	2013	93	137
14.	Mechanical properties of Ti-(~49 at. %) Ni shape memory alloy: Part II Effect of ageing treatment	Materials Science and Engineering A	2013	561	338
15.	Mechanical properties of Ti-(~49 at. %) Ni shape memory alloy: Part I Effect of cold deformation	Materials Science and Engineering A	2013	561	344
16.	Optimization of mechanical property and shape recovery behavior of Ti-(~49 at. %) Ni alloy using ANN and GA	Materials and Design	2013	46	227
17.	Understanding the shape memory behavior in Ti-(~49at.%) Ni alloy by nanoindentation measurement	Metallurgical and Materials Transactions A	2013	44A	1722
18.	Variation of tensile behavior of interstitial free steel rolled at cryogenic and room temperature	Journal of the Institution of Engineers (India)	2013	Series D 93	97
19.	On the plasticity of interstitial free steel subjected to cryogenic rolling followed by annealing	Materials and Manufacturing Processes	2013	28	242

20.	Exfoliated graphite reinforced PMMA composite: A study on nanoindentation and scratch behavior	Journal of Nanotechnology	2012	DOI:10.1155/2012/940516.	-
21.	Nanomechanical response of martensite in Ti-(~49 at.%) Ni alloy	Materials Science and Engineering A	2012	552	540
22.	Mechanics of Corrosion of TRIP-assisted Steels in different NaCl solutions	Oriental Journal of Chemistry,	2012	3(28)	1411
23.	Diffusion bonding of titanium alloy to microduplex stainless steel using a nickel alloy interlayer	Materials and Design	2012	40	237
24.	Influence of interface microstructure on the mechanical properties of titanium/17-4 PH stainless steel solid state diffusion bonded joints	Materials and Design	2012	37	560
25.	An Ultra-low Carbon, Thermomechanically Controlled Processed Microalloyed Steel: Microstructure and Mechanical Properties	Materials Transactions A	2012	43A	4835
26.	Circularity analysis of nano-scale structures in porous silicon images” - Computational Modelling of Objects Represented in Images	Di Giamberardino et al. (eds) Taylor & Francis Group, London, ISBN 978-0-415-62134-2	2012	-	-
27.	Detailed characterization of calcium silicate precipitation tube (CaSPT) as a multi-cation adsorbent in aqueous medium	Materials Research Bulletin	2012	47	677

**Seminar/Workshops/Conferences/Training programme organised by the
Department (during 2012-2013)**

- Organized a fifteen days “Short term course on **Materials Engineering: An Overview**” during May 31 to June 15, 2012 at BESU, Shibpur for Bangladeshi Participants

Technology Developed/Innovations.

- Solar cell coated with Silicon nano-crystals which is fabricated at Nano-semiconductor Laboratory at MNDSMSE shows considerable increase in open-circuit voltage and short- circuit current which can potentially increase overall efficiency of coated solar cells

Others:

- Signing of Memorandum of Agreement (**MoA**) between **MNDSMSE, BESU, Shibpur** and **M.N.Dastur & Co (P) Ltd, Kolkata** on 10.07.2013 **for furthering the activities of the school.**

*School of
Management Sciences*

About the department

With the advent of the globally interdependent business environment B.E. College responded to the needs of the industry. This process was triggered in 1999 by starting B.E. College, School of Management Sciences (BECSOMS) which subsequently became rechristened as School of Management Sciences (SOMS) along with statutory birth of Bengal Engineering and Science University, Shibpur with effect from 1st October 2004, with a view to preparing managers equipped with the knowledge of corporate strategies, inter-working of the functional areas like marketing, finance operations, human resources, information technology management.

To keep abreast with the latest developments in business and industry, teams of teachers work in close co-operation with various government institutions and industries. This has helped the faculty in undertaking relevant research and development of teaching materials including cases related to Indian conditions.

SOMS helps in creating individuals with specialized skills in marketing, financing, human resource, operations and IT research along with a strong theoretical and practical as well as experimental knowledge in the basic disciplines of management.

SOMS has developed expert managers who have put their mark in specialized fields as well as high quality research scholars who have reached the highest echelons of Business Management and have become academicians.

Academic Programmes:

Postgraduate Level

Degree offered: MBA

Sanctioned students' intake: 60

Doctoral Level

Degree offered: PhD

No. of candidates enrolled: 03

No. of candidates registered: 04

Degree Awarded: 01

Faculty position:

Sanctioned faculty post: NA

Vacant Post: NA

Faculty Profile :

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. Email
Prof. Sekhar Ranjan Bhadra Chaudhuri	Director, SOMS	Doctorate of Philosophy	Communication Engineering /Strategic Management	033 26688355 prof.srbc@gmail.com
Dr. Poulomi Mukherjee (Mondal)	Asst. Prof. - On Contract	Doctorate of Philosophy	Operations Management, IT Management	26684561 extn: 422 poulomi_mondal @rediffmail.com
Sukanti Roy	Asst. Prof. - On Contract	Master of Business Administration	Marketing Management	26684561 extn: 433 roysukanti@ yahoo.com
Monalika Dey	Asst. Prof. - On Contract	Master of Business Administration	Human Resource Management	26684561 extn: 423 monalika.dey@gmail.com
Sumanta Deb	Asst. Prof. - On Contract	Master of Business Administration	Marketing Management	26684561 ext: 423 sumanta04@ gmail.com
Surabhi Sinha	Asst. Prof. - On Contract	Master of Business Administration	Human Resource Management	26684561 extn: 423

Research Area : Marketing Management, Human Resource Management, Strategic Management

Research Facilities : Leased Line, Internet Connection, EBSCO Database and JGATE Database (AICTE – Indest Consortium Package)

Name of the Laboratories: Computer Laboratory at U821 7th floor, New Science and Technology Building**Support Staff position**

Staff profile

Name	Designation	Highest Qualification	Contact Contact No.	Email
Gautam Sarkar	Office Assistant	B. Com	26684561 Extn: 439	gsarkar01@yahoo.com
Mousumi Shaw (Das)	Assistant Librarian	M. Sc., BLIS	26684561 Extn: 442	dasmousumi37@yahoo.in
Dipsikha Chandra (Pal)	Computer Assistant	M. Sc.,	26684561 Extn: 439	dipsikha84@gmail.com
Pranab Satpathi	Office Peon	H. S.	26684561 Extn: 439	pranab_satpati@yahoo.co.in
Sukanta Guha	Office Peon	H. S.	26684561 Extn: 439	

Industry Institute Interaction :**No. of Publications : (This year only)**

Journals: 4

Conferences: 7

- i. Sanjoy Mitra, Subir Chowdhury and Sekhar Ranjan Bhadra Chaudhuri : “Achievement of Leadership Status Despite Late Entry in a Competitive Market: A Study of Mankind Pharma”, ASBM Journal of Management, Vol V, Issue II, July, 2012.
- ii. Sumanta Deb, Surabhi Sinha and Sekhar Ranjan Bhadra Chaudhuri : “Applicability of SECI Model to Develop Social Capital and Performance of Brick Fields of West Bengal: A Conceptual Approach”, ASBM Journal of Management, Vol V, Issue II, July, 2012.
- iii. Poulomi Mukherjee (Mondal): Business Continuity Planning: Adding Value to Business through Computer Applications A Conceptual Approach”, Heritage Journal of Management, September, 2012.
- iv. Sumanta Deb : The Spatial Economic Rationale for Optimum Area and Positioning of Spaces in Planned Shopping Centres; Pacific Business Review International, Vol- 5, Issue 10, April 2013, pp- 95-103

Conferences

Sumanta Deb and Surabhi Sinha

- I. The Applicability of SECI Model to Mitigate Drawbacks and Facilitate Developments of Brick fields of West Bengal: A Conceptual Approach,. paper presented at AICTE Sponsored National Conference on Sustainable Business Growth and Modern Management at centre for management Studies, JIS College of Engineering, Kalyani , West Bengal on April 27-28, 2012

Sumanta Deb

- I. **Spatial Logic of Shopping Malls: Application of Space Syntax in understanding the Economic Rationale for Rent of Shops**, paper presented at the 2nd International Marketing Conference, MARCON, 2012, held at the Indian Institute of Management Calcutta, December 28-30, 2012
- II. **Social Logic of Spatial Arrangement of Office**: in an Era of Knowledge Sharing, paper presented at International HR Conference, HR NEXT- Focus, Engage, Align, held at the Indian Institute of Social Welfare and Business Management, Kolkata, February 27th and 28th, 2013
- III. **Space Morphological Analysis as a Strategic Decision Making Tool**, paper presented at 20th West Bengal State Science and Technology Congress-2013, held at the Bengal Engineering and Science University, Shibpur, Howrah, February 28- March 2, 2013

Poulomi Mukherjee (Mondal)

- I. **Business Continuity Planning: Adding Value to Business through Computer Applications** paper presented at AICTE Sponsored National Conference on Sustainable Business Growth and Modern Management at centre for management Studies, JIS College of Engineering, Kalyani , West Bengal on April 27-28, 2012
- II. **Green Logistics in Business : Operational Strategies and Innovation** paper presented inabsentia at ISDSI conference Hyderabad in December 2012

Monalika Dey

1. **Emerging Trends in Management**, paper presented at the 3rd International convention at Asian School of Business Management, Bhubaneshwar on February 7-9 , 2013

- **Organized seminar on Resurgence of business through education led initiatives: A Bengal perspective in collaboration with BCCI, Berger Paints India Limited on August 4, 2012**
- **Organized seminar on Model of Business School in 21st Century on October 13, 2012**

Others

- **Surabhi Sinha, Sumanta Deb, Monalika Dey, Poulomi Mukherjee (Mondal) Participated in the Case Writing Teaching and Research Workshop organized by Indian Institute of Management Calcutta Case Research Centre (IIMCCRC) on 14th -15th June, 2012 at Indian Institute of Management Calcutta**
- **Monalika Dey and Sukanti Roy** attended FDP at Cognizant in August 2012
- **Monalika Dey** attended MDP on Management of Labour Laws Organised by ISTD Kolkata Chapter in November 2012.

School of Mechatronics & Robotics



About the School

The beginning of this century is marked with multi disciplinary technological advancement which has not only revolutionized Indian and global industrial market but also has put an impact on engineering education system. BESUS responded to the changed technology scenario by introducing a new specialized engineering post graduate degree course in Mechatronics under the School of Mechatronics & Robotics. The course is unique with respect to similar degree programs offered by other Indian Universities and is framed accordingly to educate graduate engineers to become experts in the multidisciplinary area involving mechanical engineering, electrical engineering, and electronics along with computer software. The school of Mechatronics & Robotics was established as an interdisciplinary school in 2007. The School undertakes different research and development activities in areas of cutting edge technology. A Post Graduate course (M. Tech.) in Mechatronics has been introduced in collaboration with three reputed National level Laboratories under Council of Scientific and Industrial Research (CSIR), New Delhi namely Central Electronics Engineering Research Institute (CEERI), Pilani, Central Scientific Instrument Organization (CSIO), Chandigarh and Central Mechanical Engineering Research Institute (CMERI), Durgapur. This is a unique and new initiative for generating trained manpower in the futuristic multi-disciplinary area of Mechatronics. A memorandum of understanding (MOU) was signed between BESU and CSIR for this purpose in February, 2007. The program is of two years duration and is conducted by the participating institutes by utilizing their expertise and facilities available. The programme is structured around the core competence of all the four constituent institutions. The faculty members have been drawn from all the four places based on the expertise of scientists and academicians. While the course is conducted at BESU, CEERI, CSIO and CMERI, the academic degree (M.Tech.) is awarded to students by BESU on successful completion of the course. The curriculum is designed to provide multidisciplinary knowledge and to endow the students with the ability to design mechatronics systems.

Academic Programmes:

Post-graduate Level

- i. Degree offered : M.Tech in Mechatronics
- ii. Sanctioned students' intake: 18 GATE qualified + 5 sponsored candidates
- iii. Specialisations in – Mechatronics & Robotics

Doctoral Level

- i. Degree offered : Ph.D
- ii. No. of candidates enrolled registered / awarded : Enrolled 03

Faculty Position

The school is interdisciplinary in nature and faculty members from relevant departments / school extend support to conduct classes / laboratories

Faculty profile

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Prof. Arabinda Roy	Director & Professor (ETC)	ME	Power Electronics, Microprocessor based system, Signal Processing	M – 9434313049 Email: arabinda@telecom.becs.ac.in , oruroy@yahoo.co.in
Dr. S. Bhaumik	Coordinator & Associate Professor (AE&AM)	Ph.D.	Mechatronics & Robotics/ Automation	M- 9836044278 Email: sbhaumik_besu@yahoo.co.in

Research Area:

Dexterous Robotic Hand, Mobile Robots, Micro Systems, Teleportation, Unmanned Aerial Vehicle, Bio-medical and Exoskeleton Devices, Prosthetics, AI and Soft Computing, Intelligent Systems

Research Facilities:

Bi-handed robot, humanoid robot, drives and control, sensors, image processing, mechanical motion transmission devices, data gloves, lasers, smart materials, haptic devices, embedded systems, virtual instrumentation, modeling and simulation.

Name of the Laboratories:

1.	Mechatronics Laboratory
2.	Robotics Laboratory
3.	Simulation Laboratory

Sponsored Research

Ongoing	Sponsoring agency
Development of a Sensor Integrated Multi Finger Dexterous Robot Hand with Data Glove Interface (3 years, June 2010- June 2013) Rs.61,38,500/- (in Robotics Lab, AE&AM Department)	BRNS, Dept. of Atomic Energy, BARC, Mumbai
Development of Indigenous Low Cost Pressure Mat Based Gait Analyzer (3 years , December 2012 – December 2015), Rs. 46,37,937/-	DST (Science for Equity, Empowerment & Development - SEED Division), New Delhi, 2012 Principal collaborating organization - NIOH, Kolkata

Industry Institute Interaction:

- I. Central Scientific Instruments Organization (CSIR-CSIO) Chandigarh

- II. Central Mechanical Engineering Research Institute (CSIOR -CMERI) Durgapur
- III. Central Electronics Engineering Research Institute (CSIR-CEERI) Pilani
- IV. National Institute for the Orthopaedically Handicapped (NIOH under MSJE, Govt. of India)

No. of publications :

Journal - 3

Conference - 4

- i. O. Mazumder, A. Sankar Kundu and S. Bhaumik - Development of Wireless Insole Foot Pressure Data Acquisition Device, 2012 International Conference on Communications, Devices and Intelligent Systems (CODIS), Jadavpur University, 2012, 978-1-4673-4700-6/12/ ©2012 IEEE Explorer, page 302-305
- ii. Dilip K Biswas, Subhasish Bhaumik, Jyotirmoy Saha - Kinematic Navigation of Modular Robot, International Journal of Engineering and Innovative Technology (IJEIT), Vol. 2, Issue 6, December 2012, pp. 27 – 37
- iii. Dilip K Biswas, Subhasish Bhaumik, Jyotirmoy Saha - On the Kinematics of Hyper Redundant Mobile Robot, International Journal of Scientific & Engineering Research (IJSER), Volume 4, Issue 2, February 2013, ISSN 2229 - 5518
- iv. Soumya Kanti Manna, Subhasish Bhaumik - Exorn - A Portable Exoskeleton Device for Rehabilitation of Human Arm, Int. Conf. on Advances in Mechanical Engg. and its Interdisciplinary Areas (ICAMEI), College of Engg. & Management Kolaghat, December 2012 , ISBN: 978-93-82062-79-0, page 367-376
- v. S. Pathak, A. Chowdhury, B. Bepari, S. Bhaumik - Study on Biomimetic Earthworm Research, Int. Conf. on Advances in Mechanical Engg. and its Interdisciplinary Areas (ICAMEI), College of Engg. & Management Kolaghat, December 2012, ISBN: 978-93-82062-79-0, page 346-351
- vi. Anirban Chowdhury, Souvanik Pathak, Dr. Subhasish Bhaumik - An Earthworm like Mobile Robot with Active Surface Gripping Mechanism for Bi- directional Movement, International Journal of Systems , Algorithms & Applications (IJSAA), Volume 2, Issue 10, October 2012, ISSN Online: 2277-2677
- vii. Debal Saha, Ranjit Ray, and S. Bhaumik - Dynamic Modelling of a Skid-Steered Twelve wheeled Mobile Robot using a 'slip' -'friction coefficient' relationship and its Trajectory Tracking Control, IEEE-International Conference on Advances In Engineering, Science And Management (ICAESM -2012) March 30-31, 2012, Page 192-197, ISBN: 978-81-909042-2-3 ©2012 IEEE

Technology developed/ Innovations:

Exoskeleton hand, Robotic earthworm, Pressure cum slip sensor

Others :

- i. Invited talk by S. Bhaumik - Indo-US Centre for Research Excellence on Fabronics, workshop on “Fabronics for Health Care”, CSIR-CMERI Durgapur, December 23-24, 2012.
- ii. Invited talk by S Bhaumik on AVR ATMEGA8 at JIS Kalyani on 20th March 2013.
- iii. Dr. S. Bhaumik acted as Member – National Advisory Board, International Conf. on Advances in Mechanical Engg. and its Interdisciplinary Areas (ICAMEI-2012), College of Engg. And Management, Kolaghat, December 2012.
- v. Dr. S. Bhaumik acted as Vice-President (Eastern Zone) of Association of Machines & Mechanism (AMM) and Member, Editorial Board, Association of Machines and Mechanism (AMM).

***School of Safety & Occupational Health
Engineering***

About the department

Bengal Engineering & Science University, Shibpur introduced a part-time Postgraduate programme in safety and Occupational Health Engineering with effect from August 2007, the first of its kind in India. It is a resolute step towards achieving excellence in the arena of Science and Technology which has been the motto of the institution since its inception.

The university functions as research-intensive university of which the prime areas of activity are:

- I. Creation of knowledge*
- II. Dissemination of knowledge*

In an environment of research which ensures that teaching and learning are conditioned by the latest research and that the nation is endowed with skilled manpower of the highest quality.
- I. The above are being achieved with the help of qualified and motivated faculties, highly motivated students and the state of the art of the laboratory.*
- II. Study of Safety and Occupational Health (SOH) is required because in view of the dramatic change in the world of work, global, domestic and in local contexts, the current occupational and environmental health research and education plans and diverse occupational pursuits and hazards. The modest endeavor of the national centres provides directions and success indicators for national and international level promotion in safety and occupational health environment.*
- III. The success indicator of SOH national programmes may be seen by innovative approaches, to develop resource base for societal, local government and corporate interaction and communication.*
- IV. The core competency on human resource as well as quality delivery of SOH services will be to create many more research and learning centres and strengthen existing infrastructures into quality standard laboratories.*
- V. The current education and awareness programme of SOH primarily concentrate on sector of organized industries. Greater endeavor is demanded to informal and farming and other vulnerable sectors, including women, children and slderly workforce and need-based attempts will increase knowledge potentials of the sector.*
- VI. The provision require strengthening the elements of a management system in defining SOPH goals and objectives, performance measures measures, programs and procedures and continual improvement.*

Academic Programmes:**Postgraduate Level**

- | | |
|---------------------------------|--|
| i. Degree offered | <i>M.Tech. (School of Safety ad Occupational Health Engineering)</i> |
| ii. Sanctioned students' intake | <i>18</i> |

Doctoral Level

- | | |
|-------------------------------|--------------|
| i. Degree offered | <i>Ph.D.</i> |
| ii. No of candidates enrolled | <i>two</i> |
| awarded | <i>one</i> |

Faculty position:

Faculty profile (in the following table)

Name	Designation	Highest Qualification	Specialisation / Research Area	Contact No. E-mail
<i>Dr. B. K. Bhattacharyya</i>	<i>Professor (Mechanical) & Director of the School</i>	<i>M.E., Ph.D.</i>	<i>Management</i>	
<i>Prof. P. K. Lai</i>	<i>Assistant Professor (Civil Engg.)</i>	<i>M.E.</i>		
<i>Dr. P Daw</i>	<i>A. P (Prod. Engg.) WBUT</i>	<i>M.E., Ph.D.</i>		
<i>Dr. D. Moulik</i>	<i>Environmental Engineer, WBPCB</i>	<i>M.E., Ph.D.</i>		
<i>Mr. R. N. Bishnu</i>	<i>Inspector of Factories (Chemical)</i>	<i>M.Tech.</i>		
<i>Dr. A. K. Majumder</i>	<i>Ex. Director, CLI, Mumbai</i>	<i>M.Sc., Ph.D.</i>		
<i>Mr. U. K. Das</i>	<i>Director (Safety), RLI</i>	<i>M.E.</i>		
<i>Dr. Prasun Das</i>	<i>Technical Officer, Grade-I (Equi. To Asso. Prof.) ISI, SQC & OR Unit</i>	<i>M.S., Ph.D.</i>		
<i>Mr. Subir Ghosh</i>	<i>Retd. Jt. Chief Inspector of Factories (Chemical)</i>	<i>B.C.H.E., M.Phil.</i>		
<i>Dr. Amalendu Samanta</i>	<i>Ex-Scientist, All India Inst. Of Hygene & Public Health</i>	<i>Ph.D.</i>		
<i>Prof. Shankarashis Mukherjee</i>	<i>Professor, Calcutta University</i>	<i>M.Sc., M.Tech.</i>		
<i>Mr. D. B. Deb</i>	<i>Ex. Dy. Director General, DGFASLI, Present Co-ordinator of the School</i>	<i>B.E.</i>		

Research area (only mention broad titles without description in detail):

- I. *Ergonomics*
- II. *Waste Management*
- III. *Occupational Health Engineering*
- IV. *Identifying Critical Success Factors & Effectiveness Measurement System of Six Sigma Initiatives in Business Processes*

Research facilities: (name specific equipment / picture etc.)

- I. Noise Exposure Monitor
- II. Heat Stress Monitor
- III. Ergonomic Bicycle

Name of the laboratories:

<i>Ergonomic Lab</i>	<i>Set up</i>
<i>Environmental Lab</i>	
<i>Occupational Health Hygiene Lab</i>	<i>Data Logging Area Heat Stress Monitor, Personal Noise Exposure Monitor</i>

Consultancy Work: *Conducting Safety Audit for CESC Ltd., Kolkata, of five districts Distribution Network & two Generation Station in West Bengal*

No of publications: (This year only) Four

Others

- i) Keynote address by the Director, 19th International Conference on “Industrial Engineering and Management” during Sept. 1 – 5, 2012, at Changshah, China.
- ii) Keynote address by the Director, 20th International Conference on “Industrial Engineering and Management” during Jan. 5 – 7, 2013, at Bali, Indonesia.

School of VLSI Technology

About the Department:

School was established on July, 2006. The flagship course, M-Tech (VLSI Design) has been started under special requirement of a Special Manpower Development Project (Phase II), a mission project of Govt. of Government of India to promote the research and education in the various areas of VLSI Design. The need to integrate to efforts of scientists and engineers working with different fields of microelectronics and semiconductors devices has been the primary motivation of creation of this school. The research and education at School of VLSI Technology is closely associated with industry and several other primary academic Institutions of repute with an aim to foster cutting edge research and establish the School and one of the pronounced leaders in field of VLSI and Microelectronics.

In the School of VLSI Technology, We have sufficient latest VLSI tools and hardware in our VLSI and Embedded systems Laboratories. The UG/PG/Doctoral students from Information Technology/Computer Science/Electronic Engg./Electrical Engg. are getting exposure with these industry standard tools and equipment. In eastern India, only two or three university/institutes have this type of laboratory.

Academic Programmes:

Postgraduate Level

- i. Degree offered : M. Tech in VLSI Design
- ii. Sanctioned students intake : 20 nos.
- iii. Additional intake through other programmes (i.e. QIP) :
- iv. Specializations in : VLSI Design

Doctoral Level

Degree offered : Ph.D. (Doctor of Philosophy)

No. of candidates enrolled in 2012 : 1

Sl. No.	Scholar's Name
1.	Debjani Basu

No. of candidates registered in 2012 : 4

Sl. No.	Scholar's Name
1.	Soumyajit Poddar
2.	Partha Sarathi Gupta
3.	Sabir Ali
4.	Kunal Sinha

Candidates who submitted PhD Thesis

Sl. No.	Scholar's Name
1	Debaprasad Das

Faculty position :

Sanctioned Faculty Post : 3 (Contractual)

Vacant Post : 1

Faculty profile (in the following table)

Name	Designation	Highest qualification	Specialization/research Area	Contact No. E-mail
<u>Mr. Pranab Ray</u>	Assistant Professor (Contractual)	M. Tech.	Biochip design Automation, Embedded System, Algorithm and data structures, VLSI physical design.	033-22270143 9433800260 ronmarine@yahoo.co.in
<u>Mr. Sudip Ghosh</u>	Assistant Professor (Contractual)	M. Tech.	Digital VLSI Design & VLSI Architectures, Digital Watermarking, Synthesis	033-22191833 8017040884 sudip_etc@yahoo.co.in sudip.ghosh@vlsi.becs.ac.in

Full time Scholar

Name	Designation	Highest qualification	Specialization/research Area	Contact No. E-mail
<u>Mr. Somshubhra Talapatra</u>	Research Scholar, DIT, MCIT, GOI	M. E.	VLSI Architecture and Digital Design	2668-4561(Ext.-755) s_talapatra@vlsi.becs.ac.in
<u>Mr. Partha Sarathi Gupta</u>	Research Scholar, DIT, WB	M. Tech.	Low power VLSI design, Evolutionary Algorithms.	9674128771. 033-24152571 gupta_parthasarathi@yahoo.co.in
Mr. Soumyajit Poddar	Research Scholar, DIT, WB	M. Tech	Photonic Network on Chip Design, Embedded Systems Design	9681285712 033-23710617 poddar18@gmail.com spoddar18@yahoo.co.in
Mr. Manodipan Sahoo	Research Scholar, DIT, WB	M. Tech	Carbon Nanotube Based Interconnects and Devices	9038496889 manodipansahoo@gmail.com manodipan_sahoo@yahoo.co.in
Sabir Ali Mondal	SRF, UGC			
Sayan Kanungo	SRF, CSIR			

Support staff position :

Staff profile (in the following table)

Name	Designation	Highest Qualification	Contact No.	E-mail
Sri Goutam Paul	Technical Assistant (Project)	B.Tech (ECE)	9874405431	goutam.paul82@lycos.com
Ratna Ghosh	Technical Assistant (Contactual)	D.E.T.C., A.M.I.E. (Pursuing)	9239825264	ratna_vlsi@yahoo.co.in

**WORKSHOPS / SEMINARS / SYMPOSIUMS / CONFERENCES / SHORT-TERM COURSES
ATTENDED in 2012**

1) Mr. SudipGhosh			
SL.	TOPIC	HELD AT	DURATION
1.	16th International Symposium on VLSI Design and Test (VDAT, 2012)	BESU, Shibpur	July 1 st – 4 th , 2012
2.	2 nd International Conference on Advances in Computing and Communications (ICACC-2012)	Rajagiri School of Engineering & Technology, Kochi, India	August 9 th -11 th , 2012
3.	2nd International Conference on Communication, Computing & Security (ICCCS-2012)	Dept. of Computer Science & Engineering, NIT , Rourkela	October 6 th – 8 th , 2012
2) Mr. SoumyajitPoddar			
1.	System on Chip Conference, 2012 25th IEEE System-on-Chip Conference (IEEE SOCC 2012)	Niagara Falls, NY, USA	Sept 12-14, 2012.
2.	16th International Symposium on VLSI Design and Test (VDAT, 2012)	BESU, Shibpur	July 1 st – 4 th , 2012
3) Mr. ManodipanSahoo			
1.	16th International Symposium on VLSI Design and Test (VDAT, 2012)	BESU, Shibpur	July 1 st – 4 th , 2012

2.	5 th International Conference on Computers and Devices for Communication(CODEC-2012)	Hyatt Regency, organized by IRPE, University of Calcutta	Dec 17-19,2012
3.	3 rd International Symposium on Electronic System Design	BESU, Shibpur	Dec 19-22,2012
4.	International Workshop on Device Modeling for Microsystems	JIIT Noida, jointly organized by MOS-AK/GSA India 2012 and INAE.	March 16-18,2012
5.	Course on Low Power Design	Dept. of Electrical Engg., IIT Kanpur	Sept. 24-28,2012
4) Mr. ParthaSarathi Gupta			
1.	16th International Symposium on VLSI Design and Test (VDAT, 2012)	BESU, Shibpur	July 1 st – 4 th , 2012
2.	5 th International Conference on Computers and Devices for Communication (CODEC 2012)	Hyatt Regency Kolkata JA-1 Sector III, Salt Lake City Kolkata, India, 700 098	December 17 th -19 th , 2012

Details of the Seminars, Workshops Held in 2012:

ARM Faculty development Workshop on MBED Processor, October 2012

International Conference/Symposia organized

School of VLSI Technology, Dept. of Information Technology Dept. of Electronics and Telecommunications, and Dept. of Computer Science and Tech have been jointly organizing two following mega international events at our BESU Campus.

- (1) 16thInternational Symposium on VLSI Design and Test (VDAT 2012), 2012 during 1-4 July 2012 (Springer Germany).
- (2) 3rdIEEE International Symposium on Electronic System Design(ISED 2012), 2012 during 19-22 December 2012.
- (3) **Awards and Laurels :**

Debaprasad Das, PhD student of School of VLSI Technology, under supervision of Prof. HafizurRahamanhas been awarded “Best PhD thesis award” by IEEE Circuits & Systems Society awarded to on July 2012.

Research area

1. Digital VLSI Design
2. Analog and Mixed Signals
3. VLSI Testing
4. Nanotechnology
5. Bio-chip Design Automation
6. NOC & SOC Design
7. FPGA Synthesis Testing
8. VLSI Physical Design Automation
9. Digital Watermarking
10. VLSI architectures

Research facilities:

EDA Tools

1. Mentor Graphics
2. Synopsis
3. Cadence
4. CoWare
5. Magma
6. Xilinx ISE Webpack (for FPGA Applications)
7. Chipscope pro (for FPGA)
8. EDK with PowerPC and MicroBlaze(for FPGA Applications)
9. System Generator for DSP(for FPGA Applications)
10. Plan Ahead Design analysis(for FPGA Applications)
11. Matlab
12. TCAD

Hardware Devices and Design Kits

S.No.	Item/Description	Quantity
1.	HCL Infinity Orbita 2200 SY	03
2.	HCL Challenger	9
3.	HCL 19" TFT monitors	12
4.	Redhat Linux OS	12
5.	PC 100 MBPS Network Card	3
6.	External DVD Writers	3
7.	V DEC boards	5
8.	48 CM (19) 6U Rack wall Mount 500 mm	1
9.	Cisco 2950 10/100 24 Port Manageable Switch	1
10.	HP LaserJet 1320n Printer	2
11.	HP LJ Q 5949A Black Print Cartridge	2
12.	3M SCP716 Projector	1
13.	HCL Cat6 Mounting Cord 2mtrs	12
14.	HCL Cat6 Mounting Cord 3mtrs	12

15.	HCL Cat6 Single I/O with Shutta and SMB	12
16.	HCL Cat6 24 Port Jack Panel (UL)	1
17.	Hardware screw 20/pkt for Racks	1
18.	Horizontal Cable Manager for Racks	1
19.	AC mains channel Horizontal for Racks	1
20.	LACIE IEX External DVD Writer	3
21.	100 Lan CU W/BR-PXE-RPL-D-Link	3
22.	Blank 8X DVD + R Media	30
23.	NEC NP-50G LCD Projector	1
24.	ISE 8.2i (Software)	1(20)
25.	EDK8.2i (Software)	1(20)
26.	SYSGEN 8.2 (Software)	1(20)
27.	CSP 8.2i (Software)	1(20)
28.	PLANAHEAD 8.2i(Software)	1(1)
29.	Spartan 3E	15
30.	Virtex 2 Pro	5
31.	DIO5	5
32.	AIO1	5
33.	Compact Flash 512 MB	10
34.	256 DDR MB RAM	5

Name of the laboratories:

1.	<u>GanapatiSengupta VLSI Laboratory (Research Lab)</u>
2.	<u>SMDP-II Laboratory</u>
3.	<u>Incubation Centre Lab</u>

Sponsored Research :

Ongoing Projects	Sponsoring agency
SMDP-II (Special Man Power Development Project-II)	DIT, Government of India
VLSI Design Centre Project	DIT, Government of West Bengal

Technology Developed/ Innovations

India Chip Programme: Only 31 institutes/Universities from India including IIT and IISC are eligible to take part in this mission venture. School of VLSI Technology (BESUS) took part in Chip Design Programme and fabricated 4 circuits as chip. During academic year 2012-2013, we fabricated the following chip, which is a great achievement for a State University like BESUS.

- 1) **Name of Chip Design:** Transistor level S-BOX design for efficient implementation of AES algorithm
- 2) **Number of students involved in project:** 1
- 3) **Technical Specification including I/O PIN detail/packages/complexities/ power consumption etc.):**
 - 6 input pins, 1 output pin for BESU
 - Package – 48 pin Dual In Line package
 - Power Consumption; 3.6 mW
 - Clock frequency: 100 MHz
 - Supply Voltage: 1.8 V
 - Core Delay: 8ns
4. **Technology used :** UMC 0.18 μm
5. **Name of the foundry where chip has been fabricated:** United Microelectronics Corporation
(Tech file of IMEC Belgium through Europractice)
6. **Cost in fabrication :** 3220 EURO
7. **Silicon area of Chip** : 1525uM*1525uM
8. **Area of Design** : 390uM*385uM
9. **Size including Scribe :** 1.6mm X 1.6mm
10. **Date:** 23 /07/2012

No. of publications: (2012-2013)

International Journal : 11

International Conference Proceedings : 66

New Academic/Research Initiatives:

Inauguration of Clouding Computing Laboratory sponsored by Cognizant Technologies Solution India Ltd on 29th August 2012

Name of the faculty members for foreign Visits and invited lectures

- a) Prof. Hafizur Rahaman
5th IEEE Asia Symposium on Quality Electronic Design (ASQED 2013), Penang, Malaysia, during 9-11 July 2012
- b) Prof. Pranab Roy
IEEE ICOBE 2012, Penang, Malaysia, during 24-26 February 2012
IEEE IDT 2012, Doha, Qatar, during 15-17th December, 2012.

Visitors to the University

The University has been privileged to receive a good number of important visitors both from India and abroad. Illustrious visitors to the University during 2012-13 included:

1. Prof. Vishwani D. Agrawal, James J. Danaher Professor of Electrical and Computer Engineering, Auburn University, USA
2. Prof. NikilDutt, Chancellor's Professor of CS and EECS, Center for Embedded Computer Systems, University of California, Irvine, USA
3. Prof. Rolf Drechsler, Professor, University of Bremen, Germany, & Director of the Cyber-Physical Systems group at the German Research Center for Artificial Intelligence (DFKI)
4. Prof. ArjunKapur, Director, Software Development, Intel Mobile and Communications Group, USA
5. Prof. KrishnenduChakrabarty, Professor, Department of Electrical and Computer Engineering, Duke University, USA
6. Prof. Sanjit K. Mitra, University of California, Santa Barbara, USA; and University of Southern California, Los Angeles, USA
7. Prof. Tsung-Yi Ho, Department of Computer Science and Information Engineering, National Cheng Kung University, Tainan, Taiwan
8. Dr. Michael K. Thomsen, University of Copenhagen, Denmark
9. Prof. Gerhard W. Dueck, University of New Brunswick, Canada
10. Prof. D. Michael Miller, Vice President (Research), University of Victoria, Canada
11. Dr. PriyadarsanPatra, Intel USA

Prof. Bhargab B Bhattacharyya, ISI-cal, is visiting this school once a month to provide research guidance to our young faculty members and students in the field of VLSI Design and Nano Science.

Academic collaboration with universities in India and abroad

We have already research collaboration with following University/Institutes...

- 1) Department Computer Science and Engineering, Duke University, Durham, USA.
- 2) Department Computer Science, University of Bristol, UK
- 3) ACM Unit, Indian statistical Institute, Kolkata, India
- 4) Department of Computer Science and Engineering, IIT Karagpur, India
- 5) Department of Electronics and Communication Engg., IIT Karagpur, India
- 6) Department of Electronics and Communication Engg., IISC., Bangalore, India
- 7) Institute of Radio Physics, Calcutta University, Kolkata, India
- 8) University of Bremen, Germany
- 9) Department of Electronics Science, Calcutta University, Kolkata, India

Industrial Collaboration :

a) Sankalp Semiconductors, b) ARM India, c) Cognizant India Ltd, d)VECC (R &D organization), e) ST Microelectronics

List of Publications in Journals and Conferences in 2012

a) Journals

1. Dipak K. Kole, HafizurRahaman, Debesh K. Das, and Bhargab B. Bhattacharya, "Derivation of Test Set for Detecting Multiple Missing-Gate Faults in Reversible Circuits", *Computer and Electrical Engineering (Elsevier)*, vol.39 (2013), pp. 225-236, 2013 (With PhD Student)..
2. Indrajit Pan, Ritwik Mukherjee, HafizurRahaman, TuhinaSamanta, ParthasarathiDasgupta, "Optimization algorithms for the design of digital microfluidic biochips: A survey", *Computers & Electrical Engineering(Elsevier)*, 39(1): 112-121 (2013), 2013.
3. Debaprasad Das and HafizurRahaman, "Modeling of Single-Wall Carbon Nanotube Interconnects for Different Process, Temperature, and Voltage Conditions and Investigating Timing Delay", *Journal of Computational Electronics (Springer)*, Volume 11, Issue 4 (2012), pp. 349-363. (With PhD Student).
4. Debaprasad Das and HafizurRahaman, "Delay Uncertainty in Single- and Multi-wall Carbon Nanotube Interconnects", LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp. 289-299, July 2012.
5. HafizurRahaman, Jimson Mathew, A. M Jabir and Dhiraj. K Pradhan. VLSI Architecture for Bit Parallel Systolic Multipliers for Special Class of GF(2^m) using Dual Bases", LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp.358-369, July 2012.
6. Pranab Roy, HafizurRahaman and ParthasarathiDasGupta, "Two-level Clustering-based Techniques for Intelligent Droplet Routing in Digital Microfluidic Biochips", *Integration, the VLSI Journal(Elsevier)*, Vol.45, issue 3, June 2012, pp.316-330. (With PhD Student).
7. SudipGhosh, SomsubhraTalapatra, NavonilChatterjee, Santi P Maity and HafizurRahaman, "FPGA based Implementation of Embedding and Decoding Architecture for Binary Watermark by Spread Spectrum Scheme in Spatial Domain", Bonfring International Journal of Advances in Image Processing, Vol. 2, No. 4, pp.1-8,December 2012.
8. Debaprasad Das, AvisekSinha Roy and HafizurRahaman, "Design of Content Addressable Memory Architecture using Carbon Nanotube Field Effect Transistors", LNCS-7373, vol. 7373, Springer Verlag, Berlin, pp.233-242, July 2012.
9. NachiketaDas ,I. Banerjee, and HafizurRahaman, "BIST to Diagnosis Delay Fault in the LUT of Cluster Based FPGA." International Journal of Information and Electronics Engineering,vol 2, No.2, 2012, ISSN 2010-3719, pp-269-273.

b) Conference

10. Arighna Deb, Debesh Kumar Das, HafizurRahaman, Bhargab B. Bhattacharya, Robert Wille and Rolf Drechsler, "Reversible Circuit Synthesis of Symmetric Functions Using a Simple Regular Structure", 5th Conference on Reversible Computation July 4th-5th, 2013, Victoria, Canada.
11. KamalikaDatta, GauravRathi, Robert Wille, IndranilSengupta, HafizurRahaman and Rolf Drechsler, "Exploiting Negative Control Lines in the Optimization of Reversible Circuits", 5th Conference on Reversible Computation July 4th-5th, 2013, Victoria, Canada.
12. Arighna Deb, D. K. Das, HafizurRahaman, and B. B. Bhattacharya, "Reversible Synthesis of Symmetric Boolean Functions based on Unate Decomposition", *GLSVLSI 2013*, Paris, France.
13. ManodipanSahoo, and HafizurRahaman, "Performance Analysis of Multiwalled Carbon Nanotube Bundles", *2013 IEEE XXXIII International Scientific Conference Electronics and Nanotechnology (ELNANO 2013)*, pp. 200-204.
14. Pranab Roy, RupamBhattacharjee, Pampa Howladar, HafizurRahaman and ParthasarathiDasgupta, "A new cross contamination aware routing technique with intelligent path exploration in Digital Microfluidic Biochips", *8th IEEE International conference on Design & Technology of Integrated Systems (DTIS'13)*.
15. Pranab Roy, HafizurRahaman and ParthasarathiDasgupta, "Automated parallel detection based analyzer system for integrated bioassays in Digital Microfluidic Biochip", *2013 IEEE XXXIII International Scientific Conference Electronics and Nanotechnology (ELNANO 2013)*,pp.
16. SoumyajitChatterjee, HafizurRahaman and TuhinaSamanta, "Multi-objective Optimization Algorithm for Efficient Pin-constrained Droplet Routing Technique in Digital Microfluidic Biochip", 14th International Symposium on Quality Electronic Design (**ISQED** 2013), Santa Clara, CA, 4Mar-6 Mar 2013.

17. KamalikaDatta, Vishal Shrivastav, IndranilSengupta and HafizurRahaman,"Reversible Logic Implementation of AES Algorithm", *8th IEEE International conference on Design & Technology of Integrated Systems (DTIS'13)*
18. Pranab Roy, MahuaRahaPatra, ParthasarathiDasgupta and HafizurRahaman,"Digital Microfluidic System:A New Design for Heterogeneous Sample Based Integration for Multiple DMFBs", 2013 IEEE International Symposium on Circuits and Systems (ISCAS 2013), Beijing, China, 19-23 May, 2013.
19. Surajit ROY, Chandan GIRI, HafizurRahaman, "Optimizing Test Architecture of 3D Stacked ICs for Partial Stack/Complete Stack using Hard SOCs", *7th IEEE International Design and Test Symposium (IDT 2012)*, 2012 (accepted).
20. Parthasarathi Gupta, Jayita Das, DebasreeBurman, Madhuchhanda Brahma, ParthasarathiDasgupta, and HafizurRahaman, "Analytical Study of the Effect of Asymmetric Gate Bias on the Performance of double gate TFET", *IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp.-149-152.
21. KamalikaDatta, IndranilSengupta, HafizurRahaman, Rolf Drechsler, "An Evolutionary Approach to Reversible Logic Synthesis using Output Permutation", *7th IEEE International Design and Test Symposium (IDT 2012)*, 2012 (accepted).
22. Pranab Roy, MahuaRahaPatra, ParthasarathiDasgupta and HafizurRahaman, "A New design of a dual mode Bioassay detection analyzer for digital microfluidic biochips",*IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp.318-321, 2012.
23. Surajit ROY, Chandan GIRI, HafizurRahaman, "Power Constraints Test Scheduling for 3D ICs", ", *7th IEEE International Design and Test Symposium (IDT 2012)*, 2012 (accepted).
24. Parthasarathi Gupta, DebasreeBurman, Jayita Das, Madhuchhanda Brahma, ParthasarathiDasgupta and HafizurRahaman, "Modeling The Channel Potential And Threshold Voltage of a Fully Depleted Double Gate Junctionless FET",*IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp.153-156.
25. Pranab ROY, MahuaRahaPatra, ParthasarathiDasgupta and HafizurRahaman, "Novel designs of Digital detection analyzer for intelligent detection and analysis in digital microfluidic Biochips", *7th IEEE International Design and Test Symposium (IDT 2012)*, 2012 (accepted).
26. Parthasarathi Gupta, Madhuchhanda Brahma, Jayita Das, DebasreeBurman, ParthasarathiDasgupta and HafizurRahaman, "Performance Analysis and Simulation Study of a Sandwiched Barrier Tunnel FET", *IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp.457-460.
27. SayanKanungo, ParthaSarathi Gupta, HafizurRahaman, ParthaSarathiDasgupta,"A Detail Simulation Study on Extended Source Ultra-Thin Body Double-Gated Tunnel FET", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.
28. JoyatiMondal, Debesh Kumar Das, DipakKole and HafizurRahaman, "A Design for Testability Technique of Reversible Quantum Circuits",*10th IEEE East-West Design & Test Symposium (EWDTS 2012)*, pp.249-252.
29. ManodipanSahoo and HafizurRahaman, "Efficient and Compact Electrical Modeling of Multi Walled Carbon Nanotube Interconnects", *3rd IEEE International Symposium on Electronic System Design (ISED 2012)*, *IEEE CS Press, USA*, pp.236-240.
30. PrasenjitChanak, TuhinaSamanta, HafizurRahaman and IndrajitBanerjee,"Obstacle Discovery and Localization Scheme for Wireless Sensor Network", ", *IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS 2012)*, pp.262-265.
31. KamalikaDatta, IndranilSengupta, HafizurRahaman, "Group Theory based Reversible Logic Synthesis", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.
32. ManjariPradhan, ChandanGiri, HafizurRahaman and Debesh Kumar Das, "An Algorithm for Core-Based Test Time Optimization for 3-D Integrated Circuits", Thirteenth International Workshop on RTL and High Level Testing (WRTL 2012), Japan, 2012.
33. Debaprasad Das, and HafizurRahaman, "Modeling of IR-Drop Induced Delay Fault in CNT and GNR Power Distribution Networks", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.
34. KunalSinha, HafizurRahaman, SanatanChattopadhyay, "A Study on the Performance of Stress Induced p-channel MOSFETs with Embedded Si(1-x)Ge(x) Source/Drain", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.
35. SayanKanungo, HafizurRahaman, Parthasarathi Gupta, ParthasarathiDasgupta, "A simple analytical model of silicon on insulator tunnel FET", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.
36. ManodipanSahoo, HafizurRahaman, "Analytical Modeling of Crosstalk Effects in Coupled Copper Interconnects in Deep Sub Micron Technology", *5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012)*.

37. Sabir Ali Mondal, Sourav Pal, PradipMondal, HafizurRahaman, "Voltage Controlled Current Starved Delay Cell for Positron Emission Tomography specific DLL based high precision TDC implementation", 5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012).
38. KamalikaDatta, IndranilSengupta, HafizurRahaman, "Reversible Circuit Synthesis using Evolutionary Algorithm", 5th IEEE International Conference on Computers and Devices for Communication (CODEC 2012).
39. Pranab ROY, HafizurRahaman, ParthasarathiDasgupta, "A new look ahead technique for customized Testing in Digital Microfluidic Biochips", *IEEE Asian Test Symposium, 2012,IEEE CS Press*, pp.25-30.
40. KamalikaDatta, IndranilSengupta and HafizurRahaman, "Particle Swarm Optimization based Circuit Synthesis of Reversible Logic", 3rd *IEEE International Symposium on Electronic System Design (ISED 2012)*, *IEEE CS Press*, USA, pp.226-230.
41. Pranab Roy, Rupam Bhattacharya, HafizurRahaman, ParthasarathiDasgupta," An intelligent compaction technique for pin constrained routing in cross referencing DMFBs", *IEEE CODES+ISSS*, 2012 , pp.423-432.
42. PranabRoy,SudiptaChakraborty,ModudSohid,HafizurRahaman,ParthasarathiDasgupta, "Automated detection and analysis of droplets in digital microfluidic biochips ", *IEEE ICIUS*, 2012,Singapore (accepted).
43. PranabRoy,HafizurRahaman,Parthasarathidasgupta , ' Modelling, detection and diagnosis of multiple faults in Cross referencing DMFBs', *IEEE International conference on Informatics, Electronics and Vision*, 2012, Dhaka, Bangladesh.
44. DebasisMitra, SarmishthaGhosal, HafizurRahaman, KrishnenduChakraborty, Bhargab B Bhattacharya,"On-line Error Detection in Digital Microfluidic Biochips", *IEEE Asian Test Symposium, 2012, IEEE CS Press*, pp.332-337.
45. Debaprasad Das, Sourav Das and HafizurRahaman, "Design of 4-Bit Array Multiplier using Multi-Wall Carbon Nanotube Interconnects", 3rd *IEEE International Symposium on Electronic System Design (ISED 2012)*, *IEEE CS Press*, USA, 208-211.
46. Arighna Deb, Debesh K. Das, HafizurRahaman and Bhargab B Bhattacharya, "A New Synthesis of Reversible and Quantum Realizations of Symmetric Boolean Functions", *4th Workshop on Reversible Computation, July 2nd-3rd, 2012, Copenhagen, Denmark*.
47. Papiya Manna, Dipak Kumar Koley, HafizurRahaman, Debesh K. Das and Bhargab B. Bhattacharya, "Reversible Logic Circuits Synthesis using Genetic Algorithm and Particle Swarm Optimization", 3rd *IEEE International Symposium on Electronic System Design (ISED 2012)*, *IEEE CS Press*, USA, pp.246-250.
48. SoumyajitPoddar, PrasunGhosal, Priyajit Mukherjee, SumanSamui and HafizurRahaman, "Design of An NoC with On-chip Photonic Interconnects Using Adaptive CDMA links", 25th *IEEE System-on-Chip Conference (IEEE SOCC 2012)*, New York, USA, pp.352-357.
49. Surajit Ray, Dona Roy, ChandanGiri and HafizurRahaman, "Testing 3D Stacked ICs for Post-Bond Partial/ Complete Stack", *IEEE 55th International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2012, pp.522-525.
50. Roy, Pranab; Bhattacharjee, Rupam; Rahaman, Hafizur; Dasgupta, Parthasarathi, "A New Algorithm for Routing-Aware Net Placement in Cross-Referencing Digital Microfluidic Biochips ", *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, 2012, pp. 320 – 325.
51. Roy, Pranab; Chakraborty, Sudipta; Sohida, Moudud; Rahaman, Hafizur; Dasgupta, Parthasarathi,"A new digital analyzer for optically detected samples in Digital Microfluidic Biochips", *IEEE 55th International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2012,pp: 462 –465.
52. Chaki, Sanga; Giri, Chandan; Rahaman, Hafizur,"Binary Difference Based Test Data Compression for NoC Based SoCs", *IEEE Computer Society Annual Symposium on VLSI (ISVLSI) 2012*, pp. 114 – 119.
53. Roy, P.; Rahaman, H.; Dasgupta, P., "A novel high performance routing technique for Cross-referencing DMFBs", *2012 International Conference on Biomedical Engineering (ICoBE)*, pp.44 – 49.
54. Pranab Roy, MoududSohid, SudiptaChakraborty, HafizurRahaman and ParthasarathiDasgupta, "System on Biochips: A new design for integration of multiple DMFBs", 3rd *IEEE International Symposium on Electronic System Design (ISED 2012)*, *IEEE CS Press*, USA, pp. 256-260.
55. Debaprasad Das and HafizurRahaman, "Unified Model for Analyzing Timing Delay and Crosstalk Effects in Carbon Nanotube Interconnects", *IEEE ASQED 2012*, pp.100-109.
56. DebasisMitra, SarmishthaGhoshal, HafizurRahaman, KrishnenduChakraborty, Bhargab B. Bhattacharya, "Automated Path Planning for Washing in Digital Microfluidic Biochips", *IEEE International Conference on Automation Science and Engineering (CASE 2012)*, pp.115-120
57. ParthaSarathi Gupta, SayanKanungo, HafizurRahaman and ParthaSarathiDasgupta,"A simple analytical study of a low sub-threshold swing ultra thin body Silicon on Insulator Tunneling Transistor for Low Power Application", 12th *IEEE International Conference on Nanotechnology (NANO 2012)*,2012, UK, pp.1-6.

58. Debaprasad Das and HafizurRahaman, "Simultaneous Switching Noise and IR Drop in GrapheneNanoribbon Power Distribution Networks", *12th IEEE International Conference on Nanotechnology (NANO 2012)*, UK, pp.1-6.
59. ParthaSarathi Gupta, SayanKanungo, HafizurRahaman and ParthaSarathiDasgupta. "Analysis and Study of an Ultra-Thin-Body-Silicon-On- Insulator-Tunnel FET Transistor", *16th International Symposium on VLSI Design and Test 2012*, pp.379-380
60. DebjaniBasu, Dipak K Kole, HafizurRahaman "Implementation Of AES Algorithm In Uart Module For Secured Data Transfer", *IEEEsecond International Conference on Advances in Computing and Communications (ACC-2012)*, Kochi.
61. SudipGhosh, SomsubhraTalapatra, DebasishMondal, NavonilChatterjee, HafizurRahaman and Santi P. Maity, "VLSI Architecture for Spatial Domain Spread Spectrum Image Watermarking using Gray-Scale Watermark", *16th International Symposium on VLSI Design and Test 2012*, pp. 375-376.
62. PrasunGhosal, SunitaChoudhuri, HafizurRahaman Diametric Mesh of Tree (DiaMoT) Routing Framework for High Performance NoCs: A Hierarchical Approach", *14th IEEE International Conference on High Performance Computing and Communications (HPCC-2012)*, Liverpool, UK, 25-27 June 2012.
63. SudipGhosh, SomsubhraTalapatra, DebasishMondal, NavonilChatterjee, HafizurRahaman, Santi P Maity, "VLSI Architecture for Spread Spectrum Image Watermarking using BinaryWatermark", *IEEEInternational Conference on Advances in Computing and Communications (ICACC 2012)*, India 2012, pp. 166 – 169.
64. SudipGhosh, SomsubhraTalapatra, Jayasree Sharma, NavonilChatterjee, HafizurRahaman, Santi P Maity, "Dual Mode VLSI Architecture for Spread Spectrum Image Watermarking using Binary Watermark", *IEEE 2nd International Conference on Communication, Computing & Security (ICCCS-2012)*, October 2012, India , pp. 784-791.
65. SudipGhosh, SomsubhraTalapatra, DebasishMondal, NavonilChatterjee, HafizurRahaman, Santi P Maity, "VLSI Architecture for Spread Spectrum Image Watermarking in Walsh-Hadamard Transform Domain using Binary Watermark", *3rd IEEE International Conference on Computer and Communication Technology (ICCCT 2012)*, November 2012, India, pp. 233-238.
66. SoumyajitPoddar, PrasunGhosal, Priyajit Mukherjee, SumanSamui and HafizurRahaman, "A Photonic Network on Chip with Adaptive CDMA links", *16th International Symposium on VLSI Design and Test 2012*, pp.377-378.
67. Surajit Kumar Roy, Dona Roy, ChandanGiri and HafizurRahaman. Post-bond Stack Testing for 3D Stacked IC", *16th International Symposium on VLSI Design and Test 2012*, pp.59-68.
68. ParthaSarathi Gupta; Kanungo, Sayan; Rahaman, Hafizur; ParthaSarathiDasgupta, "A novel design technique for effective SCE control in nano-scaled devices using a buried metal " *IEEE International Conference on Computing, Electronics and Electrical Technologies (ICCEET 2012)*, 2012, Pp. 761 – 765.
69. ParthaSarathi Gupta,HafizurRahaman, SayanKanungo, and ParthaSarathiDasgupta;"*Analysis and study of different parameters affecting the I-V characteristics of Tunnel-FET Transistor*", *IEEE International Conference on Devices, Circuits and Systems, 2012*.
70. ParthaSarathi Gupta,SayanKanungo, HafizurRahaman, KunalSinha, ParthaSarathiDasgupta;"*An Extremely Low Sub-threshold Swing UTB SOI Tunnel-FET Structure Suitable for Low-Power*", *International Conference on Engineering Mathematics and Physics (ICEMP-2012)*.
71. SayanKanungo,ParthaSarathi Gupta "*A Simple Analytical Model on a Novel Short Channel Effects Control Scheme supported by a Detailed Simulation Study*", *IEEE International Conference on Computing, Communication and Network Technologies (ICCCNT-2012)*.
72. TuhinaSamanta, RakaSardar, HafizurRahaman, ParthasarathiDasgupta and Bhargab B. Bhattacharya,"*A Heuristic Method for Obstacle Avoiding Group Steiner Tree Construction*", *SLIP '12 International Workshop on System Level Interconnect Prediction San Francisco, CA, USA,June., 2012*.
73. Ritwik Mukherjee, HafizurRahaman, ParthasarathiDasgupta and TuhinaSamanta, "A Heuristic Method for Co-optimization of Pin Assignment and Droplet Routing in Digital Microfluidic Biochip", *IEEE International Conference on VLSI Design 2012*, pp.227-232.
74. KamalikaDatta, GauravRathi, IndranilSengupta and HafizurRahaman, "Synthesis of Reversible Circuits using Heuristic Search Method", *IEEE International Conference on VLSI Design 2012*, pp.328-333.

***Centre of Excellence for Green Energy
and Sensor Systems***

About the Department

(A brief introduction about the history and development of the Department/ general Information about the Department with particular mentions its typical features within. Say, 200 words).

Worldwide efforts are going on for switching over to sustainable alternative / renewable energy sources (non-polluting, non-fossil-fuel , environmentally friendly sources now known as **Green Energy** sources). For these purposes, the University on its own has set up a Centre of Excellence entitled “Centre of Excellence for Green energy and Sensor Systems (CEGESS)” in November, 2009. The center envisages providing the required environment and facilities for the scientists, engineers and technicians to work in critical R&D areas.

Research & Development:

- i. Establishment of state of the art fabrication facility of crystalline silicon solar cells.
- ii. Establishment of state of the art fabrication facility of amorphous silicon solar cells.
- iii. Efficiency enhancement of c- Si, a- Si and other thin film solar cells.
- iv. New generation Solar cells and systems with new, novel nano- materials and green methods.
- v. New methodologies of solar energy storage (including super capacitors).
- vi. Advanced solar photovoltaic systems for lighting and power plant applications.
- vii. Sensors (including bio-sensors and gas sensors) based on novel materials (including quantum dots) and techniques for agricultural, environmental, automobile and healthcare applications.
- viii. Smart sensor systems.

Academic Programmes:

*** M. Tech courses in Renewable Energy Science and Technology is likely to start from the year 2014.**

Doctoral Level

- i) Degree offered: Ph.D
- ii) No of candidates enrolled: 14 (enrolled), 2 (to be enrolled)
Registered: 1

Faculty position

Faculty profile(in the following table)

Name	Designation	Highest Qualification	Specialisation/ Research Area	Contact No. E-mail
Prof. H.saha	BECAM Chair Professor and Coordinator	Ph.D	Photovoltaics and Sensors	shahiran@gmail.com
Prof. A.K.Barua	Hony. Emeritus Professor	D.Sc	Photovoltaics	eruakb@yahoo.com
Prof. R.Bhattacharya	Hony. Adjunct Professor	Ph.D	Photovoltaics and Sensors	raghubhatin@yahoo.com
Prof. S.P. GonChaudhuri	Hony. Adjunct Professor	D. Sc	Green Energy and Technology	nbirt2008@yahoo.com
Prof. BibekBandyopadhyay	Hony. Adjunct Professor	Ph.D	Photovoltaics and Solar Thermal	bbibek@nic.in
Prof. SwapanK .Datta	Adjunct Professor	Ph.D	Photovoltaics and Sensors	swapansumana@gmail.com
Dr. Nillohit Mukherjee	Assistant Professor	Ph.D	Materials Synthesis, Characterization, Electrochemical and Gas Sensors	nilsci@yahoo.co.uk
Dr. Sumita Mukhopadhyay	Assistant Professor	Ph.D	Photovoltaics	mukhopadhyay_sumita@yahoo.co.in
ShriAvraKundu	Assistant Professor	Ph.D	Photovoltaics and Sensors	avrakundu@rediffmail.com

Awards and Laurels:

Prof. A. K. Barua

1. Appointed as chairman of the R & D based photovoltaic company entitled HHV Center for Advanced Photovoltaic Technology Pvt. Ltd. Bangalore.
2. Delivered Invited lecture at the 28th Conference on Advanced Materials (CAMS) held in 2011 at PSG College, Coimbatore, September 2011
3. Delivered Key Note address at the Indo-US Joint Workshop in January 2011 at IIT, Bombay
4. Delivered Plenary Lecture at the International Conference organized by KIIT University, Bhubaneswar in 2012
5. Delivered Invited Lecture in Paris in the Indo-French Joint Workshop on Future Sources of Energy organized by Indo-French Centre for advanced Research in November 2012

Prof. H. Saha

1. Expert committee member in DST & RAC, NTPC-NETRA.
2. ICST (Member of Int. advisory committee).
3. Delivered Invited talk on “Solar Photovoltaics: Current Status and Future Prospects “ at ISI, Kolkata on Science day , 2013
4. Delivered a lecture on “Solar Photovoltaics Technology: Achievements and Challenges” International Conference organized by”, ISM, Dhanbad,

Prof. R. Bhattacharya

1. “Plasmonic Polymeric solar cells”
National Workshop on Polymer Solar cells, IISER, Pune, April 20-21, 2012.
2. “DST SERI’s Plasmonic & Nano structured Solar Cell initiatives” International
Conference on Solar Energy-Photovoltaic, ICSEP-2012, 19-21 December, 2012
KIIT, Bhubaneswar

Prof. S. K. Datta

1. Presented an invited talk at the International Conference organized by KIIT University, Bhubaneswar in 2012

Dr. S. P. GonChaudhury

1. Selected as Chairman of Ashden India Sustainable Energy Collective (AISEC) an Organisation of Ashden Award Winners of India.

Dr. Sumita Mukhopadhyay

1. Awarded under Fast Track Scheme for Young Scientists of Department of Science and Technology (DST), Government of India, 2013.

Research area (only mention board titles without description in detail)

Photovoltaics

- i) Fabrication of crystalline silicon solar cells
- ii) Fabrication of amorphous silicon solar cells
- iii) Efficiency enhancement of c- Si, a- Si and other thin film solar cells.
- iv) New generation Solar cells and systems with new, novel nano- materials and green methods.
- v) New methodologies of solar energy storage (including super capacitors).
- vi) Advanced solar photovoltaic systems for lighting and power plant applications.

Sensors

- i) Sensors (including bio-sensors, gas sensors and humidity sensors) based on novel materials (including quantum dots) and techniques for agricultural, environmental, automobile and healthcare applications.
- ii) Smart sensor systems.

Research facilities:

Major Materials and Device Processing units for solar photovoltaic and systems research and development

Clean Room Equipment and accessories

Oxidation/ Diffusion Furnace

Multizone PECVD Cluster

Screen Printing machine

Drying and Firing Belt furnaces

E- Beam evaporation system

Reactive ion etching system

RF Sputtering units

Laser Scriber

Soft Conformal Imprint Lithography

Planetary Ball Mill

Deionized water system



PECVD cluster tool



Electron beam and Thermal Evaporation



Reactive Ion Etching (RIE) System



Oxidation/ Diffusion Furnace



Drying/Firing furnace for silicon solar

Major Characterization Equipments

Solar Simulator and Spectral Response setup

Scanning probe microscope

FESEM

PL set up

Thickness profilometer

Optical microscope with image analyzer



Spectral response setup

Major Equipments for SPV Systems

30 kW Solar Array Simulator

30 kW Grid Simulator



Rabi Kutir:

**A BIPV initiative of
CEGESS at BESUS**

Name of the Laboratories:

Solar photovoltaic fabrication laboratory	
Solar photovoltaic Characterization laboratory	
Sensors design and development laboratory	

Consultancy Work

1. **West Bengal Renewable Energy Development Agency (WBREDA)** : MOU has been signed with the Purpose: Conducting short-term (one month) training programme, , to establish a regional solar thermal testing centre as per MNRE guidelines, to conduct demonstration and field awareness programme as well as to conduct R&D programmes in the field of solar energy and hybrid system. Fund has been received to prepare training materials and impart training to the teacher representatives of 100 schools where solar PV power plant of 5 KW each has been installed.

2. **New Town Kolkata Development Authority (NKDA)** :Fund has been received for Design, fabrication ,installation and maintenance of solar tree, solar boat and DPR for the Solar Power Plant at Eco-park, New Town, Kolkata

3. **Sova Power Limited, Durgapur** :MOU has been signed for the Development of special solar PV modules and systems for different solar applications. Fund has been received for this purpose..

4. **Agni Power and Electronics Privet Limited:** Agreement has been signed for dealing with specific activities like, development of solar PV sub-systems like solar lanterns, charge Controllers, MPPT Controllers, Inverters and PCU . Exchange of ideas and information for which joint meeting, seminar, workshop can be held.

5. **Hind High Vacuum Company Private Limited (HHV):** Agreement has been signed for dealing with fabrication and characterization of thin film silicon solar cells. For this exchange of manpower, exchange of ideas and information for which joint meeting, seminar, workshop can be held. Depending on the nature of collaboration, output should be published jointly in the form of IPR/publications/presentation in conferences. Both the sides can access the available characterization facilities free of cost.

6. **SSN Institute, Chennai:** Agreement has been signed for mutually agreed financial contribution by SSN Institute to access the characterization facilities for materials and solar cells which are and will be available at CEGESS, BESU. CEGESS, BESU will also provide the access of laboratories for training on development and characterizations of materials and fabrication of solar cells to the scientists of SSN Institute. Once SSN Institute would set up a fully equipped laboratory, both the sides will frame joint projects in different area of sustainable energy sources. There will be exchange of visits by the staff of BESU and SSN RC. For joint work, there will be joint publications and also IPR may be held jointly. There shall be a management committee contributed by both sides to co-ordinate the collaborative activities. Fund has been received from SSN Institutes for this purpose.]

Sponsored Research: (mention area)

The centre has already been awarded a number of research projects in the field of solar energy and sensors by different funding agencies of the Govt. of India

Industry- Institute Interaction**With industry:**

Hind Hivac, Bangalore, Agni Power & Electronics Ltd, Kolkata, Sova Power Ltd, Durgapur

With institute:

IIT Kharagpur, Indian Association for the Cultivation of Science Kolkata MeghnadSaha Institute of Technology Kolkata, SSN Institution Chennai, Charotar University of Science & Technology, Gujarat

Research Projects	Funding Agency	Sanctioned Amount	Duration
Solar Photovoltaic Hub at BESU	DST	9.42 Crores	5 years
Advanced Research on thin Film Silicon Solar Cells and PV systems	MNRE	14.76 Crores	4 years
Development of an Intelligent Recognizer for Component Analysis of Manhole Gas Mixture	DST	18.34 Lakhs	2 years
Lab- Scale precision I-V and C-V real time analyzer for design and development of a selective gas sensor	DST	19.80 Lakhs	2 years
Associate Hub member in Sensor Hub at CGCRI, Kolkata	DST	2.5 Crores	5 years

No of Publications: (This Year only)

Journal: 15 (for 2012-2013)

Conference: 35 (for 2012-2013)

Books/Monographs

(List to be included)

Seminar /Workshops/Conferences/Traningprogramme organized by the department (in last year)

One day workshop on “Interfacing of Renewable Energy Sources with Utility Grid” on 24th Dec. 2012 at Seminar Hall, SMST, BESU.

Others

1. Obtained Cert-IV qualification from Queensland Govt., Australia to teach the students undergoing Renewable Energy Degree or Diploma Course.
2. Selected as Chairman of Ashden India Sustainable Energy Collective (AISEC) an Organisation of Ashden Award Winners of India.
3. Delivered Master Speakers address on “Off-grid Renewables” at Ahmedabad on 5th July, 2012.

**SEMINAR, SYMPOSIUM/ CONFERENCE ATTENED/ ORGANIZED
ATTENED**

1. Plenary Lecture by Prof. A. K. Barua at *Indo-US Workshop on Frontiers of Photovoltaic Technology*, January, 2012, IIT , Bombay.
2. “Improvement of the Performance of Single Junction a-Si Integrated Mini Modules with Oxide Based Materials”, U. P. Basavaraju, Gourab Das, RajiveTomy M, Chandan Banerjee, SumitaMukhopadhyay, A.K.Barua, presented in International Conference on Solar Energy Photovoltaic, ICSEP-2012 , KIIT University, Bhubaneswar, December 19-21, 2012.
3. “Lowering of LID in single junction amorphous solar cell using oxide based window and buffer layers”, Sourav Mandal, T. Srikanth, Chandan Banerjee, Sumita Mukhopadhyay, K. Mohanchandran, A.K.Barua, presented in International Conference on Solar Energy Photovoltaic, ICSEP-2012, KIIT University, Bhubaneswar, December 19-21, 2012.
4. “Improvement of efficiency for the single junction a-Si solar cell by using n- μ c-Si:H layer as bottom n-layer”, Gourav Das, SouravMandal, RajiveTomy M, Chandan Banerjee, SumitaMukhopadhyay and A.K.Barua, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
5. “Development of n- μ c-SiO:H as a back reflector and its application to Amorphous Silicon Solar Cells”, T. Srikanth, U. P. Basavaraju, RajiveTomy M, M. G. Sreenivasan, Chandan Banerjee, K. Mohanchandran, SumitaMukhopadhyay, A. K. Barua, communicated to 28th European Photovoltaic Solar Energy Conference and Exhibition, Paris, France, September 30 – October 4, 2013.
6. “Effect of embedding silica nanoparticles and voids in the performance of c- Si solar cells”, Sonali Das, AvraKundu, HiranmaySaha, Swapan K. Datta, presented in International Conference on Solar Energy Photovoltaic, ICSEP-2012, KIIT University, Bhubaneswar, December 19-21, 2012.

7. "A portable sensitive LPG / methane gas measuring unit", S. Ghosh, S. Dey, I. Das, H. Saha, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
8. "Nanoparticles for high efficiency silicon solar cells: Status and Prospects", Sonali Das, Santanu Maity, Prasenjit Dey, Avra Kundu, Nillohit Mukherjee, Swapan K. Datta and Hiranmay Saha, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
9. "Nanotexturing of silicon surfaces for solar cell applications", Santanu Maity, Sonali Das, Avra Kundu, Swapan K. Datta and Hiranmay Saha, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
10. "Radial junction si-nanowire for photovoltaic applications", Saptaparna Dey, Sonali Das, Avra Kundu, Swapan K. Datta and H. Saha, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
11. "A comparative study on the optical properties of Ag and Au nanoparticles deposited by chemical, electrochemical and physical techniques", Sudarshana Banerjee, Sonali Das, Avra Kundu, Swapan K. Datta, Hiranmay Saha* and Nillohit Mukherjee, presented in 20th West Bengal State Science and Technology Congress - 2013, BESU, Shibpur, Howrah, February 25 – March 2, 2013.
12. "Index tuned nanoparticle coating on dielectric film for improved photon transmission and enhanced performance for silicon solar cells", Sonali Das, Avra Kundu, Hiranmay Saha, Swapan K. Datta, 1st International Conference on Emerging Electronics (ICEE), IIT Bombay, Dec 2012.
13. "Plasmonic effect in light induced plating of c-Si solar cell", Santanu Maity, Sonali Das, Soma Ray, Utpal Gangopadhyay, Swapan Datta, Hiranmay Saha, 1st International Conference on Emerging Electronics (ICEE), IIT Bombay, Dec 2012.
14. "Reduced reflection loss with silica nanoparticles atop bare silicon solar cells", Sonali Das, Avra Kundu, Nillohit Mukherjee, Swapan K. Datta, Hiranmay Saha, 1st International Workshop on Nanomaterials (IWON): Engineering Photon and Phonon Transport, Jadavpur University, December 2012.
15. "Photon management at the nanoscale in thin silicon solar cells", Saptaparna Dey, Sonali Das, Avra Kundu, Swapan K. Datta and Hiranmay Saha, 1st International Workshop on Nanomaterials (IWON): Engineering Photon and Phonon Transport, Jadavpur University, December 2012.
16. "Influence of silver plasmonic nanoparticles on planar silicon solar cells", S. Das, A. Kundu, S. K. Datta, H. Saha, International Congress on Renewable Energy (ICORE), Tezpur University, Assam, November 2011.
17. Plasma Deposition of Multilayers for Surface Engineering., R. Bhattacharyya & Sushil Kumar (invited) *Indian vacuum Society Symposium on Thin Films: Science & Technology*, TFST-2011, Nov-09-12, BARC – Mumbai.
18. Plasmonics based device in Photovoltaics, Sensing & Communication- an appreciation- R. Bhattacharyya (invited), *National conference on Advanced Technologies*, 27th-29th Feb 2012, ABV – Indian Institute of Technology & Management, Gwalior.
19. "Green Nanotechnology" (key note address), "National Conference on Nanoscience and Nanotechnology". March 10-12, 2012, Aligarh Muslim University.
20. Plasmonics for enhancing efficiency of thin film silicon solar cells: M. G. Sreenivasan, Chandan Banerjee, K. Mohanachandran, S. Prasanth and A. K. Barua accepted in 26th *European Photovoltaic Solar Energy Conference*.
21. "Detection of proportion of different gas components present in manhole gas mixture using back propagation neural network." Varun Kumar Ojha, Paramartha Dutta, Hiranmay Saha, and

- SugatoGhosh, *Intentional Conference on Information & Network Technology (ICINT 2011)*, Chennai, India, April 2012. IACSIT – 2012, Vol-37 pp 11-15 ISBN 978-981-07-2068-1.
22. “Application of Real Valued Neuro Genetic Algorithm in Detection of Components Present in Manhole Gas Mixture.” Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Proceedings of The Second International Conference On Computer Science, Engineering And Application (Springer 2012)*, Delhi, India, May 2012. Vol-1, pp.333–340, ISSN 1867–5662.
 23. “Linear Regression Based Statistical Approach For Detecting Proportion Of Component Gases In Manhole Gas Mixture.”, Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *International Symposium on Physics and Technology of Sensors (IEEE – 2012)*, Pune, India, March 2012, Accepted & Presented.
 24. “Sensor Array for Manhole Gas Analysis”, SugatoGhosh, Animesh Roy, Sarat Singh, Varun Kumar Ojha, ParamarthaDutta, Hiranmay Saha, *International Symposium on Physics and Technology of Sensors (IEEE – 2012)*, Pune, India, March 2012, Accepted & Presented.
 25. “A Novel Neuro Simulated Annealing Algorithm for Detecting Proportion of Component Gases in Manhole Gas Mixture.”, Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Proceedings Of International Conference On Advances In Computing And Communications (ICACC 2012) IEEE*, Kochi, India, August 2012, Accepted.
 26. “USAID to deliver the keynote address on “ Moving Towards a Low Emissions Power Sector”by S. P. GonChaudhuri, in the Energy Summit of East African Countries to be held at Tanzania from 16th July, 2012.
 27. “Detection of proportion of different gas components present in manhole gas mixture using back propagation neural network.” Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Intentional Conference on Information & Network Technology (ICINT 2011)*, Chennai, India, April 2012. IACSIT – 2012, Vol-37 pp 11-15 ISBN 978-981-07-2068-1.
 28. “Application of Real Valued Neuro Genetic Algorithm in Detection of Components Present in Manhole Gas Mixture.” Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Proceedings of The Second International Conference On Computer Science, Engineering And Application (Springer 2012)*, Delhi, India, May 2012. Vol-1, pp.333–340, ISSN 1867–5662.
 29. “A Neuro-Swarm Technique for the Detection of Proportion of Components in Manhole Gas Mixture”, Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Proceedings Of International Conference On Modeling, Optimization And Computing (ICMOC 2012)*, Kanyakumari, India, April 2012 Vol-2, pp. 1211-1218.
 30. “Linear Regression Based Statistical Approach For Detecting Proportion Of Component Gases In Manhole Gas Mixture.”, Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *International Symposium on Physics and Technology of Sensors (IEEE – 2012)*, Pune, India, March 2012, Accepted & Presented.

31. "Sensor Array for Manhole Gas Analysis", SugatoGhosh, Animesh Roy, Sarat Singh, Varun Kumar Ojha, ParamarthaDutta, Hiranmay Saha, *International Symposium on Physics and Technology of Sensors (IEEE – 2012)*, Pune, India, March 2012, Accepted & Presented.
32. "A Novel Neuro Simulated Annealing Algorithm for Detecting Proportion of Component Gases in Manhole Gas Mixture.", Varun Kumar Ojha, ParamarthaDutta, HiranmaySaha, and SugatoGhosh, *Proceedings Of International Conference On Advances In Computing And Communications (ICACC 2012) IEEE*, Kochi, India, August 2012, Accepted.
33. "USAID to deliver the keynote address on "**Moving Towards a Low Emissions Power Sector**" by S. P. GonChaudhuri, in the Energy Summit of East African Countries to be held at Tanzania from 16th July,2012.
34. Delivered Special Lectureby S. P. Gonchaudhuri on "Off-grid RE Policy" at IIT, Mumbai organised by Prayas, Pune in March,2012.
35. Delivered keynote address by S. P. Gonchaudhuri at Guwahati Indian oil Conference on Renewable Energy in Feb,2012.

ORGANISED

1. The National workshop on "Plasmonic and Nano-structured solar Cells" was held on March 17, 2012 and was sponsored by DST, Govt. of India.
2. One day workshop on " Grid Interfacing with Renewable Energy", 23 Dec, 2012, sponsored by MNRE

Journal papers:

1. "Photo-induced exciton generation in polyvinylpyrrolidone encapsulated 2S core-shells: Electrochemical deposition, regular shape and high order of particle size distribution", Nillohit Mukherjee, Sumanta Jana, GobindaGopal Khan, and AnupMondal,J. Appl. Phys.112 (2012) 124324.
2. "Exfoliated Graphite Reinforced PMMA Composite: A Study on Nanoindentation and Scratch Behavior", HimelChakraborty, ArijitSinha, NillohitMukherjee, and ParthaProtimChattopadhyay, Journal of Nanotechnology doi:10.1155/2012/940516.
3. "Cathodic and anodic deposition of FeS₂ thin films and their application in electrochemical reduction and amperometric sensing of H₂O₂", BiswajitChakraborty, Bibhutibhushan Show, Sumanta Jana, Bibhas Chandra Mitra,Swarup Kumar Maji, BibhutoshAdhikary, Nillohit Mukherjee, AnupMondal, ElectrochimicaActa94 (2013) 7.
4. "Photocatalytic degradation of organic dye on porous iron sulfide film surface", Sanjib Kumar Bhar, Sumanta Jana, AnupMondal, Nillohit Mukherjee, Journal of Colloid and Interface Science 393 (2013) 286.
5. "A study on nanoindentation and tribologicalbehaviour of multifunctional ZnO/PMMA nanocomposite", HimelChakraborty, ArijitSinha, Nillohit Mukherjee, Dipa Ray, ParthaProtimChattopadhyay, Materials Letters 93 (2013) 137.
6. "Development of n-μc-SiO:H as cost effective back reflector and its application to thin film amorphous silicon solar cells.", Chandan Banerjee, T Srikanth, U Basavaraju, R M Tomy, M G Sreenivasan, K Mohanchandran, S Mukhopadhyay, A K Baruacommunicated to Solar Energy.
7. "Development of oxide based window and buffer layer for single junction amorphous solar cell: Reduction of light induced degradation." Chandan Banerjee, RajiveTomy M, SouravMandal, SumitaMukhopadhyay and A K Barua communicated to Physics and Chemistry of Solids.

8. "Silica nanoparticles on front glass for efficiency enhancement in superstrate type amorphous silicon solar cells", Sonali Das, Chandan Banerjee, AvraKundu, PrasenjitDey, HiranmaySaha, Swapan K. Datta, submitted to Journal of Physics D: Applied Physics, 2013.
9. "Design of high efficiency solar cells with lossless nanoentities atop and embedded in silicon substrate", Sonali Das, AvraKundu, HiranmaySaha, Swapan K. Datta, submitted to Journal of Optics, 2013.
10. "Effect of embedding silica nanoparticles and voids in the performance of c- Si solar cells", Sonali Das, AvraKundu, HiranmaySaha, Swapan K. Datta, Journal of Renewable and Sustainable Energy, Volume 5, pp 031603-1-031603-11, 2013.
11. "Enhanced optical absorption and electrical performance of silicon solar cells due to embedding of dielectric nanoparticles and voids in the active absorber region", Sonali Das, AvraKundu, HiranmaySaha, Swapan K. Datta, Journal of Modern Optics, <http://dx.doi.org/10.1080/09500340.2013.796015>.
12. "Role of metal and dielectric nanoparticles in the performance enhancement of silicon solar cells", Sonali Das, AvraKundu, HiranmaySaha, Swapan K. Datta, Journal of Modern Optics Volume 59, Issue 14, pp 1219-1231, 2012.
13. Diffuse radiation models for Indian climatic conditions: Indira Karakoti, Prasun Kumar Das and BibekBandyopadhyay, International Journal of Ambient Energy, Available online: 04 Jan 2012.
14. A. Kundu, S. Das, S. Maity, B. Gupta, S. K. Lahiri, H. Saha, A tunable band-stop filter using a metamaterial structure and MEMS bridges on a silicon substrate, Journal of Micromechanics and Microengineering, 22(2012) 45004.
15. A. Datta, G. Bhattacharya, D. Mukherjee and H. Saha, "Towards constant load voltage in Indian grid connected PV system using dsPIC controlled power conditioning unit", ElsevierProcedia Technology 4 (2012) 661.

Center for Healthcare Science & Technology

About the Department: Centre for Healthcare Science and Technology (CHST) was established by Bengal Engineering and Science University, Shibpur on 22.01.2010.

Academic Programme

Undergraduate Level: Two elective subjects have been proposed to be offered from the th center during 5– 8th semester level. The subjects to be introduced are Elective–I: Elements of Biological Systems and Engineering (HST-xxx) and Elective–II: Bio-Instrumentation and Imaging Technology (HST – xxx). The syllabi have been prepared and are being placed to BoS. As the present curriculum of the university does not allow open (free) electives in all the four semesters mentioned above, the only possible way to fit these UG subjects is in 8th semester that may be started from the next even semester after acceptance from BoS & FC.

Faculty Position: All positions are of limited tenure

Name	Designation	Highest Qualification	Specialization/ Research Area	Contact No. Email
Prof. Jayanta Chakraborty	Adjunct Professor	PhD	Applied Mechanics, Biomechanics	jayantachakraborty@yahoo.com
Dr. Dipankar Chakraborty	Adjunct Professor	DCH	Paediatrics / Medical Instrumentation, Nanotechnology in medicine, Bio-mechanics, Medical Immunology	dc.ohnet@gmail.co m
Dr. Chitrangada Das Mukhopadhyay	Assistant Professor (contractual)	PhD	Biotechnology, Clinical Microbiology	chitrangadadas@yahoo.com
Dr. Ananya Barui	Assistant Professor (contractual)	PhD	Regenerative Medicine and Tissue Engineering	ananya.pariksha@gmail.com
Dr. Pallab Dutta	Assistant Professor (under DST INSPIRE faculty award [IFA12LSBM48 dated 01/02/2013])	PhD	Biomaterials and Biofabrication,	contactpallab@gmail.com
Aritra Mahapatra	SRF (from DST Project)	M.Tech. (IT)	Aritra Mahapatra	
Sanjay Singh	Gr. D. (from University)	Sanjay Singh	Gr. D. (from University)	

Awards and Laurels: Young Scientist Award to Dr. Ananya Barui, 2013 DST-INSPIRE Fellowship by Dr. Pallab Dutta, 2013

Research Areas (only mention broad titles without description in details): Prof. J. K. Chakraborty : Bio-Mechanics and Applied mechanics. Dr. Dipankar Chakrabarti: Cardio-pulmonary instrumentation Dr. Chitrangada Das Mukhopadhyay : Cancer Biology, Bioinformatics, Drug resistance Dr. Ananya Barui : Stem cell research, mechanotransduction, cell-matrix interaction, molecular imaging, EMT, Cancer biology Tissue Engineering and regenerative medicine. Dr. Pallab Dutta : Synthesis and functionalization of materials for bone grafts, investigation of materials and processing parameters for creating nano-medical devices, customized implant fabrication, pulsatile drug delivery systems.

Research Facilities: (name specific equipment/ picture etc.

- i. AD Instruments Powerlab 8 port system & Lab Chart pro software CD
- ii. Medical equipments for validation of medical instrumentation
- iii. BPL Ultima Prime BS Cardiac monitor
- iv. Trinocular Fluorescent Microscope

Equipments procured/ proposed for procurement:

- i. 3D Printer, Polymer synthesis set ups.
- ii. Magnetic stirrer with hot plate,
- iii. Lyophiliser,
- iv. -20 degree freezer,
- v. Electronic analytical balance,
- vi. Wet spinning set up,
- vii. pH conductivity meter.

Name of the laboratories: Cardio-pulmonary Instrumentation laboratory Computer Laboratory Characterization Laboratory

(ii) Technical staff profile (in the following table):

J. Sponsored Research: (mentioned area)

Name	Designation	Highest Qualification	Contact No.	E-mail
Pratap Chandra Ari	Medical Technician (from DST Project)	DMRT, DMET, B. Com		

Ongoing (Project Value)	Sponsoring agency
Development of Smart Prognostic System for Early Indication of Cardiac Problem of a Patient: PI: Prof. Ajoy Kumar Ray (37.425 Lacs)	DST-IDP Govt. of India
Computed Aided Design, Analysis and Development of Patient Specific Prosthesis for Different Human Joints, Specifically Hip Joint on Indian Perspective; PI: Prof. Amit Roy Chowdhary (63.148 Lacs)	DBT, Govt. of India
Efficacy of Silicon Microchannel Cytosensor Platform for Electrical Profiling of Multiple Mammalian Cells Under Intervention Towards Diagnostic and Regenerative Applications; PI: Prof. Chirasree RoyChowdhuri (54.60 Lacs)	SERB, Govt. of India
Fabrication of Bio-degradable Honey Based Scaffold for <i>Ex-Vivo</i> Expansion and Differentiation of Mesenchymal Stem Cells. PI: Dr. Ananya Barui (Grant : 21.45 lakhs)	DST, Govt. of India Fast Track
Biofabrication of Bioactive Scaffolds for Bone Regeneration. PI: Dr. Pallab Datta (Grant : 35 lakhs)	DST, Govt. of India Inspire

No. of Publications: (This year 2012-13 only)

Journal

1. R.Dev Das, N.Mondal, **C. Roy Chaudhuri**, “Optimized Electrode Geometry for an Improved Impedance based Macroporous Silicon Bacteria Detector”, *IEEE Sensors*, vol.12,pp.1868-1877, 2012.
2. D.Mondal, **C.Roy Chaudhuri**, L.Das, J.Chatterjee -“Microtrap electrode devices for single cell trapping and impedance measurement”, *Biomedical Microdevices (Springer)*, vol.14, pp.955-964, 2012.
3. A.D.Chowdhury, A.De, **C.Roy Chaudhuri**, K.Bandyopadhyay, P.Sen -“Label free polyaniline based impedimetric biosensor for detection of E. coli O157:H7 Bacteria”, *Sensors and Actuators B(Elsevier)*, vol. 171–172, pp.916-923, 2012.
4. A. Bhattacharjee, **A. Sutradhar** – “Nonparametric Identification of Glucose Insulin Process in IDDM Patient with Multi-meal Disturbance”; J. Inst. Eng. India Ser. B (Dec2012-Feb2013) 93(4):237-246.
5. H. Ghosh, **C.RoyChaudhuri**, ‘Ultrasensitive Food Toxin Biosensor Using Frequency Based Signals of Silicon Oxide Nanoporous Structure’, *Applied Physics Letters*, vol.102,p.243701, 2013.
6. **C.RoyChaudhuri**, D.Mondal, “Electrode Optimization for Impedance Evaluation of Biological Cell Culture under Variable Frequency Low Intensity Sinusoidal Electric Field”, *IEEE Transactions on Dielectric and Electric Insulation*, vol.20, pp.382390, 2013.
7. **A. Barui**, N. Mandal, S. Majumdar, R. K. Das, S. Sengupta, P. Banerjee, **C. Roy Chaudhuri**, J.Chatterjee, “Assessment of Molecular Events during *in vitro* Reepithelialization under Honey-Alginate Matrix Ambience”, *Materials Science and Engineering B (Elsevier)*, vol.33, pp.3418-3425, 2013.
8. **Ananya Barui**, Naresh Mandal, Subhadipa Majumdar, Raunak Kumar Das, Sanghamitra Sengupta, Provas Banerjee, **Ajoy Kumar Ray**, **Chirosree Roy Chaudhuri**, Jyotirmoy Chatterjee – “Assessment of Molecular Events during *in vitro* Reepithelialization under Honey-Alginate Matrix Ambience”; *Materials Science & Engineering C* (2013), doi: 10.1016/j.msec.2013.04.034.
9. N.Samanta, O.Kundu and **C.RoyChaudhuri**, “A Simple Low Power Electronic Readout for Rapid Bacteria Detection with Impedance Biosensor”, *IEEE Sensors*, 2013 (in press).

10. D.Mondal and **C.RoyChaudhuri**, “Extended Electrical Model for Impedance Characterization of Cultured HeLa Cells in Characterization of Cultured HeLa Cells in”, *IEEE Transactions on Nanobioscience*, 2013(in press) Conference

11. **Chitrangada Das Mukhopadhyay** – “In vivo imaging of apoptotic cells by Phage display technique” presented in *Indian Science Congress*, 2-5th January, 2013, Kolkata.

12. **Ananya Barui** -Presented paper as finalist of Young Scientist Award at the 100th *Indian Science Congress*, Kolkata 03Jan-07January, 2013.

Books/Monographs:

M. Seminar/Workshop/Conference/Training Programme organized by the department (in last year)

- TEQIP II Sponsored One day **International Workshop on Recent trends in Cancer Research**, 4th January, 2013
- TEQIP II Sponsored One day **Symposium on CURRENT TRENDS IN ORAL CANCER RESEARCH – Basic, Clinical & Translational Aspects**, 14th February, 2013.

Seminars/workshops attended:

1. Dr. Ananya Barui: Grant Writing and Strategic Management of IPR Workshop, 17-07-2013 Organised by BIRAC-DBT, Kolkata, India.
2. Dr. Ananya Barui : Demonstration & Workshop on New Technologies from Leica for Live Cell Imaging in Confocal and Super Resolution Microscopes, 03 to 05 Oct 2012, at NCBS Bangalore.
3. Dr. Pallab Barui : Grant Writing and Strategic Management of IPR Workshop, 17-07-2013 Organised by BIRAC-DBT, Kolkata, India.

work on:

- Portable cardiac risk detector – sponsored by Dept. of Science & Technology, Govt. of India
- Assessment of Cardiovascular health from Electronic Blood Pressure machine
- Development of a low cost wearable sensor harness-based remote monitoring system for sick patients under five years of age.
- Prototypes developed i) Portable electrical biosensor for bacteria detection ii) Wireless sensor system for health monitoring of elderly people (field testing has started).

Others: Collaborative research work: Dr. Chirashree Roy Chaudhuri visited Helmut Institute for Biomedical Engineering Rwth, Aachen, Germany under Alexander von Humboldt Foundation to explore collaborative research.

Central Library

Preamble

The University library has the distinction of being one of the oldest and largest resourceful technical library in the south-east Asia. The library not only caters to the basic information needs of faculty members, research scholars and students of this University but also provides information and documentation services to researchers of neighbouring universities and research institutes. The library provides open access services for books and journals to its members including students.

Collection

The total collection of books is 1,37,254 as on 31st March 2013. During this period 3,881 books were added to the library collection. It has a huge collection of non-book materials, such as patents, standards, technical reports and pamphlets. The library boasts of having a good collection of old and rare books and journals of the nineteenth century.

Computerization

The library has already computerized its entire library housekeeping operations and services. The preparation of database of the library collection for books has been completed and charging and discharging of books to the members are made online through the integrated library management system – LibSys. The library is providing online search facilities (WebOPAC) of its database through the website of the university for benefit of its users. Library introduced new system generated bar-coded membership card with photograph of member from July 2012.

Services offered

- Access to electronic resources
- Lending facilities
- Reading Room facilities
- Reference Services
- Digital Question Papers Access Services
- Inter Library Co-operation
- Internet searching/web browsing
- Services to Alumni and other distinguished visitors

Electronic Resources

The facilities in the Library have been significantly improved by the way of introducing new scholarly electronic resources. The access of e-resources – *ASCE Journals*, *ASME Journals* and *IEL Online* available through the INDEST-AICTE consortium and *American Chemical Society (ACS)*, *American Physical Society (APS)*, *Royal Society of Chemistry (RSC)*, *Springer's LINK*, *JSTOR* and *Economic and Political Weekly* database through the UGC-INFONET Digital Library consortium is continued. The library is now subscribing seven subject collections (namely, Chemistry; Computer Science; Earth and Planetary Sciences; Engineering; Physics and Astronomy; Materials Science; and Mathematics) of Elsevier's *Science Direct* database and two management science databases (*EBSCO Business Suite Plus* and *J-GATE Social and Management Sciences*).

BESU Book Fair 2013

As usual, the library organized its annual event, the BESU book fair during March 4-8, 2013. More than 25 leading national and international publishers and booksellers participated in the event and displayed their latest collections. The faculty members, research scholars and students of the university selected new books worth ₹ 40.00 lakhs from this fair with the aim of augmenting the overall collection of the library.

Seminars/Refresher courses attended by library staff members

Dr. Susmita Chakraborty, Assistant Librarian, has attended the 78th World Library and Information Congress, held in Helsinki, Finland during August 11-17, 2012 and presented a paper titled "One Who has been long in confinement: inspiring the prisoners' to read".

Dr. Susmita Chakraborty, Assistant Librarian, has participated in the Refresher Course on 'Emerging areas in library and information science research' organized by the Academic Staff College, Jadavpur University during August 22 – September 11, 2012.

Equal Opportunity Cell (EOC)

The Equal Opportunity Cell was setup by the decision taken in the meeting of the 6th Executive Council held on 17.09.2009(vide: Res.No.06.06.01) of the University. The works of Equal Opportunity Cell are conducted from October 2009. The main objective of Equal Opportunity Cell is to run specific schemes of coaching for Scheduled Caste, Scheduled Tribes, OBC (non-creamy layer) Minorities, students of Economically and Academically weaker sections of the society in order to enhance proper academic achievements for their employability and success. One time grant of RS.2.lakhs for establishing the office of Equal Opportunity Cell has been provided under the scheme in XIth Plan Period and XIIth Plan Period has been started from October 2012.

The three schemes adopted by BESUS under EOC as per UGC guidelines are:- (i) Remedial coaching at UG and PG level of courses, (ii) Coaching for Entry into the Services, (iii) Coaching for NET/SET/GATE for Scheduled Caste, Scheduled Tribes and Minority, Academically and Socio-Economically weaker section of the students.

An Advisory committee was formed for the smooth functioning of Equal Opportunity Cell and the Present members of the Advisory Committee are:

Prof. B.K. Guha(Chairman)-Dean of Faculty Of Basic and Applied Sciences, nominated by Vice-Chancellor

Prof. Salil Halder(Member)-Aerospace Engg.& Applied Mechanics.

Prof. Abdur Rouf(Member)-Electrical Engg.

Prof. Ambarish Ghosh(Member)-Civil Engineering.

Prof. Sudip Roy(Member)-Civil Engineering.

Prof. Tapan Kumar Roy(Member)-Mathematics

Prof. P.K.Nandi(Invitee as Coordinator of NET/SET, etc)-Chemistry.

Prof. Rupen Basu Mallik(Invitee as Coordinator, Entry To Services)- Humanities &Social Sciences.

Prof. Sanjoy Sadhukhan(Invitee as Coordinator, Remedial Coaching)-Metallurgy & Materials Engg.

Dr. Biman Das(Invitee)-Development Officer.

Mr. Alok.Kumar Mitra (Invitee)-Assistant Proctor .

Mr. Bivore Das(Invitee)- Assistant Registrar.

UGC ONE TIME GRANT - Rs. 2,00,000/- (XIth Plan) & Rs. 50,000/- (XIIth Plan)

EXPENDITURE FOR THE YEAR (2012-13) - Rs. 12,153/- (XIth Plan)

The main items procured under this Scheme to set up the office of the 'Equal Opportunity Cell' are:-

- **Different Stationary Items.**

**REMEDIAL COACHING SCHEME
UNDER
EQUAL OPPORTUNITY CELL
(UNDER UGC SCHEME XIth & XIIth PLAN)
BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR, HOWRAH-
711103(W.B.)
PROGRESS REPORT (Financial Year 2012-13)**

The coaching classes of Remedial Coaching Scheme have started from October 2009. At present the Remedial coaching Scheme at Undergraduate and Postgraduate Level for Scheduled Cast, Scheduled Tribes, Academically and financially weaker section and Minority Communities Student is running successfully. The registered students under this Scheme attend the classes which are taken by both internal and external faculties. Classes are held from Monday to Friday from 5 pm to 8 pm as per schedule in the allotted classroom. The coaching classes were discontinued at the time of examinations and vacations. The students also get classes of their regular subjects in which they find difficulties and from October 2012 XIIth Plan Period has been started. Classes have been conducted on the following subjects:-

Communicative English, Mathematics, Physics, AutoCAD, Mechanics of Solids, Mat lab, Discreet Structure, Chemistry, Electronics, Dynamics Of Rigid Bodies, Structural Analysis, Fluid Mechanics, Mechanics, Electronics & Physics of Metallurgy, Electronic Design, Electrical (E1201), C-programming, Basic Electrical Engineering.

Number of registered students in 2012-13: **93**

UGC GRANT(RECURRING) - Rs. 5, 00,000/- [XIth Plan Period] & Rs. 2, 00,000/- [XIIth Plan Period]

UGC GRANT(NON-RECURRING) - Rs.5, 00,000/- [XIth Plan Period] & Rs. 50,000/- [XIIth Plan Period]

EXPENSE IN THE YEAR 2012-13

RECURRING - Rs. 80,300/- [XIth Plan Period] & Rs. 28,909/- [XIIth Plan Period]

NON –RECURRING – Rs. 4,03,760/- [XIth Plan Period]

Main item purchased under Non Recurring Grant:-

1. Laptop.
2. Handy Cam Video Camera.
3. 20 Users Handset with Headset.

**NET/SET/GATE COACHING SCHEME
UNDER
EQUAL OPPORTUNITY CELL
(UNDER UGC SCHEME XIth & XIIth PLAN)
BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR, HOWRAH-
711103(W.B.)**

PROGRESS REPORT (Financial Year 2012-13)

The coaching classes NET/SET have started from January 2010. At present NET/SET Coaching Scheme at Postgraduate(Basic and Applied Sciences) Level for Scheduled Cast, Scheduled Tribes, Academically and Financially weaker section and Minority Communities Student has been continuing successfully. The registered students under this Scheme attend the classes which are taken by both internal and external faculties. Classes are held from Monday to Friday from 5 pm to 8 pm as per schedule in respective departments with regular feedback from the students and from October 2012 XIIth Plan Period has been started. The coaching classes remain closed during examination and vacation periods. Classes have been conducted on the following subjects:-

Chemistry, Mathematics, Food Processing and Nutrition Science, Physics and different Engineering subjects.

Number of registered students in 2012-13 : **34**

UGC GRANT(RECURRING) - Rs. 5, 00,000/- [XIth Plan Period] & Rs. 2, 00,000/- [XIIth Plan Period]

UGC GRANT(NON-RECURRING) - Rs.5, 00,000/- [XIth Plan Period] & Rs. 50,000/- [XIIth Plan Period]

EXPENSE IN THE YEAR 2012-13

RECURRING - Rs. 85,569/- [XIth Plan Period] & Rs. 65,062/- [XIIth Plan Period]

NON –RECURRING – Rs. 4,08,969/- [XIth Plan Period]

Main item purchased under Non Recurring Grant:-

- ISILS for 24 user unit with 24 Interactive Handset and 24 Headset.

**ENTRY INTO THE SERVICES COACHING SCHEME
UNDER
EQUAL OPPORTUNITY CELL
(UNDER UGC SCHEME XIth & XIIth PLAN)
BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR, HOWRAH-
71103(W.B.)**

PROGRESS REPORT (Financial Year 2012-13)

The coaching classes Entry into the Services have started from January 2010. At present Entry into the Services Scheme at Undergraduate and Postgraduate Level for Scheduled Cast, Scheduled Tribes, Academically and financially weaker section and Minority Communities Student is running successfully. The registered students under this Scheme attend the classes which are taken by both internal and external faculties. Classes are held from Monday to Friday from 5 pm to 8 pm as per schedule in respective departments and regular feedback is also taken from the students. The coaching classes were discontinued at the time of examinations and vacations. Coaching classes for this Scheme may be extended beyond our own students also. Classes have been conducted on the following subjects:-Chemistry, Mathematics, Food Processing, Nutrition Science, AutoCAD and Mat Lab.

From July 2011, IES (Indian Engineering Service) Exam's Coaching has been started for Civil and Electronics & Telecommunication Engineering students and in this financial year the IES Exam's Coaching has been extended for Mechanical & Electrical Engineering students also.

In April-May 2012, the Language Laboratory of the University has been renovated by modern equipments and after that three foreign languages such as Spanish, French & English have been learned by the different eminent faculties in the lab successfully.

Number of registered students in 2011-12: **390.**

UGC GRANT(RECURRING) - Rs. 5, 00,000/- [XIth Plan Period] & Rs. 2, 00,000/- [XIIth Plan Period]

UGC GRANT(NON-RECURRING) - Rs.5, 00,000/- [XIth Plan Period] & Rs. 50,000/- [XIIth Plan Period]

EXPENSE IN THE YEAR 2012-13

RECURRING - Rs. 91,872/- [XIth Plan Period] & Rs. 74,611/- [XIIth Plan Period]

NON –RECURRING – Rs. 4,53,700/- [XIth Plan Period] & Rs. 11,350/- [XIIth Plan Period]

Main item purchased under Non Recurring Grant:-

1. Interactive Pen Display with Portable Mobile Book scanner & Notes Takers .
2. UPS and Wired & Wireless Microphone.
3. Wooden Shoe Rack for Language Lab.

FIFTEENTH ANNUAL CONVOCATION, 2013

OF THE

BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR



FOR

CONFERRING DEGREES

ON

THE 19TH JANUARY, 2013 AT 10.30 AM

15TH ANNUAL CONVOCATION
(19th January, 2013)

1. DOCTOR OF LITERATURE (HONORIS CAUSA) AWARDED TO :

Smt. Girija Devi

2. DOCTOR OF SCIENCE (HONORIS CAUSA) IN ENGINEERING
AWARDED TO :

Dr.Bimal Kumar Bose

3. DOCTOR OF SCIENCE (HONORIS CAUSA) IN SCIENCE AWARDED
TO :

**Dr. Marthanda Varma Sankaran
Valiathan**

4. LIST OF RECIPIENTS OF 'DISTINGUISHED TEACHER' AWARD :

Sl. No.	Name of the Person
01.	Professor Kamal Krishna Palchowdhury
02.	Professor Sukomal Chandra Talapatra
03.	Professor Dipak Sengupta
04.	Professor Sobhen Ray

5. LIST OF RECIPIENTS OF 'DISTINGUISHED ALUMNUS' AWARD :

Sl. No.	Name of the Person
01.	Shri Rabindranath Banerjee
02.	Professor Subrata Saha
03.	Professor Gautam Biswas

6. Ph.D. AWARDED IN ENGINEERING :

Sl. No.	Name of the Candidate	Department	Viva Date
01.	Ujjal Bhanu Ghosh	Aerospace Engineering & Applied Mechanics	29-May-2012
02.	Ritwik Chakraborty	Civil Engineering	22-December-2012
03.	Jayakrushna Moharana	Electrical Engineering	21-May-2012
04.	Debasish Mondal	Electrical Engineering	20-November-2012
05.	Biswarup Basak	Electrical Engineering	28-December-2012
06.	Sukanta Das	Electrical Engineering	12-January-2013
07.	Nirmalendu Bikas Sinha	Electronics & Telecommunication Engineering	13-April-2012
08.	Goutam Kumar Maity	Information Technology	08-August-2012
09.	Debasis Mitra	Information Technology	14-January-2013
10.	Aritra Ganguly	Mechanical Engineering	03-October-2012
11.	Santanu Bhowmik	Mining Engineering	30-April-2012
12.	Kunal Das	School of Materials Science and Engineering	27-June-2012
13.	Kabita Parmar	School of Materials Science and Engineering	07-January-2013

7. Ph.D. AWARDED IN SCIENCE :

Sl. No.	Name of the Candidate	Department	Viva Date
14.	Sumita Naskar (Hazra)	Department of Chemistry	08-June-2012
15.	Madhulita Das	Department of Chemistry	17-July-2012
16.	Priyabrata Roy	Department of Chemistry	02-August-2012
17.	Abhijit Dutta	Department of Chemistry	24-August-2012
18.	Swarup Kumar Maji	Department of Chemistry	13- September-2012
19.	Amit Kumar Dutta	Department of Chemistry	17-October-2012
20.	Debabrata Jana	Department of Chemistry	30-November-2012
21.	Giridhari Hazra	Department of Chemistry	20-December-2012

22.	Soumen Shaw	Department of Mathematics	18- September-2012
23.	Prasanta Kumar Maiti	Department of Mathematics	19-October-2012
24.	Samir Kumar Bhandari	Department of Mathematics	10-December-2012

8. Ph.D. AWARDED IN MANAGEMENT :

Sl. No.	Name of the Candidate	Department	Viva Date
25.	Madhurima Ganguly	School of Management Sciences	30-March-2012
26.	Jayanti De	Humanities and Social Sciences	12-September-2012
27.	Asis Kumar Bandyopadhyay	Humanities and Social Sciences	05-December-2012
28.	Dibyendu Kar	Humanities and Social Sciences	17-December-2012

BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR

15TH ANNUAL CONVOCATION
(19th January, 2013)

LIST OF GOLD MEDALISTS



1. GANESH CHANDRA MITRA MEMORIAL MEDAL AWARDED TO :

Sudhanwa Pal
(Master of Engineering in Geotechnical Engineering)
1ST In Post Graduate Examination, 2012
(Faculty of Engineering & Technology)

2. SINDHUBALA MITRA MEMORIAL MEDAL AWARDED TO :

Mousumi Das
1ST In Master of Business Administration Examination, 2012
(Faculty of Social & Management Sciences)

3. ARUN CHANDRA MITRA MEMORIAL MEDAL AWARDED TO :

Swagata Kayal
(Master of Science in Applied Mathematics)
1ST In Master of Science Examination, 2012
(Faculty of Basic & Applied Sciences)

4. THE PRESIDENT OF INDIA GOLD MEDAL AWARDED TO :

Samrat Mukhopadhyay
(Bachelor of Engineering in Electronics & Telecommunication Engineering)
1ST In Under Graduate Examination, 2012
(Faculty of Engineering & Technology)

5. Prof. S. C. DASGUPTA GOLD MEDAL AWARDED TO :

Swagata Kayal

1ST In Master of Science in Applied Mathematics Examination, 2012
(Faculty of Basic & Applied Sciences)

6. JAYA SMRITI PUROSKAR & CASH PRIZE Rs. 1000/- for Highest Score in Mineralogy in M. Sc. Applied Geology Examination, 2012 AWARDED TO :

Sarnali Bhattacharya

and

Nilanjan Sinha

(Faculty of Basic & Applied Sciences)

LIST OF STUDENTS WHO SECURED FIRST POSITION IN THEIR RESPECTIVE BRANCHES.

Branch	Name
1st in Master of Engineering in Civil Engineering	Ambika Kuity
1st in Master of Engineering in Computer Science & Engineering	Ranita Biswas
1st in Master of Engineering in Electrical Engineering	Bikshan Ghosh
1st in Master of Engineering in Electronics & Telecommunication Engineering	Tannistha Mitra
1st in Master of Engineering in Information Technology	Sayantan Sarkar
1st in Master of Engineering in Mechanical Engineering	Sumit Kumar
1st in Master of Engineering in Metallurgy & Materials Engineering	Gourab Saha
1st in Master of Town & Regional Planning	Saikat Sarkar
1st in Master of Technology in Materials Engineering	Sumanta Kumar Karan
1st in Master of Technology in Mechatronics	Karnika Biswas
1st in Master of Technology in VLSI Design	Sudipta Chakraborty
1st in Master of Engineering in Geotechnical Engineering	Sudhanwa Pal
1st in Master of Engineering in Industrial Metallurgy	Anil Kumar Parida
1st in Master of Engineering in Structural Engineering	Kaushik Bhadra
1st in Master of Engineering in Transportation Engineering	Rathin Ghoshal
1st in Master of Technology in Safety & Occupational Health	Avik Haldar
1st in Master of Technology in Information Technology	Jayanta Kumar Das
1st in Master of Business Administration	Mousumi Das
1st in Master of Science in Applied Chemistry	Namrata Saha
1st in Master of Science in Applied Mathematics	Swagata Kayal
1st in Master of Science in Applied Physics	Debasruti Chowdhury
1st in Master of Science in Applied Geology	Anindita Kundu
1st in Master of Science in Food Processing & Nutrition Sciences	Bhaswati Goswami

1st in Bachelor of Engineering in Civil Engineering	Joybandhu Saha
1st in Bachelor of Engineering in Computer Science & Technology	Deepanjan Bhol
1st in Bachelor of Engineering in Electrical Engineering	Avisha Tah
1st in Bachelor of Engineering in Electronics & Telecommunication Engineering	Samrat Mukhopadhyay
1st in Bachelor of Engineering in Information Technology	Rupsa Dasgupta
1st in Bachelor of Engineering in Mechanical Engineering	Soham Roychowdhury
1st in Bachelor of Engineering in Metallurgy & Materials Engineering	Priyanka Saha
1st in Bachelor of Engineering in Mining Engineering	Sanjoy Gorain
1st in Bachelor of Engineering in Civil Engineering (10 Semester Degree Course)	Md. Hasibul Molla

List of Consultancy (2012 – 13)

Sl. No.	Sanction Order No.	Sanction Date	Project Code	Financial Year	Dept .	Name of Principal Investigator	Title of the Project	Funding Agency	Funding Agency	Duration	Total Amount Sanctioned (Rs. in lakh)	Year of Sanction	Probable Date of Completion
1	582/3M-41/DSDA/13	27.02.2013	DRC/DSDA-CON/E/AKM/042/12-13	2012-2013	Electrical	Ashok Kumar Maitra	Technical Vetting of Estimates of Electrical Schemes, DSDA	Digha Sankarpur Development Authority, Purba Medinipur	Digha Sankarpur Development Authority, Purba Medinipur	5 Years	0.6565	2013	26.02.2018
2		23.02.2013	DRC/C RPL-CON/C E/AG/041/12-13	2012-2013	Civil	Ambarish Ghosh	Measurement of vibration due to sheet pile driving at "THE 42" at 42B, Chowringhee Road, Kolkata 700071	Chowringhee Residency Pvt. Ltd.	Chowringhee Residency Pvt. Ltd.	1 Month	0.44944	2013	22.03.2013
3	M.BAU/HRN/BESU/12-13/277	17.12.2012	DRC/M.BAU-CON/C E/AKC/040/12-13	2012-2013	Civil	Arun Kumar Chakraborty	Consultancy & Contingency Charges for determination of Flexural Properties of GRP Liners	Michel BAU GmbH & Co. KG	Michel BAU GmbH & Co. KG	3 Months	0.5618	2012	16.03.2013
4	081	03.01.2013	DRC/MCCPL-CON/MIN/PD/039/12-13	2012-2013	Mining	Pratik Dutta	Consultancy for Geotechnical analysis of Mahuagarhi Coal block	Mahuagarhi Coal Company Pvt. Ltd.	Mahuagarhi Coal Company Pvt. Ltd.	3 Months	1.4832	2013	02.04.2013
5		25.02.2013	DRC/L & TC-CON/C E/AG/038/12-13	2012-2013	Civil	Ambarish Ghosh	Dynamic load test	Larsen & Toubro Limited, Construction Infrastructure IC	Larsen & Toubro Limited, Construction Infrastructure IC	3 Months	1.0112	2013	24.05.2013
6	BPC/BESU/CON/COR/13-124	08.02.2013	DRC/B & PC-CON/C E/AG/037/12-13	2012-2013	Civil	Ambarish Ghosh	Proof Checking of Detailed Design and Drawing of the Foundation of Railway Bridges: in connection with gauge conversion work of Sakri Nirmali & Jhanjharpur - Laukaha Bazar Section, East Central Railway	Basic & Progressive Concept INDIA	Basic & Progressive Concept INDIA	1 Year	3.3708	2013	07.02.2014
7	1135/MAC-10/35-31/2010	30.11.2012	DRC/KMC-CON/C E/AG/036/12-13	2012-2013	Civil	Anirban Gupta	Study on the feasibility of providing separate sewer system in un-sewered areas of Kolkata under proposed KEIP-II Project	Kolkata Municipal Corporation	Kolkata Municipal Corporation	6 Months	3.0000	2012	29.05.2013
8	MKM/13/004	06.02.2013	DRC/ADR-CON/C E/SKG/035/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of 1100 Cum Water Reservoir at Madhyamgram	Amal Dutta Roy, Kolkata	Amal Dutta Roy, Kolkata	1 Week	0.2000	2013	13.02.2013

9			DRC/K MC-CON/C E/SKG /034/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Investigation of a building at Kolkata	Kolkata Municipal Corporation	Kolkata Municipal Corporation	12 Months	1.4891	2013	11.02.2014
10	TEPL/K MC/BES U-1/WO/G JK/12-13	24.01.2013	DRC/T EPL-CON/C E/AG/033/12-13	2012-2013	Civil	Ambarish Ghosh	Soil report & Vetting of design - G.J. Khan Pumping Station	Traders & Engineers Private Ltd.	Traders & Engineers Private Ltd.	1 Month	0.7800	2013	23.02.2013
11	TEPL/K MC/BES U/WO/P anihati/J etty/12-13	24.01.2013	DRC/T EPL-CON/C E/AG/032/12-13	2012-2013	Civil	Ambarish Ghosh	Preparation of Validation report of Soil data - Intake Jetty with Pump House under Panihati Municipality	Traders & Engineers Private Ltd.	Traders & Engineers Private Ltd.	1 Week	0.2	2013	31.01.2013
12	HRBC/G P/CPM/06/2283	23.07.2008	DRC/H RBC-CON/C E/SKG /031/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of Garment Park	HRBC, Govt. of WB	HRBC	3 Years	9.7472	2008	22.07.2011
13			DRC/C PK-CON/C E/SKG /030/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of G+3 Storied Building at Uttarpura, Hooghly	Chandi Prosad Khanra, Howrah	Chandi Prosad Khanra, Howrah	4 Weeks	0.5618	2013	16.02.2013
14	MBB/M CL/ROU /133	11.01.2013	DRC/ MBB-CON/C E/SC/029/12-13	2012-2013	Civil	Subrata Chakraborty	Vetting of Bridges	MBB Consultancy Services Pvt. Ltd., Kolkata	MBB Consultancy Services Pvt. Ltd., Kolkata	3 Months	1.4038	2013	10.04.2013
15			DRC/S BDPL-CON/C E/AG/028/12-13	2012-2013	Civil	Ambarish Ghosh	Pile Integrity Test (PIT) with PIT Collector Model for E K Tower	Shrachi Burdwan Developers Pvt. Ltd.	Shrachi Burdwan Developers Pvt. Ltd.	7 Days	0.1685	2013	19.09.2012
16	UTES-HW/KO L/WBSH /Engage Env Exp/2012/678	21.11.2012	DRC/R L-CON/HRM/ MKS/027/12-13	2012-2013	HRM	Manas Kumar Sanyal	Consultancy Services on Environmental Study for the "Preparation of Pre-Feasibility Study Report for Selected State Highway Corridors in West Bengal for Taking up in DBFOT Pattern or EPC Mode"	UTES Ltd. (A Govt. of India Enterprise)	UTES Ltd. (A Govt. of India Enterprise)	6 Months	4.2000	2012	20.05.2013
17		20.12.2012	DRC/P D&A-CON/C E/SKG /026/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of G+13 SGO Complex at Salt Lake for the Dept. of Urban Development, Govt. of West Bengal	Partha Das & Associates	Partha Das & Associates	6 Months	5.6180	2012	19.06.2013
18	BESU/D SGN/VE TT/02/2011-12	18.05.2011	DRC/S CHSL-CON/C E/AKC /025/12-13	2012-2013	Civil	Arun Kumar Chakraborty	Vetting/checking of design calculations and drawings of RCC-structures for construction of "G+8" storied residential building of Setu Co-operative Housing Society Ltd. at New Town, Kolkata	Setu Co-operative Housing Society Ltd., Kolkata	Setu Co-operative Housing Society Ltd., Kolkata	2 Years	2.5281	2012	17.05.2013

19	CPC/BC L/JPR/09 -12/IND- 070_R1	11.09 .2012	DRC/B CL- CON/ MIN/P D/024/ 12-13	2012- 2013	Mini ng	Pratik Dutta	Consultancy service for Geotechnical study of Nimbri Chandawatan project	Binani Cement Limited	Binani Cement Limited	60 Day s	2.8090	2012	10.11. 2012
20	FH/PR- 0003	19.11 .2012	DRC/F MHPL - CON/C E/AG/ 023/12 -13	2012- 2013	Civil	Ambarish Ghosh	Consultancy Services for Fortune Multispecialit y Hospital Pvt. Ltd.	Fortune Multispeci ality Hospital Pvt. Ltd.	Fortune Multispecia lity Hospital Pvt. Ltd.	4 Mon ths	14,045 0	2012	18.03. 2013
21	GEN/12- 13/O/4	18.10 .2012	DRC/B IAIPP L- CON/ MECH /SKS/0 22/12- 13	2012- 2013	Mec hanic al	Sujoy Kumar Saha and six other Professors	Jhargram Guptamani Project	BIAIPPL	BIAIPPL	1 Mon th	1.5337	2012	17.11. 2012
22		30.08 .2012	DRC/S HELT ER- CON/C E/SKG /021/12 -13	2012- 2013	Civil	Saibal Kumar Ghosh	Design of steel shoring for construction of basement for proposed Commercial Building at Nagerbazar, Dumdum	Shelter Kolkata	Shelter Kolkata	6 Wee ks	1.6854	2012	12.10. 2012
23	TEPL/K OL/BES U/WO/P anihati/1 2-13	11.09 .2012	DRC/T EPL- CON/C E/AG/ 020/12 -13	2012- 2013	Civil	Ambarish Ghosh	Vetting of Design & Drawing - Intake Jetty with Pump House under Panihati Municipality	Traders & Engineers Private Ltd.	Traders & Engineers Private Ltd.	1 Wee k	0.5000	2012	18.09. 2012
24	CPC/P- 83/09	23.01 .2012	DRC/C PC- CON/C E/SKG /019/12 -13	2012- 2013	Civil	Saibal Kumar Ghosh	Vetting of Design & Drawing of Bridges in Bihar	Chaitanya Projects Consultan cy Pvt. Ltd.	Chaitanya Projects Consultanc y Pvt. Ltd.	2 Year s	6.8137	2012	22.01. 2013
25		08.09 .2012	DRC/P &CL- CON/C E/SKG /018/12 -13	2012- 2013	Civil	Saibal Kumar Ghosh	Vetting of Slip Form Shuttering	Prasad & Co. Limited	Prasad & Co. Limited	1 Wee k	0.5618	2012	15.09. 2012
26	WO/ED PL/SHA KESPHE RE/12- 13/09	30.08 .2012	DRC/E DPL- CON/C E/AG/ 017/12 -13	2012- 2013	Civil	Ambarish Ghosh	Independent Assessment of effect of vibration, emanating from installation of Sheet Piles using a vibro- sinker at 52/1, Shakespeare Sarani, Kolkata - 700017, on the adjoining structures and providing guidance to the construction team	M/S Express Devcon Pvt. Ltd.	M/S Express Devcon Pvt. Ltd.	15 Day s	2.6405	2012	14.09. 2012
27	232/202- C/BUD	29.06 .2012	DRC/B UD- CON/C E/AG/ 016/12 -13	2012- 2013	Civil	Ambarish Ghosh	Soil Exploration Work at five Sites of Burdwan Medical College Campus	Burdwan University Division, P.W. (CB) Directt., Govt. of West Bengal	Burdwan University Division, P.W. (CB) Directt., Govt. of West Bengal	4 Mon ths	5.9000	2012	28.10. 2012
28	939/V- 102/BD A	25.06 .2012	DRC/B DA- CON/C E/TKR /015/12	2012- 2013	Civil	Tapas Kumar Roy	Vetting of Estimates	Burdwan Developm ent Authority	Burdwan Developme nt Authority	Cont inuo us Proj ect	0.0515	2012	-

			-13										
29	CPC/P-84/57	16.07.2012	DRC/PC-CON/C E/SKG /014/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of Design & Drawing of Railway Bridges	Chaitanya Projects Consultancy Pvt. Ltd.	Chaitanya Projects Consultancy Pvt. Ltd.	1 Month	1.6854	2012	15.08.2012
30	1718/12	06.08.2012	DRC/B I-CON/C E/SKG /013/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of "Unified Campus of Bose Institute"	Bose Institute, Govt. of India	Bose Institute, Govt. of India	6 Months	5.6180	2012	05.02.2013
31	CE/IS-74/830/2012(E)-354	03.08.2012	DRC/HIT-CON/C E/AG/012/12-13	2012-2013	Civil	Ambarish Ghosh	Soil Exploration Work at six Plots of HIT, Howrah	Howrah Improvement Trust, Government	Howrah Improvement Trust, Government	6 Months	8.9500	2012	02.02.2013
32		31.07.2012	DRC/E DPL-CON/C E/AG/011/12-13	2012-2013	Civil	Ambarish Ghosh	Assessment of vibration emanating from installation of Sheet Piles using a vibro-sinker at 52/1, Shakespeare Sarani, Kolkata - 700017	M/S Express Devcon Pvt. Ltd.	M/S Express Devcon Pvt. Ltd.	3 Months	1.6854	2012	30.10.2012
33		28.07.2012	DRC/SIL-CON/C E/SKG /010/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of Structural Design & Drawing of Launching Girder 02	Simplex Infrastructures Limited, Kolkata	Simplex Infrastructures Limited, Kolkata	2 Weeks	1.1236	2012	10.08.2012
34	BSL/KU LPI/FY-12-13/04	27.06.2012	DRC/BSL-CON/C E/SKG /009/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Redesign of Boundary Wall for Project Site at Kulpi	Bengal Shipyard Limited, Kolkata	Bengal Shipyard Limited, Kolkata	6 Weeks	1.1236	2012	10.08.2012
35	ERO/MD/666/0939	09.04.2012	DRC/E PIL-CON/C E/KKC /008/12-13	2012-2013	Civil	Kalyan Kumar Chattopadhyay	Soil Investigation Work for Construction of Multipurpose Cyclone Shelters at Amtalia Village, Deshapran Block, Purba Midnapur, West Bengal	Engineering Projects (India) Limited	Engineering Projects (India) Limited	2 Months	1.5000	2012	08.06.2012
36	IVRCL/BESUS/DD/2012	17.05.2012	DRC/IVRCL-CON/C E/AG/007/12-13	2012-2013	Civil	Ambarish Ghosh	Pile Integrity testing of in-situ-bored piles	IVRCL Limited Kalyani	IVRCL Limited Kalyani	15 Days	0.5500	2012	01.06.2012
37	Memo No. 294	06.03.2012	DRC/BZP-CON/C E/SKR /006/12-13	2012-2013	Civil	Sudip Kumar Roy and Ambarish Ghosh	Distress signs at various locations of the buildings of the Primary Health Centre at Lakhuria, Burdwan	Burdwan Zilla Parishad	Burdwan Zilla Parishad	6 Months	2.7000	2012	05.09.2012
38	TCB/BESU/12/O/03	08.05.2012	DRC/B & A-CON/C E/SKG /005/12-13	2012-2013	Civil	Saibal Kumar Ghosh	Vetting of Design and Drawing for Slip Form Shuttering for Chimney Structure at Vizag	Basu & Associates, Kolkata	Basu & Associates, Kolkata	2 Weeks	0.5618	2012	22.05.2012

39		31.03 .2012	DRC/V SL- CON/C E/SKG /004/12 -13	2012- 2013	Civil	Ambarish Ghosh	Vetting of Design and Drawing for G+11 Storied Building under Howrah Municipal Corporation	Vijai Shree Ltd., Kolkata	Vijai Shree Ltd., Kolkata	3 Wee ks	4.4944	2012	21.04. 2012
40	TEPL/B ESU/Enq /11-12	26.03 .2012	DRC/T EPL- CON/C E/AG/ 003/12 -13	2012- 2013	Civil	Ambarish Ghosh	Vetting/Appro val of the Designs of Diaphragm wall system at IB 167, Sector - III, Salt Lake City, Kolkata	Traders & Engineers Private Ltd.	Traders & Engineers Private Ltd.	15 Day s	0.5000	2012	12.04. 2012
41	MBB/M CL/DRG /GRC/2/ BM/72	04.04 .2012	DRC/ MBB- CON/C E/SKG /002/12 -13	2012- 2013	Civil	Saibal Kumar Ghosh	Proof checking of Design and Drawing for Pile Foundation of 5 nos Bridges from Bankura to Mukutmanipu r of South Eastern Railway	MBB Consultan cy Services Pvt. Ltd., Kolkata	MBB Consultanc y Services Pvt. Ltd., Kolkata	10 Wee ks	1.1030	2012	13.06. 2012
42		23.03 .2012	DRC/D UTS- CON/ AE&A M/AR C/001/ 12-13	2012- 2013	AE& AM	Amit Roychow dhury	Consultancy job for Stress analysis of RCC chimney and Fan Foundation	Descon United Technical Service	Descon United Technical Service	3 Mon ths	1.5000	2012	22.06. 2012

107.0652

List of ongoing Projects (2012 – 13)

Sl. No.	Sanction Date	Dept.	Name of Principal Investigator	Title of the Project	Funding Agency	Funding Agency	Duration	Total Amount Sanctioned (Rs. in lakh)	Year of Sanction	Probable Date of Completion
1	08.06.2012	SMSE	N.R. Bandyopadhyay	Monte Carlo Simulation of Abnormal Grain Growth in Silicon Steel	Tata Steel Ltd.	Tata	1 Year	0.7500	2012	07.06.2013
2	23.07.2012	IT	Arindam Biswas	Generation, decomposition, and analysis of the Isothetic polygons in digital geometric paradigm	UGC	UGC	3 Years	3.2140	2012	22.07.2015
3	08.06.2012	Metallurgy	Debdulal Das	A Comparative Assessment of Fatigue Performance and Damage Mechanisms of Directly Air-Cooled and TMT Steel Rebars	Tata Steel Ltd.	Tata	1 Year	0.7500	2012	07.06.2013
4	11.12.2012	Electrical	Debabrata Roy	Analysis and Development of a single axis controlled Repulsive-type Magnetic Bearing	DST-SERB	SERB	3 Years	38.4980	2012	10.12.2015
5	25.07.2012	Mechanical	Sujoy Kumar Saha	Heat transfer and pressure drop characteristics of turbulent flow of air, water and servotherm medium oil through a circular duct fitted with helical ribs and twisted tapes with oblique teeth	UGC	UGC	3 Years	10.5080	2012	24.07.2015
6	28.12.2012	Civil	Sudip Kumar Roy	Development of Indian Highway Capacity Manual (INDO-HCM)	CSIR-CRRI	CSIR	5 Years	100.4500	2012	29.12.2017
7	08.06.2012	Metallurgy	Swarup Kumar Ghosh	Phase transformation during laser surface hardening of low carbon steel	Tata Steel Ltd.	Tata	1 Year	0.7500	2012	07.06.2013
8	13.07.2012	AE&AM	Rana Roy	Response of multistory structures with setback under bi-directional ground motions	UGC	UGC	3 Years	2.0500	2012	12.07.2015
9	19.01.2012	SOCSA T	N.R. Bandyopadhyay	Development of Technology to make Low Cost Nutritionally Effective Ready to eat "Protein Rich Human Food from Oilseed or De-Oiled Edible seed Cakes (See Meals)	Ministry of Consumer Affairs, Dept. of Food and Public Distribution, Govt. of India	Ministry of Consumer Affairs, Dept. of Food and Public Distribution, Govt. of India	3 Years	10.7000	2012	18.01.2015
10	18.09.2012	Chemistry	Sabyasachi Sarkar	Development of Model Synthetic Leaf to Harvest Light	Ramanna Fellowship, DST, GOI	DST, GOI	3 Years	40.2000	2012	17.09.2015

11	10.10.2 012	Civil	Anirban Gupta	Rapid Assessment of domestic fluoride removal filters in endemic areas	United Nations Children's Fund	United Nations Children's Fund	3 Month s	2.3460	2012	09.01.2 013
12	23.07.2 012	AE&A M	Amit Roy Chowdhury	Computer aided design, analysis & Development of patient specific dental implant on Indian	UGC	UGC	3 Years	6.8330	2012	22.07.2 015
13	18.07.2 012	Chemis try	Jhuma Ganguly	Structural elucidation and characterization of native polysaccharides and oligosaccharides in clutivable and edible mushroom along with synthesis of isolated oilgasacchrdes: Application as low cost immune- enhancer	UGC	UGC	3 Years	11.8580	2012	17.07.2 015
14	10.10.2 012	ETC	Partha Bhattachar yya	AICTE Career Award for Young Teachers	AICTE (Award)	AICTE	2 Years	6.0000	2012	09.10.2 014
15	25.07.2 012	Mining	Sudipta Mukhopad hyay	Development of suitable slime waste management systems for sustainable iron mining in India	UCG - Major	UCG - Major	3 Years	3.7530	2012	24.07.2 015
16	01.10.2 012	Mining	Pratik Dutta	Effect of supercritical carbon dioxide on pore structure sorption properties and permeability of coals	DST, GOI	DST, GOI	3 Years	65.9820	2012	30.09.2 015
17	22.08.2 012	Metallu rgy	Debdulal Das	Evaluation of fatigue behaviour of low (0.2 wt.%)C medium (5- 10wt.%)Mn steels	The Institution of Engineers (India)	The Institutio n of Engineer s (India)	1 Year	1.0000	2012	21.08.2 013
18	03.04.2 012	Chemis try	Jayati Datta	Search for Platinum-free Catalysts for Direct Alcohol Fuel Cells	CSIR	CSIR	3 Years	9.6400	2012	02.04.2 015
19	25.07.2 012	Metallu rgy	Manojit Ghosh	Influence of silver and tin on microstructure and texture in Al-Zn-Mg alloy	UGC - Major	UGC - Major	3 Years	7.9380	2012	24.07.2 015
20	09.10.2 012	Metallu rgy	Sukumar Kundu	Indo-US Research Fellowship	Indo-US Science & Technology Forum (IUSSTF)	IUSSTF	1 Year	19.8440	2012	08.10.2 013
21	19.09.2 012	Metallu rgy	Partha Pratim Chattopadh yay	Enhancement of non-equilibrium solubility of binary immiscible systems by ternary addition	The Institution of Engineers (India)	The Institutio n of Engineer s (India)	1 Year	1.5000	2012	18.09.2 013
22	30.01.2 012	Electric al	Anindita Sengupta	Design & Development of Computerized Instrument for Testing Bending Behaviour of Semi- rigid Fabrics with Special Reference to Technical Textiles	DST, GOI	DST, GOI	3 Years	2.9975	2012	29.01.2 015

23	09.07.2012	Civil	Arun Kumar Chakraborty	Detailed Study on Performance of M25 Concrete Mixes made with ACC Cements vis-à-vis some other Cement Brands	ACC Limited	ACC	15 Months	2.2472	2012	08.10.2013
24	03.08.2012	IT	Sukanta Das	Development of automata model for distributed systems	SERB, DST, GOI	SERB	3 Years	4.7200	2012	02.08.2015
25	02.04.2012	ETC	Susanta Kumar Parui	Development of Microstrip Phased Array Antenna System for Eliminating ScanBlindness by using Defected Ground Structures	CSIR (ERD)	CSIR	3 Years	19.9200	2012	01.04.2015
26	12.04.2012	Mathematics	Ujjal Debnath	Dark Energy Models and Accelerating Universe	CSIR	CSIR	3 Years	15.9200	2012	11.04.2015
27	04.07.2012	Physics	Dipali Banerjee	Synthesis and characterization of low dimensional structures of bismuth telluride for application of thermoelectric devices	SERB, DST, GOI	SERB	3 Years	36.9080	2012	03.07.2015
28	06.07.2012	Civil	Sudip Kumar Roy	Assessment of Internodal Accessibility and Best Alternative Path between any two Designated Stations	The Institution of Engineers (India)	The Institution of Engineers (India)	1 Year	0.5000	2012	05.07.2013
29	18.05.2012	Civil	Aparna (Dey) Ghosh	Passive control of seismically excited short period structures by the compliant liquid column damper	SERB, DST, GOI	SERB	3 Years	36.0000	2012	17.05.2015
30	02.04.2012	IT	Arindam Biswas	3D TV-3D View from All Directions without Glasses	CSIR	CSIR	3 Years	15.2565	2012	01.04.2015
31	14.05.2012	Mining	Netai Chandra Dey	Ergonomic analysis of job heaviness and development of musculoskeletal disorders for selective underground coal miners in India	SERB, DST, GOI	SERB	3 Years	37.0000	2012	13.05.2015
32	25.10.2011	Civil	Arun Kumar Chakraborty	Cafeteria - A Sustainable Steel Intensive Demonstrative Building at Bengal Engineering and Science University, Shibpur	Tata Steel Ltd.	Tata	3 Years	5.5000	2012	24.10.2014
33	21.05.2012	Electrical	Mainak Sengupta	Design, development and testing of 3-phase Permanent Magnet Machines and their converters	National Mission on Power Electronics Technology Phase - II	NaMPE T - II	3 Years	92.9400	2012	20.05.2015
34	13.04.2012	Physics	Sampad Mukherjee	Fabrication and Characterization of Optical nano and micro fibers	BRNS/DAE, Govt. of India	BRNS	3 Years	24.9600	2012	12.04.2015

35	-	CE	Kalyan Kumar Bhar	Assessment of effects of arsenic pollution on health in rural Bengal and development and implementation of sustainable technology solution	UKIERI through British Council	UKIERI through British Council	2 Years	£ 25000 or Rs.21,70,167/- (Approx) as on 15.06.2012	2012	-
36	09.05.2012	ETC	Chirasree Roychaudhuri	Efficacy of Silicon Microchannel cytosensor Platform for Electrical Profiling of Multiple Mammalian Cells Under Intervention Towards Diagnostic and Regenerative Applications	SERB, DST, GOI	SERB	3 Years	54.6000	2012	08.05.2015
37	08.05.2012	ETC	Partha Bhattacharyya	A Novel Metal-Insulator-Metal (MIM) device for detection of early spoilage of Potato during Storage	SERB, DST, GOI	SERB	2 Years	14.5100	2012	07.05.2014
38	16.04.2012	AE&AM	Koustuv Debnath	Turbulence in rough bed free surface flow using double averaged Navier Stokes Equations	SERB, DST, GOI	SERB	3 Years	30.0000	2012	15.04.2015
39	03.01.2012	CST	Abhik Mukherjee	Guidance Control and Target Tracking Strategies for Precision Guidance Missiles	RCI-DRDO, Hyderabad	DRDO	18 Months	20.3000	2012	02.06.2013
40	19.09.2011	Civil	Chaitali Ray	Static and dynamic failure analysis of cost effective hybrid laminated stiffened plates in marine structures	Ministry of Shipping, Govt. of India	Ministry of Shipping, Govt. of India	3 Years	39.5372	2011	18.09.2014

798.3804

BENGAL ENGINEERING & SCIENCE UNIVERSITY, SHIBPUR
(FORMERLY BENGAL ENGINEERING COLLEGE, D.U.)
HOWRAH - 711 103

BALANCE SHEET AS AT 31ST MARCH, 2013

<u>PARTICULARS</u>	<u>SCHEDULE</u>	<u>AS AT</u>		<u>AS AT</u>	
		<u>31.03.2013</u>		<u>31.03.2012</u>	
		RS.	P.	RS.	P.
<u>SOURCES OF FUNDS :-</u>					
i) GENERAL FUND	1	957,717,795.59		866,643,731.39	
ii) LOAN FUND (UBI)	2	3,130,236.00		5,999,935.00	
iii) PROJECTS FUND	3	179,450,045.08		183,205,915.08	
iv] DEVELOPMENT FUND	4	12,025,560.00		10,012,860.00	
v) ENDOWMENT FUND	5	20,528,753.94		18,915,630.51	
vi) PROVIDENT FUND (TREASURY)		93,529,095.00		67,376,083.00	
	TOTAL :	1,266,381,485.61		1,152,154,154.98	
<u>APPLICATION OF FUNDS :-</u>					
A. FIXED ASSETS	6	625,383,337.58		590,026,136.90	
	TOTAL OF "A"	625,383,337.58		590,026,136.90	
B. <u>CURRENT ASSETS, LOANS & ADVANCES</u>					
i) Cash & Bank Balances	7	386,368,773.46		341,857,248.44	
ii) Fixed Deposits	8	230,960,358.00		229,711,450.07	
iii) Advances	9	9,343,642.00		12,861,717.00	
iv) Interest Receivable on Provident Fund (Treasury) for 2012-2013 F.Y.		7,211,956.00		----	
	TOTAL OF "B"	633,884,729.46		584,430,415.51	

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BENGAL ENGINEERING & SCIENCE UNIVERSITY, SHIBPUR
(FORMERLY BENGAL ENGINEERING COLLEGE, D.U.)
HOWRAH - 711 103

BALANCE SHEET AS AT 31ST MARCH, 2013 (contd.)

<u>PARTICULARS</u>	<u>SCHEDULE</u>	AS AT		AS AT	
		<u>31.03.2013</u>		<u>31.03.2012</u>	
		RS.	P.	RS.	P.
C. <u>LIABILITIES :-</u>					
i) Amount Received for disbursement of Scholarship	10	(31,125,799.00)		(905,798.00)	
ii) Amount Received for disbursement for others	11	22,918,258.30		22,641,380.30	
iii) Other Liabilities	12	1,094,122.13		566,815.13	
TOTAL OF "C"		(7,113,418.57)		22,302,397.43	
 D. NET CURRENT ASSETS (B - C)		640,998,148.03		562,128,018.08	
TOTAL :		<u>1,266,381,485.61</u>		<u>1,152,154,154.98</u>	

NOTES ON ACCOUNTS
FINANCE OFFICER

41

REGISTRAR

Place : KOLKATA

Date :

For B. Basu & Co.
Chartered Accountants
Firm Registration No. 322609E

(B. K. BASU)
Propreitor
Membership No. 007967

BENGAL ENGINEERING & SCIENCE UNIVERSITY, SHIBPUR
(FORMERLY BENGAL ENGINEERING COLLEGE, D.U.)
HOWRAH - 711 103

INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

	<u>SCHEDULE</u>	<u>CURRENT YEAR</u>		<u>PREVIOUS YEAR</u>	
		RS.	P.	RS.	P.
<u>INCOME:-</u>					
Collection from students	13	79,521,821.70		74,524,197.60	
Other Receipts	14	17,081,355.98		34,745,928.00	
Grant Received	15	399,923,421.00		382,167,690.00	
Interest on S.B. Accounts / Fixed Deposit / Others	16	27,634,946.02		18,706,170.98	
Receipts from P.A.O.	17	29,395,308.00		14,053,149.00	
		553,556,852.70		524,197,135.58	
<u>EXPENDITURE:-</u>					
Pay & Allowances	18	391,850,654.00		365,047,562.75	
Other Expenses	19	14,831,512.00		35,254,843.00	
Office Expenses	20	48,185,925.07		40,179,570.12	
Departmental Expenses	21	76,567,722.00		35,544,770.00	
Payment made against U.G.C.	22	5,261,005.00		941,731.00	
Depreciation on Fixed Assets	6	76,776,023.32		80,958,217.53	
	TOTAL	613,472,841.39		557,926,694.40	
Excess of Income over Expenditure transferred to General Fund		(59,915,988.69)		(33,729,558.82)	

FINANCE OFFICER

REGISTRAR

Place : KOLKATA
Date :

**For B. Basu &
Co.**
Chartered Accountants
Firm Registration No. 322609E

(B. K. BASU)
Proprietor
Membership No. 007967

BENGAL ENGINEERING & SCIENCE UNIVERSITY, SHIBPUR
(FORMERLY BENGAL ENGINEERING COLLEGE, D.U.)
HOWRAH - 711 103

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

	SCHEDULE	CURRENT YEAR		PREVIOUS YEAR	
		RS.	P.	RS.	P.
<u>RECEIPTS :-</u>					
Cash And Bank Balances (Opening)	23	341,857,248.44		274,152,661.54	
Collection From Students	24	79,521,821.70		74,524,197.60	
Other Receipts	25	102,694,929.93		79,043,046.13	
Grant Received	26	621,387,691.00		606,955,505.00	
Receipts From P.A.O. / Treasury / Others	27	47,949,751.00		31,278,268.00	
Receipts Of Scholarships	28	15,639,176.00		41,914,117.00	
Deductions From Salaries	29	60,981,926.00		61,965,870.00	
		1,270,032,544.07		1,169,833,665.27	
<u>PRIOR PERIOD ADJUSTMENTS :-</u>					
Corpus Fund A/c No. 0171010375799		90,170.00		----	
Faculty Development Fund A/c No. 1532010020688		5,000.00		----	
Equipment Replacement Fund A/c No. 1532010020679		5,000.00		----	
Maintenance Fund A/c No. 0171010375829		148,145.78		----	
Depreciation Fund A/c No. 0171010375811		63,339.00		----	
Staff Development Fund A/c No. 0171010375802		71,820.00		----	
TOTAL :		1,270,416,018.85		1,169,833,665.27	
<u>PAYMENTS :-</u>					
Pay And Allowances	30	358,457,020.00		349,951,448.75	
Office Expenses	31	48,190,194.07		40,179,570.12	
Department Expenses	32	76,567,722.00		35,544,770.00	
Building, Equipment, Furniture, Elect. Fittings & Books	33	112,133,224.00		73,706,195.00	
Other Expenses	34	14,554,965.00		34,563,645.00	
Advances & Deposits	35	26,848,374.32		25,957,638.15	
Payment Made Against Projects	36	88,783,444.00		131,949,055.00	
Payment Made Against Receipts From P.A.O./ Treasury/ Others	37	51,671,199.00		29,597,999.00	
Disbursement Of Scholarships	38	45,859,177.00		43,216,768.00	
Deposits Of Deductions From Salaries	39	60,981,926.00		61,965,870.00	
Cash And Bank Balances (Closing)	40	386,368,773.46		339,789,782.00	
		1,270,416,018.85		1,166,422,741.02	
<u>PRIOR PERIOD ADJUSTMENTS :-</u>					
G.P.F. Transferred from other Institution			----	3,330,924.25	
General Fund A/c			----	80,000.00	
TOTAL :		1,270,416,018.85		1,169,833,665.27	

FINANCE OFFICER

REGISTRAR

Place : KOLKATA
Date :

For B. Basu & Co.
Chartered Accountants
Firm Registration No. 322609E
(B. K. BASU)
Proprietor
Membership No. 007967