

Annual Report 2007-2008



**Indian Institute of Technology
Kharagpur**

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Humanities and Social Sciences :
Industrial Engineering and Management :
Mathematics :
Mechanical Engineering :
Metallurgical and Materials Engineering :
Mining Engineering :
Ocean Engineering and Naval Architecture :
Physics and Meteorology :

CENTRES

Centre for Educational Technology :
Centre for Oceans, Rivers, Atmosphere and Land Sciences :
Cryogenic Engineering :
Materials Science :
Reliability Engineering :
Rubber Technology :
Rural Development :

SCHOOLS

G. S. Sanyal School of Telecommunications :
Rajiv Gandhi School of Intellectual Property Law :
School of Information Technology :
School of Medical Science & Technology :
Vinod Gupta School of Management :

PART-II CENTRALISED SERVICES, PROGRAMMES AND UNITS

Advanced Technology Development Centre :
Central Library :
Central Workshop and Instruments Service Section :
Centre for Theoretical Studies :
Kalpana Chawla Space Technology Cell :

LIST OF THE MEMBERS OF IIT COUNCIL
(April 2007 – March 2008)

Name of the Representing Organization

(A)	The Minister-in-Charge of Technical Education in the Central Government (Ex-officio)	1. Shri Arjun Singh Hon'ble Minister of Human Resource Development, New Delhi	Chairman
(B)	Chairman of each institute (Ex-officio)		
(i)	Kharagpur	2. Shri Sanjiv Goenka (Upto 20 th March 2008) Shri B. Muthuraman (From 21 st March 2008) Chairman, BOG, IIT Kharagpur Kharagpur – 721 302	Member
(ii)	Delhi	3. Dr. V. S. Ramamurthy Chairman, BOG, IIT Delhi Delhi – 110 016	Member
(iii)	Bombay	4. Dr. Anil Kakodkar Chairman, BOG, IIT Bombay Mumbai – 400 076	Member
(iv)	Madras	5. Prof. A. E. Muthunayagam Chairman, BOG, IIT Madras Chennai – 600 036	Member
(v)	Kanpur	6. Shri M. Anandkrishnan Chairman, BOG, IIT Kanpur Kanpur – 208 016	Member
(vi)	Guwahati	7. Shri Achyut Kumar Saikia Chairman, BOG, IIT Guwahati Guwahati – 781 039	Member
(vii)	Roorkee	8. Shri Jaiprakash Gaur Chairman, BOG, IIT Roorkee Roorkee – 247 667	Member
(C)	Director of each Institute (Ex-officio)		
(i)	Kharagpur	9. Prof. S. K. Dube	Member

(Upto 30th June 2007 Forenoon)
 Prof. Damodar Acharya
 (From 30th June 2007 Afternoon)
 Director, IIT Kharagpur
 Kharagpur – 721 302

(ii)	Delhi	10.	Prof. Surendra Prasad Director, IIT Delhi New Delhi – 110 016	Member
(iii)	Bombay	11.	Prof. Ashok Misra Director, IIT Bombay Mumbai – 400 076	Member
(iv)	Madras	12.	Prof. M. S. Ananth Director, IIT Madras Chennai – 600 036	Member
(v)	Kanpur	13.	Prof. S. G. Dhande Director, IIT Kanpur Kanpur – 208 016	Member
(vi)	Guwahati	14.	Prof. Gautam Baura Director, IIT Guwahati Guwahati – 781 039	Member
(vii)	Roorkee	15.	Prof. S. C. Saxena Director, IIT Roorkee Roorkee – 247 667	Member
(D)	Chairman, University Grants Commission (Ex-officio)	16.	Prof. Sukhdeo Throat Chairman University Grants Commission Bahadurshah Zafar Marg New Delhi – 110 002	Member
(E)	Director-General, Council of Scientific & Industrial Research (Ex-officio)	17.	Dr. R. A. Mashelkar Director General Council of Scientific & Industrial Research Anusandhan Bhawan, Rafi Marg New Delhi – 110 001	Member
(F)	Chairman, Council of the Indian Institute of Science, Bangalore (Ex-officio)	18.	Dr. K. Kasturirangan Chairman Indian Institute of Science Bangalore – 560 012	Member
(G)	Director, Indian Institute of Science,	19.	Prof. P. Balaram Director	Member

Bangalore (Ex-officio)

Indian Institute of Science
Bangalore – 560 012

(H) Three Nominees of the
Central Government

(i) To represent Ministry concerned with Technical Education 20. Shri R. P. Agrawal
Secretary, Department of Secondary & Higher Education
Government of India
Ministry of Human Resource Development
Shastri Bhavan
New Delhi – 110 001 Member

(ii) To represent Ministry of Finance 21. Shri D. Swarup
Secretary, Department of Expenditure
Government of India
Ministry of Finance
North Block
New Delhi – 110 001 Member

(iii) To represent any other Ministry 22. Shri Brijesh Kumar
Secretary, Department of Information Technology
Government of India
Ministry of Communication and Information Technology
Electronics Niketan
6, C.G.O. Complex
New Delhi – 110 003 Member

(I) Nominee of the All India Council for Technical Education (AICTE) 23. Prof. Damodar Acharya
(Upto 30th June 2007 Forenoon)
Chairman, AICTE
I.P. Estate
I.G. Sports Complex
New Delhi – 110 001 Member

(J) Nominees of the Visitor (Not less than three) (Not more than five persons) 24. Prof. C. N. R. Rao
Eminent Scientist and presently Chairman, Scientific Advisory Council to the Prime Minister Member

25. Prof. C. S. Seshadri
Director
Chennai Mathematical Institute, Chennai
Plot H1, SIPCOT IT Park
Padur PO
Siruseri – 603 103 Member

- | | | | |
|-----|---|---|--------|
| | | 26. Prof. Sabyasachi Bhattacharya
Director
Tata Institute of Fundamental Research
Homi Bhabha Road
Mumbai – 400 005 | Member |
| | | 27. Dr. Kota Harinarayan
Chairman
Research Council of Central Scientific
Instrument Organization
Raja Ramana Fellow
National Aerospace Laboratory
P.O. No. 1779
Bangalore – 560 017 | Member |
| | | 28. Shri Tarun Das
Chief Mentor
Confederation of Indian Industry
Plot No. 249-F, Sector 18
Udyog Vihar, Phase IV
Gurgaon – 122 015 (Haryana) | Member |
| (K) | Three members of Parliament
(Two from Lok Sabha and one
from Rajya Sabha) | 29. Shri Milind Deora
Member of Parliament (Lok Sabha)
65, Lodhi Estate
New Delhi – 110 003 | Member |
| | | 30. Shri Ananta Nayak
Member of Parliament (Lok Sabha)
180, South Avenue
New Delhi – 110 001 | Member |
| | | 31. Shri B. J. Panda
Member of Parliament (Rajya Sabha)
2, Mahadev Road
New Delhi – 110 001 | Member |
| (L) | Secretary to the Council | 32. Shri Ravi Mathur
Joint Secretary (T)
Department of Secondary & Higher
Education
Government of India
Ministry of Human Resource
Development
Shastri Bhavan
New Delhi – 110 001 | Member |

BOARD OF GOVERNORS

#	Name and Address	Position
1.	Shri Sanjiv Goenka (upto 20.03.2008) Chairman, BOG, IIT Kharagpur & Vice-Chairman, RPG Enterprises CESC House, Chowringhee Square Kolkata – 700 001	Chairman
2.	Shri B. Muthuraman (from 21.03.2008) Chairman, BoG, IIT Kharagpur & Managing Director Tata Steel Limited Jamshedpur – 831 001	Chairman
3.	Shri Roopen Roy Managing Director Deloitte & Touche Consulting India Pvt. Ltd. Bengal Intelligent Park, Building Alpha, 1 st Floor Plot No.A2, M2 & N2, Block–EP & GP Sector-V, Salt Lake Electronics Complex Kolkata – 700 091	Member
4.	Dr. Dhruv Prasad Director, Department of Science & Technology Government of Bihar Patna – 800 015	Member
5.	Prof. O. N. Mohanty Vice-Chancellor Bijupatnaik University of Technology, Rourkela Camp Techno Campus C.E.T. Ghatikia, Kalinganagar Bhubaneswar – 751 003	Member
6.	Shri B. Muthuraman (upto 20.03.2008) Managing Director, Tata Steel The Tata Iron & Steel Co. Ltd. (TISCO) Jamshedpur – 831 001	Member
7.	Shri R. P. Agrawal Secretary, Government of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan New Delhi – 110 001	Member
8.	Prof. T. P. Singh Head of the Department (Bio-Physics)	Member

All India Institute of Medical Sciences (AIIMS), Ansari Nagar
New Delhi – 110 029

- | | | |
|-----|--|-----------|
| 9. | Dr. Kiran Karnik (upto 19.01.2008)
President
Natal Association of Software and service Companies
(NASSCOM),International Youth Centre,
Teen Murti Marg, Chanakyapuri
New Delhi – 110 021 | Member |
| 10. | Prof. D. Acharya
Director
IIT Kharagpur | Member |
| 11. | Prof. M. Chakraborty (upto 31.12.2007)
Department of Metallurgical & Materials Engineering
IIT Kharagpur | Member |
| 12. | Prof. H. R. Tewari (upto 31.12.2007)
Department of Humanities & Social Sciences
IIT Kharagpur | Member |
| 13. | Prof. P. P. Chakrabarti (from 01.01.2008)
Department of Computer Science & Engineering
IIT Kharagpur | Member |
| 14. | Prof. Sanat Kumar Roy (from 01.01.2008)
Department of Metallurgical & Materials Engineering
IIT Kharagpur | Member |
| 15. | Dr. D. Gunasekaran
Registrar
IIT Kharagpur | Secretary |

FINANCE COMMITTEE

#	Name and Address	Position
1.	Shri Sanjiv Goenka (upto 20.03.2008) Chairman, BOG, IIT Kharagpur & Vice-Chairman, RPG Enterprises CESC House, Chowringhee Square Kolkata – 700 001	Chairman
2.	Shri B. Muthuraman (from 21.03.2008) Chairman, BoG, IIT Kharagpur & Managing Director Tata Steel Limited Jamshedpur – 831 001	Chairman
3.	Shri Roopen Roy Managing Director Deloitte & Touche Consulting India Pvt. Ltd. Bengal Intelligent Park, Building Alpha, 1 st Floor Plot No.A2, M2 & N2, Block-EP & GP Sector-V, Salt Lake Electronics Complex Kolkata – 700 091	Member
4.	Shri Sanat Kumar Ray Financial Adviser & Joint Secretary Government of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan New Delhi – 110 001	Member
5.	Joint Secretary (T) Government of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan New Delhi – 110 001	Member
6.	Prof. D. Acharya Director IIT Kharagpur	Member
7.	Prof. M. Chakraborty (upto 31.12.2007) Department of Metallurgical & Materials Engineering IIT Kharagpur	Member
8.	Prof. P. P. Chakrabarti (from 01.01.2008) Department of Computer Science & Engineering IIT Kharagpur	Member
9.	Dr. D. Gunasekaran Registrar IIT Kharagpur	Secretary

BUILDING AND WORKS COMMITTEE

#	Name and Address	Position
1.	Prof. D. Acharya Director IIT Kharagpur	Chairman
2.	Director (T) Government of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan New Delhi – 110 001	Chairman
3.	Shri D. K. Mitra Superintending Engineer & Circle Manager Midnapore Distribution Circle West Bengal State Electricity Distribution Co. Ltd. (WBSEDCL) 190, S. K. Bose Road PIN – 721 101 Paschim Medinipur	Member
4.	Shri Shankar Kumar Chakraborty Superintending Engineer South Western Circle Public Works Department (PWD) Saheed Mangal Pandey Sarani PIN – 721 101 Paschim Medinipur	Member
5.	Head Department of Civil Engineering IIT Kharagpur	Member
6.	Head Department of Electrical Engineering IIT Kharagpur	Member
7.	Head Department of Architecture & Regional Planning IIT Kharagpur	Member
8.	Dr. D. Gunasekaran Registrar IIT Kharagpur	Member

LIST OF ADMINISTRATIVE HEADS

Director	Prof. S. K. Dube	Upto	30.06.2007
	Prof. Damodar Acharya	From	30.06.2007
Deputy Director	Prof. M. Chakraborty		

Deans

Undergraduate Studies	Prof. B. S. Sastry	Upto	30.09.2007
	Prof. S. K. Som	From	01.10.2007
Faculty & Planning	Prof. R. N. Datta		
Postgraduate Studies & Research	Prof. S. K. Satsangi	Upto	30.09.2007
	Prof. P. K. J. Mohapatra	From	01.10.2007
Sponsored Research & Industrial Consultancy	Prof. P. P. Chakrabarti		
Students' Affair	Prof. H. R. Tewari	Upto	30.09.2007
	Prof. D. K. Tripathy	From	01.10.2007
Continuing Education	Prof. Bani Chatterjee	Upto	30.09.2007
	Prof. Ajoy Chakraborty	From	01.10.2007
Alumni Affairs & International Relations	Prof. Ajay Chakrabarty	Upto	30.09.2007
	Prof. Amit Patra	From	01.10.2007
Vinod Gupta School of Management	Prof. Probir Kumar Gupta		

Head of Departments

Aerospace Engineering	Prof. P. K. Datta	Upto	30.09.2007
	Prof. Navtej Singh	From	01.10.2007
Agricultural & Food Engineering	Prof. B. C. Mal		
Architecture & Regional Planning	Prof. U. K. Banerjee	Upto	30.09.2007
	Prof. Arif N. Merchant	From	01.10.2007
Biotechnology	Prof. A. K. Ghosh		
Chemical Engineering	Prof. Dibyendu Mukherjee		
Chemistry	Prof. Amit Basak		
Civil Engineering	Prof. S. P. Dasgupta		
Computer Science & Engineering	Prof. Anupam Basu	Upto	09.04.2007
	Prof. Indranil Sengupta	From	10.04.2007
Electrical Engineering	Prof. S. K. Das	Upto	30.09.2007
	Prof. A. K. Sinha	From	11.10.2007
Electronics & Electrical Communication Engineering	Prof. Debasish Datta		
Geology & Geophysics	Prof. A. K. Gupta		
Humanities & Social Sciences	Prof. Bani Chatterjee	Upto	30.09.2007
	Prof. D. Suar	From	11.10.2007
Industrial Engineering & Management	Prof. P. K. Ray		
Mathematics	Prof. S. S. Alam	Upto	30.09.2007
	Prof. A. R. Roy	From	01.10.2007

Mechanical Engineering	Prof. S. K. Som	Upto	30.09.2007
	Prof. A. K. Chattopadhyay	From	01.10.2007
Metallurgical & Materials Engineering	Prof. N. Chakraborti		
Mining Engineering	Prof. K. U. M. Rao	Upto	30.09.2007
	Prof. J. Bhattacharyya	From	01.10.2007
Ocean Engineering & Naval Architecture	Prof. D. Sen	Upto	30.09.2007
	Prof. N. R. Mandal	From	01.10.2007
Physics & Meteorology	Prof. B. K. Mathur		

Head of Centres

Centre for Oceans, Rivers, Atmosphere and Land Sciences	Prof. S. K. Satsangi		
Computer & Informatics	Prof. Rajib Mall	Upto	09.03.2008
	Prof. Prabir Kumar Biswas	From	10.03.2008
Cryogenic Engineering	Prof. V. V. Rao		
Material Science	Prof. C. K. Das		
Reliability Engineering	Prof. R. B. Misra		
Rubber Technology	Prof. A. K. Bhowmick	Upto	30.09.2007
	Prof. T. K. Chaki	From	01.10.2007
Rural Development	Prof. H. R. Tewari	Upto	30.09.2007
	Prof. P. B. S. Bhadoria	From	01.10.2007
Administrative Computer Service Support Centre	Prof. Rajib Mall		

Head of Schools

G. S. Sanyal School of Telecommunication	Prof. S. Chakrabarti		
School of Information Technology	Prof. I. Sengupta		
School of Medical Science & Technology	Prof. A. K. Ray		
Vinod Gupta School of Management	Prof. Probir Kumar Gupta		
Rajiv Gandhi School of Intellectual Property Law	Prof. S. Tripathy		

Chairmen & Vice-Chairmen

UG Admissions	Prof. A. K. Ghosh		
Vice-Chairman, UG Admissions	Prof. A. N. Samanta		
PG Admissions	Prof. Souvik Bhattacharyya	Upto	30.06.2007
	Prof. O. P. Sha	From	01.07.2007
Vice-Chairman, PG Admissions	Prof. O. P. Sha	Upto	30.06.2007

	Prof. Biswajit Maiti	From	01.07.2007
	Prof. Sudhir Kr. Barai		
JAM	Prof. J. K. Ray		
Vice-Chairman, JAM	Prof. M. P. Bishal	Upto	13.08.2007
	Prof. Somesh Kumar	From	14.08.2007
Central Library	Prof. S. S. Bandyopadhyay	Upto	30.09.2007
	Prof. S. Sahu	From	01.10.2007
Hall Management Committee	Prof. H. N. Mishra	Upto	30.09.2007
	Prof. V. V. Rao	From	01.10.2007
		Upto	02.03.2008
	Prof. Jayanta Pal	From	03.03.2008
Chairman, CWISS	Prof. P. K. Das		
Central Research Facility	Prof. Indranil Manna		
Educational Technology	Prof. T. K. Basu		
IIT-Optel Fibre Optics R&D Centre	Prof. Indranil Manna		
Rajbhasha Vibhag	Prof. H. R. Tewari	Upto	30.09.2007
	Prof. P. D. Srivastava	From	01.10.2007
Nehru Museum of Science & Technology	Prof. D. Sen		
Kalpana Chawla Space Technology Cell (KCSTC)	Prof. Somnath Sengupta		
Advanced Technology Development Centre (ATC)	Prof. Santiram Kal	Upto	31.12.2007
	Prof. P. P. Chakrabarti	From	01.01.2008

Professors-in-Charge

Examinations	Prof. S. K. Bhattacharyya	Upto	30.09.2007
	Prof. P. D. Srivastava	From	01.10.2007
Training & Placement	Prof. Gautam Sinha	Upto	30.09.2007
	Prof. B. K. Mathur	From	01.10.2007
General Time Table	Prof. B. Mahanty		
Convocation	Prof. S. K. Satsangi	For 2007	
Institute Information Cell	Prof. B. K. Mathur		
President, Technology	Prof. N. S. Raghuwanshi	Upto	30.09.2007
Students Gymkhana	Prof. Manish Bhattacharjee	From	01.10.2007
Refrigeration & Air Conditioning	Prof. Ramgopal Maddali	Upto	30.09.2007
	Prof. Sukanta Dash	From	01.10.2007
Horticulture	Prof. S. C. Kundu		
Water Works	Prof. S. N. Panda	Upto	30.09.2007
	Prof. A. K. Gupta	From	01.10.2007
Civil Works (Construction and Maintenance)	Prof. J. Barman	Upto	30.09.2007
	Prof. S. K. Bhattacharya	From	01.10.2007
Electrical Works	Prof. N. K. Kishore	Upto	30.09.2007
	Prof. S. Sengupta	From	01.10.2007
Telecommunication	Prof. S. S. Pathak	Upto	30.09.2007
	Prof. R. V. Raja Kumar	From	01.10.2007
Institute Guest Houses	Prof. B. K. Sengupta		
Intellectual Property Right & Industrial Relation	Prof. S. Tripathy		

General

Registrar	Dr. D. Gunasekaran		
Public Information Officer	Dr. D. Gunasekaran		
Head, B.C. Roy Technology Hospital	Dr. (Mrs.) Seema Roy	Upto	19.12.2007
Superintending Engineer (Civil)	Dr. Nirmal Kanti Som	From	20.12.2007
Executive Engineer (Civil)	Shri Subrat Roy		
Executive Engineer (Electrical)	Shri Sabyasachi Ghosh		
Executive Engineer (Horticulture)	Shri A. K. Gangopadhyay		

Deputy Registrars

Establishment Section	Dr. Tapan Kumar Ghosal	Upto	02.10.2007
	Shri Atul Prakash Trivedi	From	03.10.2007
Academic Section	Shri Nalini Ranjan Maiti	Officiating since	21.02.2008
Finance & Accounts Section	Shri Atul Prakash Trivedi	Upto	02.10.2007
	Dr. Tapan Kumar Ghosal	From	03.10.2007
Rajiv Gandhi School of Intellectual Property Law	Shri B. K. Basu Roychowdhury		

THE SENATE

Director (Chairman)

Prof. Shishir Kumar Dube (Upto 30.06.2007)
Prof. Damodar Acharya (From 30.06.2007)

Deputy Director

Prof. Madhusudan Chakraborty

Department of Aerospace Engineering

Prof. Amit Kumar Ghosh
Prof. Prosun Kumar Datta
Prof. Gautam Bandyopadhyay
Prof. Navtej Singh

Department of Agricultural & Food Engineering

Prof. Keshaw Prasad Pandey
Prof. Bimal Chandra Mal
Prof. Rajendra Singh
Prof. Virendra Kumar Tewari
Prof. Kamlesh Narayan Tiwari
Prof. Rabindra Kumar Panda
Prof. Rintu Banerjee
Prof. Susanta Kumar Das
Prof. Bijoy Chandra Ghosh
Prof. Pratapbhanu Singh Bhadoria
Prof. Ashis Kumar Dutta
Prof. Hari Niwas Mishra
Prof. Narendra Singh Raghuwanshi
Prof. Sudhindra Nath Panda
Prof. Tridib Kumar Goswami

Department of Architecture & Regional Planning

Prof. Rabindranath Datta
Prof. Biplab Kumar Sengupta
Prof. Uttam Kumar Banerjee
Prof. Arif Noman Merchant

Department of Biotechnology

Prof. Subhas Chandra Kundu
Prof. Debabrata Das
Prof. Satyahari Dey
Prof. Ananta Kumar Ghosh
Prof. Amit Kumar Das

Department of Chemical Engineering

Prof. Dibyendu Mukherjee
Prof. Amar Nath Samanta
Prof. Sunando Dasgupta
Prof. Narayan Chandra Pradhan
Prof. Sirshendu De

Department of Chemistry

Prof. Panchanan Pramanik
Prof. Tarun Kumar Sarkar
Prof. Jayanta Kumar Ray
Prof. Pratim Kumar Chattaraj
Prof. Sujit Roy
Prof. Tanmaya Pathak
Prof. Tarasankar Pal
Prof. Amit Basak
Prof. Dipakranjan Mal
Prof. Debashis Ray
Prof. Manish Bhattacharjee
Prof. Suneel Kumar Srivastava

Department of Civil Engineering

Prof. Janendra Nath Bandyopadhyay
Prof. Deba Prasad Ghosh
Prof. Shambhu Pada Dasgupta
Prof. Sriman Kumar Bhattacharyya
Prof. Kusam Sudhakar Reddy
Prof. Lingadahally S. Ramachandra
Prof. Subhasish Dey

Department of Computer Science & Engineering

Prof. Ajit Pal
Prof. Arun Kumar Majumdar
Prof. Sujoy Ghose
Prof. Partha Pratim Chakraborty
Prof. Anupam Basu
Prof. Indranil Sengupta
Prof. Jayanta Mukhopadhyay
Prof. Sudebkumar Prasant Pal
Prof. Rajib Mall
Prof. Dipankar Sarkar
Prof. Dipanwita Roy Chowdhury
Prof. Pallab Dasgupta
Prof. Rajeev Kumar
Prof. Sudeshna Sarkar

Cryogenic Engineering Centre

Prof. Sunil Kumar Sarangi
Prof. Syamalendu Sekhar Bandyopadhyay
Prof. Vishwanath Rao. Kalvey (Retired on 31.08.2007)
Prof. Tapas Kumar Dey
Prof. Vutukuru Vasudeva Rao
Prof. Kanchan Chowdhury

Department of Electrical Engineering

Prof. Tapan Kumar Basu
Prof. Sarit Kumar Das
Prof. Avinash Kumar Sinha
Prof. Jayanta Pal
Prof. Soumitra Banerjee
Prof. Amit Patra
Prof. N. K. Kishore
Prof. Alok Barua
Prof. Goshaidas Ray
Prof. Siddhartha Mukhopadhyay
Prof. Siddhartha Sen
Prof. Pranab Kumar Dutta
Prof. Murali Mohan Bosukonda
Prof. Debapriya Das
Prof. Sabyasachi Sengupta
Prof. Tapas Kumar Bhattacharya

Department of Electronics & Electrical Communication Engineering

Prof. Ramesh Garg
Prof. Ajoy Chakraborty
Prof. Debasish Dutta
Prof. Ajoy Kumar Roy
Prof. Swapna Banerjee
Prof. Chinmay Kumar Maiti
Prof. Ratnam Varada Raja Kumar
Prof. Prabir Kumar Biswas
Prof. Somnath Sengupta
Prof. Mrityunjoy Chakraborty
Prof. Sant Sharan Pathak
Prof. Subrata Sanyal
Prof. Dhruves Biswas

Department of Geology & Geophysics

Prof. Sankar Kumar Nath
Prof. Biswajit Mishra
Prof. Anil Kumar Gupta
Prof. Debashish Sengupta
Prof. Abhijit Bhattacharya
Prof. Subhasish Tripathy
Prof. Anindya Sarkar
Prof. Subhasish Das

G. S. Sanyal School of Telecommunications

Prof. Saswat Chakraborti

Department of Humanities & Social Sciences

Prof. Bani Chatterjee
Prof. Partha Basu
Prof. Hare Ram Tewari
Prof. Manas Kumar Mandal
Prof. Damodar Suar
Prof. Anjali Gera Ray
Prof. Kailash Bihari Lal Srivastava
Prof. Suhita Chopra Chatterjee

Department of Industrial Engineering & Management

Prof. Pratap Kumar Jagadev Mohapatra
Prof. Rabindra Nath Banerjee
Prof. Sadananda Sahu
Prof. S. Srinivasan
Prof. Biswajit Mahanty
Prof. Pradip Kumar Ray

Materials Science Centre

Prof. Ajit Kumar Banthia
Prof. Debasis Bhattacharya
Prof. Chapal Kumar Das
Prof. Basudam Adhikari
Prof. Shanker Ram

Department of Mathematics

Prof. Sudarsan Nanda
Prof. Syed Samsul Alam
Prof. Akhil Ranjan Roy
Prof. Parmeshwary Dayal Srivastava
Prof. Anjan Sarkar
Prof. Umesh Chandra Gupta
Prof. Mahendra Prasad Biswal
Prof. Dharmendra Kumar Gupta
Prof. Vinay Kumar Jain
Prof. Somnath Bhattacharyya
Prof. Adrijit Goswami
Prof. Somesh Kumar

Department of Mechanical Engineering

Prof. Amalendu Mukherjee
Prof. Brajabandhu Pradhan
Prof. Prasanta Kumar Mishra (Voluntarily retired on 31.07.2007)
Prof. Sankar Kumar Som
Prof. Venkata Varanasi Satyamurthy
Prof. Ranjit Karmakar
Prof. Samar Kumar Roy Chowdhury
Prof. Ranajit Kumar Brahma
Prof. Ajay Kumar Chattopadhyay
Prof. Souvik Bhattacharya
Prof. Ranjan Bhattacharyya
Prof. Sukanta Kumar Dash
Prof. Prasanta Kumar Das
Prof. Amiya Ranjan Mohanty
Prof. Sati Nath Bhattacharyya
Prof. Rathindranath Maiti
Prof. Biswajit Maiti
Prof. Soumitra Paul

Department of Metallurgical & Materials Engineering

Prof. Brij Kumar Dhindaw
Prof. Shyamal Kumar Pabi
Prof. Sanat Kumar Roy
Prof. Mahadev Malhar Godkhindi
Prof. Kalyan Kumar Ray
Prof. Sarat Chandra Panigrahi
Prof. Nirupam Chakraborty
Prof. Indranil Manna
Prof. Siddhartha Das

Department of Mining Engineering

Prof. S. Suryanarayana Bhamidipati
Prof. Ashis Bhattacharya
Prof. Karanam Uma Maheshwar Rao
Prof. Samir Kumar Das
Prof. Khanindra Pathak
Prof. Jayanta Bhattacharyya
Prof. Subir Kumar Mukhopadhyay

Department of Ocean Engineering & Naval Architecture

Prof. Suresh Chandra Misra
Prof. Subir Kumar Satsangi
Prof. Nisith Ranjan Mandal
Prof. Debabrata Sen
Prof. Om Prakash Sha

Department of Physics & Meteorology

Prof. Sobhendu Kumar Ghatak
Prof. Ram Naresh Prasad Choudhary
Prof. Naresh Chandra
Prof. Balbir Kumar Mathur
Prof. Biswas Kumar Samantaray
Prof. Shivcharan Lal Sharma
Prof. Anantharaman Chandrasekar
Prof. Srinivas Veeturi
Prof. Samit Kumar Ray
Prof. Arghya Taraphder
Prof. Krishna Kumar
Prof. Prabhu Krishna Raina

Reliability Engineering Centre

Prof. Ravindra Babu Mishra

Rubber Technology Centre

Prof. Anil Kumar Bhowmick
Prof. Deba Kumar Tripathy
Prof. Golok Behari Nando
Prof. Dipak Khastgir
Prof. Tapan Kumar Chaki

Vinod Gupta School of Management

Prof. Gautam Sinha
Prof. Kalyan Kumar Guin

Nominated Members

Dr. Bablu Sutradhar, Librarian
Prof. Probir Kumar Gupta, Dean, VGSOM

Registrar (Secretary)

Dr. D. Gunasekaran

Students Representative

Sri Kunal Kashyap (Roll No. : 04MI1003)
Sri Rajeev Pandey (Roll No. : 04EE1007)
Sri Sourabh Jaiswal (Roll No. : 06ME6222)
Ms. Aditi Oza (Roll No. : 06CR9402)

DIRECTOR'S REPORT

IIT Kharagpur continued taking new strides towards evolving directions to further the growth and dissemination of scientific and technological knowledge during the year 2007-2008. Brief outlines of the major activities of the Institute during the year 2007-2008 are highlighted.

ACADEMIC PROGRAMS

The Institute has been very sensitive to the human resource development of the country and to that end continued initiating new academic programs.

During the year 2007-2008, two new M.Tech. programmes were introduced, one in Infrastructure Design and Management and the other in Water Management. To provide more specialization options for the undergraduate students, the Institute is permitting the B.Tech. students to join Dual Degree Programme in the same Department at the end of the sixth semester, subject to the Department's recommendation. All the Dual Degree programmes include the major B.Tech. degree along with the chosen M.Tech. specialization. Two new five-year dual degree programmes are under active consideration of the Institute, one with B.Tech. in any branch of engineering and M.Tech. in Financial Engineering and the other with B.Tech. in any branch of engineering and M.Tech. in Engineering Entrepreneurship.

The Institute has prepared a perspective plan for increasing the number of student intake. Accordingly, all facilities and infrastructure are being upgraded. For the academic year 2008-2009, the Institute has increased its student intake by 13 percent in respect of the intake of students in the academic year 2007-2008, which has been taken as the base year. The Institute will further increase the student intake by 30 percent in the academic year 2009-2010 and by 54 percent in the academic year 2010-2011 in respect of the base year. The number of Ph.D. scholars with assistantship has also been increased.

The Institute is presently offering B.Tech (Hons) courses in sixteen different branches of engineering, a B.Arch (Hons) course in Architecture, Dual Degree programs, seven Integrated M.Sc. programs, six two-year M.Sc. programs, fifty postgraduate degree courses leading to M.Tech/MCP/MBM/MMST degrees besides an LL.B. degree program with specialisation in IPR and one postgraduate diploma course. The contents of these courses are constantly revised to meet the needs of the changing world with focus on quality and excellence.

CONVOCATION

Fifty-third Convocation of the Institute was held on 15th September 2007. Prof. George F. Smoot, Novel Laureate, Professor of Physics at University of California Berkeley, was the Chief Guest. In the Convocation, 163 Ph.D., 35 MS, 524 M.Tech. 22 MCP, 117 MBA, 171 Dual Degree, 08 MMST, 70 PGDIT, 05 PGDMOM, 10 PGDTNM, 34 PGDBA, 21 PGDST, 15 PGDM, 174 M.Sc 375 B.Tech (Hons) and 13 B.Arch (Hons) degrees were conferred. Shri Arka Majumdar of the Department of Electronics & Electrical Communication Engineering was the recipient of President of India Gold Medal for the best academic performance among

the outgoing B. Tech.(Hons.) and B.Arch.(Hons.) students. Shri Shreepriya Das of the Department of Electronics and Electrical Communication Engineering won the Dr. Bidhan Chandra Roy Memorial Gold Medal for the best all-round performance among the B.Tech.(Hons.) and B.Arch.(Hons.) outgoing students. The Prime Minister of India Gold Medal for the best academic performance among the Dual degree and Integrated M.Sc. outgoing students went to Shri Kaushik Sengupta of the Department of Electronics and Electrical Communication Engineering. Dr. Jnan Chandra Ghosh Memorial Gold Medal for the best all-round performance among the outgoing Dual Degree and Integrated M.Sc. students was awarded to Shri Anindya Dutta of the Department of Biotechnology & Biochemical Engineering. Shri Amit Singha Roy of the Department of Physics and Meteorology won the Professor Jagadish Chandra Bose Memorial Gold Medal for the best academic performance among the outgoing students of all 2-year M. Sc. Courses in the Science Disciplines. Shri Debesh Bhatta of the Department of Electronics & Electrical Communication Engineering was the recipient of The Director's Gold Medal for the best academic performance among the students completing M.Tech. and MCP courses.

In the 53rd Convocation, the Senate and the Board of Governors of the Institute conferred the highest honour, Doctor of Science (Honoris Causa), on Dr. Praveen Chaudhari, Dr. D. Rajagopal Reddy and Shri N. R. Narayana Murthy. Dr. Praveen Chaudhari is awarded for the discovery and development of a new class of amorphous magnetic materials which is today the foundation of magnetic-optic disk industry, Dr. Raj Reddy is awarded for his significant contribution in the fields of human-computer interaction and artificial intelligence, and Sri N. R. Narayana Murthy is awarded for his entrepreneurial skills that have lasting influence in creating new consulting and IT services.

In the Convocation, to recognize the significant contributions of eminent individuals, alumni and well-wishers, the Senate and the Board of Governors of the Institute conferred Distinguished Alumnus Awards. The awards were conferred on Professor Kirit S. Parikh, Emeritus Professor and former Director of Indira Gandhi Institute of Development Research and Member (Energy) Planning Commission, Government of India; Professor Panjab Singh Vice Chancellor, Banaras Hindu University and Former Director ICAR; Professor Surendra Prasad, Director of Indian Institute of Technology Delhi; Dr. Prithviraj Banerjee, Senior Vice President of Research and Director, HP Labs of Hewlett Packard Company; and Professor Supriyo Datta, Director, NASA Institute for Nanoelectronics and Computing and Professor at Purdue University.

RESEARCH AND DEVELOPMENT ACTIVITIES

The Institute, besides producing world-class graduates, has also proven to be a knowledge powerhouse of global reckoning and gained the confidence of industrial houses, both domestic and international. The academic Departments, Centres and a large number of R&D laboratories of the Institute continue to carry out research and development in a number of unique areas. Technology leaders from across the globe are looking forward to the Institute for solution to their problems.

Focused research groups in various specialized knowledge domains are fast coming up in the form of Centers of Excellence. Some of the major research initiatives in recent years include Steel Technology Center, R&D Center in Energy Sector in collaboration with DVC, Tea Engineering Research Center, Vodafone-Essar-IIT Kharagpur Centre of Excellence In

Telecommunications, National Program in Marine Hydrodynamics, Santech-IIT Kharagpur Research Initiative in Telecommunication, Centre of Excellence in Information Assurance, General Motors Collaborative Research Laboratory in Electronics Controls and Software (ECS), a Regional Center for Rural Technology Action Group (RUTAG) and Food Science and Technology Programme funded by the Department of Biotechnology, Government of India. The Institute is also working towards development of major research and development units in nanotechnology.

IIT Kharagpur has special expertise in advanced chip design and CAD for VLSI and MEMS including in niche areas like formal verification where it works hand in hand with a large number of international organizations. The MEMS group has made significant contributions to national research programmes of ISRO and DRDO by development of advanced accelerometers, gyros, micro-valves, etc. The area of micro-bio-fluidics and bio-nano-mems has developed new techniques for DNA hybridization.

Life sciences research forms a major thrust area. Green technology routes have produced unique protocols for insect resistant cotton, jute, bio-hydrogen, etc. Biotechnology research has resulted in a number of high-quality enzymatic processes for a variety of food technologies several of which have been transferred. The institute has initiated research in medical science and technology. Most prominent among them is RISUG that is undergoing third phase of trials. Interdisciplinary research is being carried out in areas of noninvasive measurements, advanced image processing, medical implants, orthopedic biomechanics and brain research.

Research in nano-materials, smart composites, polymers (especially rubber technology) and metallurgy include unique microstructures prepared from gelcast ceramics, nano-composites, nano-wires, semiconductors and metal alloys. Some of the areas of significant contributions in mechanical sciences include CFD, motion and vibration dynamics, robotics and robot development and thermal engineering. A new thrust has been provided to energy research including fuel cell based systems and energy materials. The institute has developed state-of-the-art cutting tools comparable to the best available worldwide. Prototype vehicle development has been an area of thrust. These include development of a large autonomous underwater vehicle, fault-tolerant micro-aero vehicle, hovercraft and electric vehicles. The institute has special expertise in advanced plasma technologies and plasma based materials that are being used for advanced research for industrial, strategic and biomedical areas. Research activities are also going on in the areas of Photonics involving fiber and integrated optics, application of micropaleontology in exploration gas hydrates, geophysical tomography and natural hazards, total quality management, risk analysis and safety management in the Indian mining industries.

In the areas of Infrastructure design and spatial planning, the Institute is making significant contributions to low-cost road construction, urban development, estimation and prediction of scour at bridge piers and abutments.

The large gamuts of specialized software developed in the Institute are being widely used in several areas like power systems, system simulation, biomechanics, fluid mechanics and ocean dynamics both within and outside the country.

INFRASTRUCTURE DEVELOPMENT

In order to cope with the rapid advances in science and technology, the infrastructure and experimental facilities are constantly modernized. During the year 2007-2008, several new scientific equipment have been acquired and installed, and new facilities created in the Departments, Centers and Schools. A 50-meter micro-meteorological tower with various atmospheric measurement sensors is established, as a national facility, in the Institute to make special observations during pre-monsoon thunderstorms. In the School of Information Technology, a special research and development laboratory has been set up with the support from Microsoft Corporation, USA. An Electron Probe Micro-Analyzer (EPMA) National facility, funded by the Department of Science & Technology, is being set up in the Department of Geology & Geophysics. The Materials Science Centre has acquired scanning electron microscope. These facilities will further our research capabilities in the fields of earth sciences, material and metallurgical sciences and in physical sciences. The Electrical Engineering Department has created a real-time embedded system laboratory for training and research. A new protein crystallography laboratory has been developed in the Central Research Facility.

The IIT Kharagpur's continuously growing campus needs constant revamping and augmentation of facilities. To this end, several actions have been taken. The major ones in this direction are: Classroom and tutorial room complex, laboratory complex for first year students, two new halls of residence for boys of 2,000 capacity each, a hall of residence for girl students, 144 apartments for faculty and several apartments for employees. Construction of a 100 room guesthouse is in progress and is expected to be completed by the end of 2008. The work for Rajiv Gandhi School of Intellectual Property Law building is progressing steadily and will be completed soon. The construction activities for an extension building and a 200-capacity hostel for boys at Bhubaneswar Campus have started. Apart from these, a major revamp in the existing infrastructure such as widening of roads, upgrading of existing sewers and water supply lines, construction of riverbank deep tube-wells at Anicut Pump House, augmentation of the main power receiving substation and doubling of capacities of the existing substations are in progress.

INTERNATIONAL COLLABORATION

Accelerated progress in many endeavors of the Institute is possible only through active collaborations. We have several collaborations in different areas of research and development, faculty and student exchange programs. Collaborations at different levels are going on with University of Tokyo, Japan, University of New South Wales, Sydney, Aachen University, Germany, Cambridge University, UK, Swiss Federal Institute of Technology, Zurich, EPFL, Switzerland, Dresden University, Germany, University of British Columbia, Vancouver, Canada, City University, Hong Kong, University of Heidelberg, Germany, Virginia Commonwealth University, University of Birmingham, UK, King Fahd University of Petroleum & Minerals, Kingdom of Saudi Arabia, Georgia Tech. University, USA and University of California Berkeley, USA.

In the last year, the Institute has signed MOU for academic and research activities with several universities of USA, Germany, Korea and Italy, including University of Tokyo, Technical University Berlin, Syracuse University and University of Warwick.

SPONSORED RESEARCH AND INDUSTRIAL CONSULTANCY

Industry-academia partnership has attained new dimension in the year 2007-2008. Many technology-intensive and industrial houses are increasingly forming partnerships in joint research projects, acquiring technologies developed in the Institute and seeking consultancy supports from the Institute. Collaborations are also going on with Intel, National Semiconductors, Synopsys, Microsoft, General Motors, Orrick, National Oceanic and Atmospheric Administration of USA, and Geological Survey of Japan, SHELL International & Exploration BV of The Netherlands, DAV Norway and Texas Instruments of USA. During the year 2007-2008 the Institute received 196 research projects for a total value of Rs. 10,957 lakh and 169 consultancy projects for Rs. 1,677 lakh compared to 166 research projects for a total value of Rs. 4,407 lakh and 129 consultancy projects for Rs. 1,009 lakh. Thus a total of 365 sponsored projects were received during the year for a total value of Rs. 12,634 lakh from Government, private and international funding agencies/enterprises compared to 295 projects received during the previous year for a total value of Rs. 5,416 lakh.

STEP - IIT KHARAGPUR

Innovation is a step towards higher generation of growth and sustainability. Science and Technology Entrepreneurs Park (STEP), IIT Kharagpur is an emerging nodal center for innovation. It works towards translating some of the research outcomes of IIT faculty to commercially viable products. STEP IIT Kharagpur provides a single-window facility for turning individuals with science and technology background into successful entrepreneurs capable of generating value-added products. A global venture laboratory, in collaboration with the Jyvaskyla University, Finland and the University of California Berkeley, is being set up at STEP to further improve the skills of the budding entrepreneurs. There are a total of 24 resident entrepreneurs and 8 graduate entrepreneurs operating from STEP, apart from 31 other entrepreneurs who have also received assistance from STEP for initiating their ventures.

CONFERENCES, SYMPOSIA, SEMINARS AND WORKSHOPS

The Institute lays great emphasis on knowledge dissemination, and encourages organization of conferences, symposia and workshops. The year 2007-2008 saw Departments, Centers and Schools of the Institute organizing many such activities, which attracted a large number of participants from India and abroad.

The Fourth International Conference on "Theoretical, Applied, Computational and Experimental Mechanics" was held in the Department of Aerospace Engineering. The Department also conducted a two-day National Workshop on "Modeling of Fluids - Macro to Nano Scales". The Department of Agricultural and Food Engineering organized a national workshop on "Sustainability of Indian Aquaculture Industry" and the Nineteenth Indian Convention of Food Scientists and Technologists. Advanced Technology Development Centre held a workshop on "MEMS and Microelectronics". Workshops on "Bioinformatics in Genomics and Proteomics" and "Biohydrogen Production Technology" were organized by the Department of Biotechnology. The Cryogenic Engineering Centre has conducted workshops on "Cryogenic Air Separation" in Kolkata and Kharagpur. The Department of Computer Science and Engineering conducted a workshop on "Dynamics on and of

Network", in Dresden, Germany, as part of European Conference on Complex Systems. The Department of Electrical Engineering organized a workshop on "Energy: Crisis and Remedies", jointly with WBREDA, at Kolkata. The Department also organized Prof. Gene H. Golub memorial workshop on "Computation of Singular Value Decomposition", with IEEE Kharagpur Section and System Society of India.

A conference on "Advances in Space Science and Technology" was organized by the Kalpana Chawla Space Technology Cell. The Cell also conducted workshops on "Communication and IP-Core Design", "MEMS and Cryogenics" and "Control and Materials". The Department of Metallurgical and Materials Engineering organized the national meet COMPOSIT (Congress of Metallurgical Professionals involving Students, Industry and Teachers). The Indo-Korean joint International Symposium on "Geo-Science and Technology : Utilization of Geo-space as a solution for Energy and Environment", was organized by the Department of Mining Engineering. The Department of Physics and Meteorology along with the Centre for Theoretical Studies organized workshops on "Physics of Warped Extra Dimensions" and "Quantum Correlation and Quantum Computing". The Reliability Engineering Center organized an international conference on Reliability and Safety Engineering. The Rural Development Center organized a workshop in connection with Rural Technology Action Group. The Rubber Technology Centre has organized an international conference on "Rubber and Rubber-like Materials". A workshop on "Globalization, Leadership and Business Strategies" was conducted by the Vinod Gupta School of Management.

CONTINUING EDUCATION PROGRAM

The Continuing Education Programme constitutes an important activity of the Institute. Over the years, it has diversified in terms of coverage of disciplines, duration of program, the level of the programs and the type of industries served. During the last one year, with AICTE support, twenty-four teachers from various engineering colleges have obtained their Doctoral degree and fourteen teachers their Master's degree. Fifteen teachers have enrolled for the Ph.D. program while twenty-one teachers have taken advance admission to the Ph.D. program. Forty-seven self-supported short-term courses, both on-campus as well as off-campus, have been conducted for professionals employed in industry and R&D organizations. Last year, 1,627 participants were awarded certificates on completion of the course works.

The CEP is in the process of starting part-time M.Tech. programmes in Computer Science and Engineering, Electronics and Electrical Communication Engineering and Electrical Engineering at its Kolkata, Bhubaneswar and Kharagpur Centres, primarily for faculty members of AICTE-sponsored engineering colleges.

LAURELS AND DISTINCTIONS

In the quest for excellence, teacher and students of IIT Kharagpur have been receiving awards and honours, laurels and distinctions. In the year 2007-2008, too, faculty members have been honoured with prestigious awards and were elected as Fellows of the National Science Academy and Indian National Academy of Engineering.

Dr. Suman Chakraborty of the Department of Mechanical Engineering has been awarded the prestigious Swarnajayanti Fellowship by the Department of Science and Technology, Government of India. Dr. Pabitra Mitra of the Department of Computer Science & Engineering has been selected for the INAE Young Engineer Award of the Indian National Academy of Engineering, New Delhi. Prof. Pratim Kumar Chattaraj of the Department of Chemistry and Prof. Soumitro Banerjee, Professor of the Department of Electrical Engineering are elected Fellows of the Indian National Science Academy, New Delhi. Prof. S. Dey of the Department of Civil Engineering, Prof. Jayanta Bhattacharya of the Department of Mining Engineering and Prof. Samit K. Ray of the Department of Physics & Meteorology are elected Fellows of the Indian National Academy of Engineering, New Delhi.

Prof. Sujit Roy of the Department of Chemistry and Prof. Anil Kumar Gupta of the Department of Geology & Geophysics are elected Fellows of the Indian Academy of Sciences, Bangalore. Prof. Anil Kumar Gupta has been elected as Life Fellow of the Indian Geophysical Union, Hyderabad. Prof. Tarasankar Pal of the Department of Chemistry was elected a Fellow of The National Academy of Sciences, Allahabad. Prof. Indranil Manna of the Department of Metallurgical & Materials Engineering has been awarded INAE-AICTE Distinguished Industry Professor (2007), by the Indian National Academy of Engineering and Tata Steel, Jamshedpur. Prof. A. Bhattacharya of the Department of Geology & Geophysics has been elected a Fellow of the West Bengal Academy of Science and Technology.

Dr. Suman Chakraborty of the Department of Mechanical Engineering has been awarded the Anil Kumar Bose Memorial Award (2007) of the Indian National Science Academy. Prof. Anupam Basu of the Department of Computer Science & Engineering has received the National Award for the Empowerment of the Persons with Disabilities 2007 by the Ministry of Social Justice and Empowerment, Government of India. Prof. Prem Chand Pandey of the Centre for Oceans, Rivers, Atmosphere and Land Sciences has received the Khosla National Award, by IIT Roorkee and Prof.

K. R. Ramanathan Memorial Gold Medal and Citation, by the Indian Geophysical Union for his life-time achievements in the field of engineering. Prof. K. P. Pandey of the Department of Agricultural & Food Engineering has been awarded the Prof. C. V. Paul Gold Medal by the Indian Society of Agricultural Engineers. Prof. H. N. Mishra of the same Department has been awarded the AIFPA President's Award, by the All India Food Processors' Association. Prof. Uttam Banerjee of the Department of Architecture & Regional Planning has been awarded the Best Design for the Model Police Station by the Bureau of Police Research and Development. Prof. Debabrata Das of the Department of Biotechnology has been awarded the IAHE Akira Matsui Award. Dr. Saibal Ganguly of the Department of Chemical Engineering has received the V. A. Altekhar Award by National Metallurgical Laboratory, CSIR. Prof. Debashis Roy of the Department of Chemistry has been awarded the bronze medal of the Chemical Research Society of India (CSRI). Prof. Pallab Dasgupta of the Department of Computer Science & Engineering has been awarded the IBM Faculty Award. Prof. Kanchan Chowdhury of the Cryogenic Engineering Centre has received the Endeavour Executive Award by Department of Education, Science & Training, Government of Australia. Dr. Pavitra Sandilya of the same Centre has received the V. A. Altekhar Award by National Metallurgical Laboratory, CSIR. Dr. Manish A. Mamtani of the Department of Geology & Geophysics has been awarded the H. H. Read Memorial Gold Medal, by the Society of Geoscientists and Allied Technologists, Bhubaneswar. Prof. Subir Kumar Mukhopadhyay and Dr. Debasish Deb of the Department of Mining Engineering have been awarded the Institute's Gold Medal, by the MGMI, Kolkata. Prof. Samit K. Ray of the Department of

Physics & Meteorology has been awarded the Materials Research Society of India Medal.

ALUMNI AFFAIRS

The alumni of the Institute have played a significant role in facilitating increased interaction of IIT Kharagpur in India and abroad. Shri Ranbir Singh Gupta, an alumnus has pledged US\$1 Million to IIT Kharagpur for the establishment of a School of Infrastructure. The Ranbir & Chitra Gupta School of Infrastructure Design and Management is going to have its first M.Tech. programme from the session 2008-2009. The Nina Saxena Excellence in Technology Award, instituted last year in memory of Dr. Nina Saxena B.Tech. (Hons.), ECE 1992, for technical innovation was awarded to Dr. S. P. S. Khanuja, Director, Central Institute of Medicinal & Aromatic Plants, Lucknow. The New Year brought together the alumni of the Institute in the Fifth Annual Alumni Meet 2007 held during January 2008. The Meet was organized for the graduates of 1958 and 1983.

TRAINING AND PLACEMENT

The Training and Placement Section of the Institute is actively engaged in forging synergistic relationships between the Institute and various industries and employers of technical and scientific manpower. During 2007-2008, 146 companies and organizations visited the campus for taking placement interviews. In addition, 14 companies have called the students for interviews to their office. The undergraduate students placement in the year has been 98% with an average salary of Rs. 7.44 lakhs per year. Harnessing student power has been very fruitful and students effectively ensured that placement programs were run continuously as per schedule during the placement process. A total of 130 companies have offered summer training to the students and 94 of them provided financial assistance. Last year, 350 students of the Institute have taken summer training in countries outside India. For the first time in the Institute, a Deferred Placement Program has been introduced to boost entrepreneurship amongst graduating students. The idea behind such program is to encourage students to take up entrepreneurial ventures while simultaneously offering them a safety net in case the venture does not take off.

STUDENTS' AFFAIRS

In pursuit of excellence and giving life a meaningful direction, Technology Students Gymkhana of IIT Kharagpur works towards personality development of IIT students by infusing in them a spirit of constructive cooperation, leadership qualities and organizational capabilities. This is being achieved by involving them in a wide spectrum of Sports and Games as well as Social & Cultural and Technological activities throughout the year. The year 2007-2008 was also full of activities and achievements and proved to be matching the high standards of organizational and leadership capabilities of our students.

The Inter-IIT Aquatics Meet was held from 2nd October to 5th October 2007 at IIT Bombay. IIT Kharagpur got overall 2nd position in Swimming. The Annual Athletics Meet was held during 3rd and 4th November 2007. The 43rd Inter-IIT Sports meet was held at IIT Bombay from 13th December to 21st December 2007. IIT Kharagpur secured Silver Medal in Badminton, and Bronze in Weight Lifting, Basketball and Cricket. The big bonanza of Social

and Cultural activities was organized from 24th January to 28th January 2008 that witnessed the organizational powers of IIT students.

To keep IIT Kharagpur students in a leading role in the changing world scenario, the techno-management festival, Kshitij was successfully organized from 1st February to 4th February 2008 which included a multitude of technical and managerial events. In the year 2007-2008, 20 Institute Blues and 12 Order of Merits have been awarded to the students for their outstanding achievements in Sports and Games, Social & Cultural, and Technological activities.

PART - I

DEPARTMENTS CENTRES AND SCHOOLS

DEPARTMENTS, CENTRES AND SCHOOLS

IIT Kharagpur is a wholly residential Institute with a large campus spread over an area of approximately 600 hectares. It has a student population of approximately 6600. The sanctioned faculty strength of the Institute is 524. As per faculty : students ratio of 1 : 10, the faculty strength has to be increased to 660.

The Institute has 19 Departments, 7 Centres and 5 Schools. These are :

Departments :

Aerospace Engineering, Agricultural and Food Engineering, Architecture and Regional Planning, Biotechnology, Chemical Engineering, Chemistry, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics and Electrical Communication Engineering, Geology and Geophysics, Humanities and Social Sciences, Industrial Engineering and Management, Mathematics, Mechanical Engineering, Metallurgical and Materials Engineering, Mining Engineering, Ocean Engineering and Naval Architecture, Physics and Meteorology.

Centres :

Centre for Educational Technology, Centre for Oceans, Rivers, Atmosphere and Land Sciences, Cryogenic Engineering, Materials Science, Reliability Engineering, Rubber Technology and Rural Development.

Schools :

G. S. Sanyal School of Telecommunications, Rajiv Gandhi School of Intellectual Property Law, School of Information Technology, School of Medical Science & Technology and Vinod Gupta School of Management.

COURSES OFFERED BY DEPARTMENTS, CENTRES AND SCHOOLS

**Faculty Strength – 524
as on 31.03.2008**

Aerospace Engineering	13
B.Tech. (Hons.) in Aerospace Engineering M.Tech. in Aerospace Engineering M.Tech. Dual Degree 5 years in Aerospace Engineering Ph.D.	
Agricultural and Food Engineering	37
B.Tech. (Hons.) in Agricultural and Food Engineering M.Tech. in Agricultural Engineering with specialization in : i) Farm Machinery and Power ii) Soil & Water Conservation Engineering iii) Agricultural Systems & Management iv) Applied Botany v) Water Resources Development and Management vi) Aquacultural Engineering vii) Dairy & Food Engineering viii) Post Harvest Engineering M.Tech. Dual Degree 5 years in Agricultural & Food Engineering in any chosen specialization Ph.D.	
Architecture and Regional Planning	15
B.Arch. (Hons.) in Architecture Master of City Planning Ph.D.	
Biotechnology	10
B.Tech. in Biotechnology & Biochemical Engineering M.Tech. in Biotechnology and Biochemical Engineering M.Tech. Dual Degree 5 years in Biotechnology & Biochemical Engineering Ph.D.	
Chemical Engineering	21
B.Tech. (Hons.) in Chemical Engineering M.Tech. in Chemical Engineering M.Tech. Dual Degree 5 years in Chemical Engineering Ph.D.	
Chemistry	30

Integrated M.Sc. (5 yr.) in Industrial Chemistry
M.Sc. (2 yr.) in Chemistry
Ph.D.

Civil Engineering

27

B.Tech. (Hons.) in Civil Engineering
M.Tech. in Civil Engineering with specialization in:
i) Structural Engineering
ii) Geotechnical Engineering
iii) Hydraulic & Water Resources Engineering
iv) Environmental Engineering & Management
v) Transportation Engineering
M.Tech. Dual Degree 5 years in Civil Engineering in any chosen specialization
Ph.D.

Computer Science and Engineering

19

B.Tech. (Hons.) in Computer Science and Engineering
M.Tech. in Computer Science & Engineering
M.Tech. Dual Degree 5 years in Computer Science & Engineering / Computer & Information Technology
Ph.D.

Electrical Engineering

28

B.Tech. (Hons.) in Electrical Engineering
B.Tech. (Hons.) in Energy Engineering
B.Tech. (Hons.) in Instrumentation Engineering
M.Tech. in Electrical Engineering with specialization in :
i) Machine Drives and Power Electronics
ii) Power Systems Engineering
iii) Control Systems Engineering
iv) Instrumentation
M.Tech. Dual Degree 5 years in Electrical Engineering in any chosen specialisation
Ph.D.

Electronics and Electrical Communication Engineering

28

B.Tech. (Hons.) in Electronics and Electrical Communication Engineering
M.Tech. in Electronics and Electrical Communication Engineering with specialization in:
i) Telecommunication Systems Engineering
ii) RF & Microwave Engineering
iii) Microelectronics & VLSI Design
iv) Visual Information & Embedded Systems
M.Tech. Dual Degree 5 years in Electronics & Electrical Communication in any chosen specialization
Ph.D.

Centre for Educational Technology

03

M.Tech. in Media and Sound Engineering
Ph.D.

Geology and Geophysics **22**

Integrated M.Sc. (5 yr.) in
i) Applied Geology
ii) Exploration Geophysics
M.Sc. (2 yr.) in
i) Geological Sciences
ii) Geophysics
M.Tech. in
i) Earth & Environmental Engineering
ii) Computational Seismology
Ph.D.

Humanities and Social Sciences **25**

Integrated M.Sc. (5 yr.) in Economics
M.Tech. in Human Resources Development and Management
Ph.D.

Industrial Engineering and Management **13**

B.Tech. (Hons.) in Industrial Engineering
M.Tech. in Industrial Engineering and Management
M.Tech. Dual Degree 5 years in Industrial Engineering / Industrial Engineering and Management
Ph.D.

Mathematics **27**

Integrated M.Sc. (5 yr.) in
i) Mathematics and Computing
ii) Statistics and Informatics
M.Sc. (2 yr.) in Mathematics & Statistics and Informatics
M.Tech. in Computer Science and Data Processing
Ph.D.

Mechanical Engineering **42**

B.Tech. (Hons.) in Mechanical Engineering
B.Tech.(Hons.) in Manufacturing Science and Engineering
M.Tech. in Mechanical Engineering with specialization in :
i) Manufacturing Process Engineering
ii) Thermal Energy & Environmental Engineering
iii) Mechanical Systems Design
iv) Mechanical Systems, Dynamics & Control
M.Tech. Dual Degree 5 years in any chosen specialization :

- i) Manufacturing Science & Engineering / Industrial Engineering & Management
 - ii) Mechanical Engineering (M.Tech. in any chosen Specialization)
- Ph.D.

Metallurgical & Materials Engineering 25

B.Tech. (Hons) in Metallurgical Engineering
 M.Tech. in Metallurgical & Materials Engineering
 M.Tech. Dual Degree 5 years in Metallurgical & Materials Engineering / Metallurgical Engineering
 Postgraduate Diploma in Steel Technology
 Ph.D.

Mining Engineering 12

B.Tech. (Hons.) in Mining Engineering
 M.Tech. in Mining Engineering
 M.Tech. Dual Degree 5 years in
 i) Mining Engineering
 ii) Mining Engineering / Disaster Management in Mines
 Ph.D.

Ocean Engineering and Naval Architecture 09

B.Tech. (Hons.) in Ocean Engineering and Naval Architecture
 M.Tech. in Ocean Engineering & Naval Architecture
 M.Tech. Dual Degree 5 years in Ocean Engineering & Naval Architecture
 Postgraduate Diploma in Maritime Operation & Management
 Ph.D.

Physics and Meteorology 28

Integrated M.Sc. (5 yr.) in Physics
 M.Sc. (2 yr.) in Physics
 M.Tech. in Solid State Technology
 Ph.D.

Centre for Oceans, Rivers, Atmosphere and Land Sciences 06

M.Tech. in Earth System Science and Technology
 Ph.D.

Cryogenic Engineering 11

M.Tech. in Cryogenic Engineering
 Ph.D.

Materials Science 10

M.Tech. in Materials Science and Engineering Ph.D.	
Reliability Engineering Centre	04
M.Tech. in Reliability Engineering Ph.D.	
Rubber Technology	10
M.Tech. in Rubber Technology Ph.D.	
Rural Development	05
Post Graduate Diploma in Rural Development Ph.D.	
G. S. Sanyal School of Telecommunications	02
Postgraduate Diploma in Telecommunications Networking Planning and Management Ph.D.	
Rajiv Gandhi School of Intellectual Property Law	08
LLB in Intellectual Property Law Postgraduate Diploma in Intellectual Property Law Ph.D.	
School of Information Technology	07
M.Tech. in Information Technology Postgraduate Diploma in Information Technology Ph.D.	
School of Medical Science & Technology	10
M.Tech. in Medical Imaging and Image Analysis Master in Medical Science and Technology Ph.D.	
Vinod Gupta School of Management	16
i) Master of Business Administration	
ii) Postgraduate Diploma in Business Administration	
iii) Postgraduate Diploma in Management	

DEPARTMENT OF AEROSPACE ENGINEERING

HEAD : Professor Navtej Singh

FACULTY

Professor :

Ghosh, Amit Kumar	Ph.D. (IIT, Madras), Aircraft Propulsion
Bandyopadhyay, Gautam	Ph.D. (IIT, Kharagpur), Aerodynamics
Singh, Navtej	Ph.D. (IIT, Kharagpur), Aerodynamics
Dutta, P. K.	Ph.D. (Georgia Tech), Aircraft structures

Associate Professor :

Singh, B. N.	Ph.D. (IIT, Kanpur), Structures
Maiti, D. K.	Ph.D. (IIT, Kharagpur), Structures
Sinhamahapatra, K. P.	Ph.D. (IIT, Kharagpur), Aerodynamics
Laha, M. K.	Ph.D. (IIT, Kharagpur), Aerodynamics / Flight Mechanics
Rao, T. V.	Ph.D. (IISc, Bangalore), Aircraft propulsion

Assistant Professor :

Ghosh, A.	Ph.D. (IIT, Kharagpur), Structures
Roy, A.	Ph.D. (IIT, Kharagpur), Aerodynamics
Pradhan, S. C.	Ph.D. (IIT, Kanpur), Aircraft Structures
Sinha, M.	Ph.D. (IIT, Kanpur), Flight Mechanics and Control

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Composite & Smart Structures
2. Structural Dynamics & Aeroelasticity
3. Design & Development of MR-fluid damper
4. Low Reynolds number airfoils for micro air vehicles
5. High Reynolds number three dimensional flows
6. Supersonic and hypersonic flows for various configurations
7. Analysis of aerospace structures using DQM, DTFM, FEM
8. Nanomaterials and nanomechanics
9. Development of reconfigurable autonomous air vehicle
10. Lunar gravity modeling, topography modeling and orbit determination for the Chandrayaan-I
11. Fault tolerant and reconfigurable architecture development for the automotive
12. Real time system identification, system identification using neural sensitivity analysis
13. Fault detection and identification for aircraft

14. Development of micro-aerial vehicles

Thrust Areas :

1. Computation of High-Speed, High-Temperature Reactive Flows
2. Composite and smart structures, probabilistic analysis & design
3. Autonomous reconfigurable flight vehicle development, Chandrayaan-I project

New Acquisitions :

1. Upgradation Instron 1342 (Dynamic Machine)
2. Vibration shake table
3. Sun Ultra-45 workstation with 16 GB RAM & dual processor core
4. 12 noded 12 X 2 GB RAM PC cluster
5. Laminar Flow Table
6. 16-channel pressure scanner system
7. Low speed wind tunnel
8. High speed data acquisition card, 16M Samples/s
9. Shock Accelerometer
10. Various models of and components for micro-aerial vehicles
11. An “Intelligent Systems Research Laboratory” has been set up in the Department for R&D in the area of intelligent flight management

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Centre of Excellence for Composite Structures Technology Phase II	AR&DB	Rs. 75.90 Lakhs
2.	Aeroelastic Tailoring of a Composite Lifting Surface Using Smart Structures Concept	IIT Kharagpur	Rs. 3.0 Lakhs
3.	Aeroelastic Analysis of a Lifting Surface Employing Active Fiber Composite Under Hygro-Thermal Environment	AR&DB	Rs. 8.96 Lakhs
4.	FIST Program	DST, New Delhi	Rs. 105.00 Lakhs
5.	Non-linear vibration study of smart laminated composite plates with uncertain system properties in random hygrothermal environments	AR&DB	Rs. 5.94 Lakhs
6.	Dynamic Characteristics of thermally post-buckled composite panels embedded with SMA Fibers	DRDO	Rs. 7.70 Lakhs
7.	Non-linear response of piezoelectric laminated composite panels under different loading conditions with uncertain system properties	IIT Kharagpur	Rs. 1.64 Lakhs
8.	Experimental and Numerical Investigation	IIT Kharagpur	-

	of Flow Past Two-Dimensional Arbitrary Body Geometries at Subsonic and Supersonic Speeds		
9.	Numerical and Experimental Investigation of Low Reynolds Number Flow Past Airfoils for Flying Wing Micro Air Vehicle	AR&DB, Aerodynamics Panel, GOI	-
10.	Aerodynamic Investigation of Smart Flying Wing MAV	Asian Office of Aerospace R&D, AOARD (AFRL), Japan	-
11.	Research activities in computational fluid dynamics	HyPerComp, Inc., USA	US\$ 20,000.00
12.	Development of a three-dimensional unsteady implicit hypersonic viscous turbulent flow solver on an unstructured grid	DRDL	Rs. 9.80 Lakhs
13.	Axisymmetric and Non-Axisymmetric, Subsonic and Supersonic Jet Aerodynamics-Aeroacoustics using the Three-Dimensional Navier-Stokes/Euler Coupled Simulation	AR&DB	Rs. 3.50 Lakhs
14.	Three-dimensional unstructured grid generation for viscous flow computation about complex configurations using computational geometric technique	DRDL	Rs. 9.20 Lakhs
15.	Setting Up of AR&DB's Associate Centre of CFD at IIT Kharagpur	AR&DB	Rs. 23.20 Lakhs
16.	Least-Square Finite Element Analysis of Adhesively Bonded Joints with Functionally Graded Material	AR&DB	Rs. 4.42 Lakhs
17.	Autonomous Reconfigurable air vehicle	TIFAC, DST, New Delhi	Rs. 10.00 Lakhs
18.	Lunar gravity modeling, topography modeling & orbit determination	ISRO	Rs. 8.05 Lakhs
19.	Reconfigurable flight control system	DRDO	Rs. 10.00 Lakhs
20.	Hybrid flight control system	AR&DB	Rs. 6.00 Lakhs
21.	Intelligent flight control system	IIT Kharagpur	Rs. 3.00 Lakhs
22.	Studies on Initiation and Propagation of Damage in Smart Composite Plates and Shells	IIT Kharagpur	Rs. 3.00 Lakhs
23.	Composite Application Laboratory	TIFAC, DST, New Delhi	-

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Fault tolerant automotive systems	General Motors	Rs. 500.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Prof. P. K. Datta
Invited, as a part of the faculty exchange programme for guest lectures (Aerospace Engineering Department of Chosun University, Korea) First week of November, 2007
2. Dr. M. Sinha
Present paper on path planning for MAV (Toulouse, France) September 17-21, 2007

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. K. P. Sinhamahapatra
“Large Eddy Simulation of Turbulent Flows”, Workshop on “Modeling of Fluids – Macro to Nanoscales”, September 20-21, 2007 (IIT Kharagpur)
2. Dr. K. P. Sinhamahapatra
“Transonic and Supersonic Cavity Flows”, March 06, 2008 (DRDL, Hyderabad)

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Rajesh Kumar	Computation of Steady and Unsteady Transonic Over Aero-foils and Wings
2.	Suwendu Narayan Patel	Dynamic Stability of Laminated Composite Stiffened Shell Panels with Cutouts Subjected to Non-uniform In-plane Harmonic Edge Loading

LAURELS & DISTINCTIONS

1. Dr. Manoranjan Sinha
Reviewer for the Journal of Institution of Engineers (India)

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. 4th International Conference on “Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2007)” & Reunion of the Aerospace Engineering Graduates of IIT Kharagpur
December 27-29, 2007
2. Two-day National Workshop on “Modeling of Fluids – Macro to Nano Scales”, IIT Kharagpur
September 20-21, 2007

DEPARTMENT OF AGRICULTURAL & FOOD ENGINEERING

HEAD : Professor Bimal Chandra Mal

FACULTY

Professor :

Banerjee, Rintu	Ph.D. (IIT Kharagpur), Microbial Biotechnology, Environmental Biotechnology
Bhadoria, P. B. Singh	Ph.D. (IIT Kharagpur), Soil Science
Das, Susanta Kumar	Ph.D. (IIT Kharagpur), Food Engineering / Post Harvest Engineering
Datta, Ashis Kumar	Ph.D. (Pennsylvania State University), Dairy and Food Process Engineering
Ghosh, Bijoy Chandra	Ph.D. (IIT Kharagpur), Agronomy
Goswami, Tridib Kumar	Ph.D. (IIT Kharagpur), Dairy and Food Engineering, Post Harvest Technology
Mal, Bimal Chandra	Ph.D. (IIT Kharagpur), Soil and Water Conservation Engineering, Aquacultural Engineering
Mishra, Hari Niwas	Ph.D. (IIT Kharagpur), Food Technology
Panda, Rabindra Kumar	Ph.D. (IARI Delhi), Water Resources Development & Management, Soil and Water Conservation Engineering
Panda, Sudhindra Nath	Ph.D. (PAU, Ludhiana), Soil and Water Engineering
Pandey, Keshaw Prasad	Ph.D. (IIT Kharagpur), Farm Machinery and Power, Renewable Energy
Raghuwanshi, Narendra Singh	Ph.D. (California University, Davis), Irrigation and Drainage Engineering, Soil and Water Conservation Engineering
Singh, Rajendra	Ph.D. (IIT Kharagpur), Soil & Water Conservation Engineering, Irrigation and Drainage Engineering
Tewari, Virendra Kumar	Ph.D. (IIT Kharagpur), Farm Machinery & Power, Ergonomics
Tiwari, Kamlesh Narayan	Ph.D. (IARI Delhi), Soil & Water Conservation Engineering, Irrigation, Land & Water Resources Management

Associate Professor :

Das, Bhabani Sankar	Ph.D. (Kansas State University), Soil Physics, Vadose Zone Hydrology
Dutta Gupta, Snehasish	Ph.D. (Kalyani University), Plant Tissue Culture & Biotechnology
Jha, Madan Kumar	Ph.D. (Japan), Groundwater Engineering
Majumdar, Gautam Chandra	Ph.D. (IIT Kharagpur), Post Harvest Engineering, Food Engineering, Agri. Systems Management
Mallick, Nirupama	Ph.D. (BHU, Varanasi), Environmental Biotechnology, Algal Biotechnology, Stress Physiology
Mitra, Adinpunya	Ph.D. (East Anglia UK), Applied Botany
Mitra, Arunabha	Ph.D. (Calcutta University), Aquaculture, Fisheries,

Raheman, Hifjur Sustainable Lifestyle, Stress Management
Ph.D. (AIT, Bangkok), Farm Machinery & Power
Thomas, E. V. Ph.D. (IIT Kharagpur), Farm Machinery & Power

Assistant Professor :

Chatterjee, Ph.D. (IIT Kharagpur), Soil and Water Conservation
Chandranath Engineering
Das, Madhusweta Ph.D. (Jadavpur University), Food Technology &
Biochemical Engineering
Guha, Proshanta Ph.D. (IIT Kharagpur), Agronomy
Mukherjee, Chanchal MS. (New Jersey), Naval Architecture & Ocean Engineering
Kumar
Shrivastava, Shanker Ph.D. (IIT Kharagpur), Post Harvest Engineering / Dairy &
Lal Food Engineering
Srinivasa Rao, Pavuluri Ph.D. (IIT Kharagpur), Post Harvest Engineering,
Aquacultural Engineering
Srivastav, Prem Prakash Ph.D. (IIT Kharagpur), Food Technology
Swain, Dillip Kumar Ph.D. (IIT Kharagpur), Agronomy

Lecturer (Senior Scale) :

Moulick, S Ph.D. (IIT Kharagpur), Aquacultural Engineering

Senior Scientific Officer :

Singh, Manindra Nath Ph.D. (BHU), Entomology, Grain Storage, Plant Protection

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Application of GIS in both command area and watershed management
2. Biodegradable and edible films for food packaging and making carry bags
3. Biodiesel production and its performance in diesel engine
4. Biofiltration Technology in Aquaculture
5. Climate change impact assessment on rice production
6. Development of a novel gravity aeration system
7. Development of a small hp tractor for small and marginal farmers
8. Development of fortified RTE health foods
9. Greenhouse in Floriculture
10. Innovative food processing technologies
11. Micro irrigation in Horticultural crops
12. Microwave assisted heating and drying of foods
13. Microwave puffing of rice and paddy
14. Modelling nutrient uptake, P efficiency of crops, Rhizosphere research
15. Organic farming for sustainable agriculture
16. Plant Phenolics: Biosynthesis of aromatic phenolic fragrance and phytomedicinals
17. Predicting drawbar performance of agricultural tractors

18. Prediction of draft of tillage implements and fuel consumption of 2WD tractors
19. Rapid control atmosphere storage of fruits

Thrust Areas :

1. Agricultural Biotechnology
2. Agricultural Biotechnology
3. Agronomy
4. Aquacultural Engineering
5. Biofuels
6. Control and Modified atmosphere storage
7. Eco-friendly aquaculture
8. Farm Machinery
9. Food Macromolecules- Science and Engineering
10. Functional foods & nutraceuticals
11. Mechanization of food processing and value addition, particularly for traditional technologies
12. Microwave Application in Food Processing
13. Non traditional foods, nutraceuticals and functional food development
14. Novel food products processing technologies
15. Novel Value addition, Recirculatory Aquaculture Systems
16. Plant Nutrition
17. Precision Agriculture
18. Thermal behaviour / properties of food
19. Tractor and Machinery Systems

New Acquisitions :

1. Chlorophyll meter SPAD-502
2. Front end loader for agricultural tractors beyond 50 hp power capacity
3. Front end loader for agricultural tractors beyond 50 hp power capacity
4. Twin Screw Extruder for Food Materials
5. Water Purification System
6. YSI-Professional Plus Multi Water Quality Parameter Analyzer

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	AICRP on PFTC and R&D of Farm Implement & Machinery	ICAR, New Delhi	Rs. 95.91 Lakhs
2.	AICRP on Post Harvest Technology	ICAR, New Delhi	Rs. 60.00 Lakhs
3.	Design characteristics of circular stepped cascade pump (CSCP) aeration system	IIT Kharagpur	Rs. 1.00 Lakh
4.	Development of Combined Tillage Implement for Improving Performance of Tractor-Implement Combination	CSIR, New Delhi	Rs. 9.82 Lakhs

5.	Development of process technology for invitroenzymatic detoxification of food infected with aflatoxin B1 using horse radish peroxidase enzyme	DST, New Delhi	Rs. 6.5 Lakhs
6.	Development of Recirculatory Aquaculture System based on Bioremediation and Integrated Bioplastic Production	DBT, New Delhi	Rs. 26.37 Lakhs
7.	Development of recirculatory aquaculture systems based on bioremediation and integrated bioplastic production	-	Rs. 26.19 Lakhs
8.	Development of starch based products from <i>Curcuma leucorrhiza (Palo)</i>	-	-
9.	FIST Project for “Strengthening Teaching and Research in Water Resources Development and Management”	DST, New Delhi	Rs. 78.00 Lakhs
10.	Enhancing research capacity and Initiating Masters’ & Doctoral Programmes in Food Science & Technology	DBT, New Delhi	Rs. 837.80 Lakhs
11.	FIST Project in Water Resources Development & Management	DST, New Delhi	Rs. 78.00 Lakhs
12.	FIST Project on Water Resources Development and Management	DST, New Delhi	Rs. 78.00 Lakhs
13.	Fully Biodegradable Starch Based Film for Making Carry Bag and Edible Food Packaging	Ministry of Environment & Forest, New Delhi	Rs. 10.07 Lakhs
14.	Impact of climate change on rice yield of West Bengal: A field experiment and simulation study	IIT, Kharagpur	Rs. 2.70 Lakhs
15.	Improvement in technology for processing of <i>khejur (Phoenix sylvestris) gur</i> products and their storage characteristics	-	-
16.	Mechanised Food Engineering	IIT Kharagpur	Rs. 5.00 Lakhs
17.	Microwave Assisted Hot Air and Vacuum Drying of Fruits and Spices	Ministry of Food Processing Industries, New Delhi	Rs. 29.00 Lakhs
18.	Milled and malted product potential of <i>kodo (Paspalum scrobiculatum L.)</i>	-	-
19.	Precision Farming Development Centre	Ministry of Agriculture, New Delhi	Rs. 150.00 Lakhs
20.	Processing and preservation of fruits and vegetables at agro-processing complex	-	-
21.	Production and Performance Evaluation of Biodiesel from Tree Based Oils (with high free fatty acids) and their Mixtures	Ministry of Petroleum & Natural Gas, New Delhi	Rs. 11.62 Lakhs
22.	Production of <i>Spirulina</i> powder and extraction of nutraceuticals	-	-
23.	Rapid control atmosphere storage of fruits	Ministry of Food	Rs. 48.00 Lakhs

		Processing Industries, New Delhi	
24.	Techno-Economic Feasibility of Integrated Aquaculture Options within Irrigation Systems	ICAR, New Delhi	Rs. 31.03 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	250 Kg tannery grade enzyme	Networks Export Pvt. Ltd.	Rs. 2.00 Lakhs
2.	A small system for enhancing shelf life of fresh betel leaf	Private Party, Kaktia Bazar, Tamluk, East Midnapore	Rs. 0.04 Lakhs
3.	Evaluation Study on the Activities of Soil Conservation Department of Damodar Valley Corporation	Damodar Valley Corporation, Kolkata	Rs. 31.50 Lakhs
4.	Performance of Bias and Radial- ply Tyres	Apollo Tyres Ltd, Vadodara	Rs. 6.06 Lakhs
5.	Performance of Commercial Rice Mill	Maa Tara Rice Mill, Chandrakona Midnapore	Rs. 0.05 Lakhs
6.	Perspective Plan for Development of Pashimanchal, West Bengal	Government of West Bengal	Rs 11.50 Lakhs
7.	Rainwater Harvesting at Alumina Refinery, Damanjodi	National Aluminium Co. Ltd.	Rs. 4.16 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. P. B. S. Bhadoria	Teaching (AIT Bangkok), December 1-7, 2007
2.	Dr. M. K. Jha	International Agricultural Engineering Conference (IAEC-2007), (Bangkok, Thailand), December 3-6, 2007
3.	Prof. H. N. Mishra	Indo-Australia Workshop on Functional Foods (University Wollongong, Australia), March 28-29, 2007
4.	Dr. Adinpunya Mitra	Future Trends in Phytochemistry : Compounds-Enzymes-Genes (Bad Herrenalb, Germany), March 26-29, 2008
5.	Prof. R. K. Panda	Ecosummit-2007 (Beijing China), May 22-27, 2007

INVITED LECTURES BY FACULTY MEMBERS

1.	Prof. K. P. Pandey	A series of six lectures on Tractor design and performance in Vehicle Integration Training Program
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| | (Mahindra and Mahindra Ltd, Mumbai) |
| 2. Prof. B. C. Mal | Engineering Principles and Environmental Control for Sustainable Aquaculture in India (CIPHET, Ludhiana) |
| 3. Prof. H. N. Mishra | RTE Health Foods & Nutraceuticals (SNDT Women's College, Mumbai) |
| 4. Prof. H. N. Mishra | Food processing technologies for rural entrepreneurs (KVIC, Nasik) |
| 5. Prof. H. N. Mishra | Functional (Health) foods (19 th Annual Convention of Food Scientists & Technologists – ICFoST 2007) |
| 6. Prof. Suresh Prasad | Overview of Post Harvest Handling and Processing Technologies for Perishable Foods (Golden Jubilee Celebration Lecture Series of Central Institute of Fisheries Technology (CIFT), Cochin) |
| 7. Dr. H. Raheman | Performance of Diesel Engine with Blend of Jatropha (Jatropha curcas) Biodiesel and High Speed Diesel (Workshop on Awareness and Implementation of Biodiesel Fuel in India organized by University of Saskatchewan, Canada; IMMT Bhuaneswar and IIT Delhi) |
| 8. Prof. K. N. Tiwari | Remote Sensing and GIS application in Hydrological Modelling at Soil Conservation Dept. DVC Hazaribad, Jharkhand |
| 9. Prof. K. N. Tiwari | Remote Sensing and GIS application in Water Resources Management (Institution of Engineers (India) Kharagpur Local Centre) |
| 10. Prof. B. C. Mal | Role of Engineering on the Sustainability of Indian Aquaculture Industry (IIT Kharagpur) |
| 11. Prof. B. C. Mal | Role of Statistics in Agricultural Engineering Research (Birsa Agricultural University, Ranchi) |
| 12. Prof. Suresh Prasad | Use of Microwave Techniques in development of Instant Foods Based on Cereals and pulses (Defense Food Research Laboratory, Mysore) |
| 13. Dr. P. S. Rao | Value Addition to Aquatic Products, VIV India, through Novus International, Thailand (New Delhi) |
| 14. Prof. B. C. Mal | Water Harvesting- a Solution to Water Crisis (NERIST Itanagar) |

LECTURE BY VISITING EXPERT

- | | |
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| 1. Mr. Arup Bose, Hydrodyne Inc., Kolkata | Advantage of fitting Kort Nozzle in fishing vessel |
| 2. Dr. G. S. Murthy, Biological and Ecological Engineering, Oregon State University, USA | Oregon State University with a focus on Biological and Ecological Engineering Dept and potential opportunities for students at OSU |
| 3. Dr. A. S. Upadhyay, NFDB, Hyderabad | Schemes of funding by National Fisheries Development Board |
| 4. Mr. Y. Ravikumar, Vaisakhi Bioresources Ltd., Visakhapatnam | Shrimp Farming their problems and prospects |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Manisha Basu	Integrated nutrient management of sabai grass-peanut intercropping system in lateritic upland
2.	S. K. Behera	Effect of Fertilization and Irrigation Schedule on Crop Response and Water-Solute Transport in Lateritic Soil
3.	Alivia Chowdhury	Studies on the Groundwater Management of West Midnapore using Remote Sensing and GIS
4.	K. K. Garg	Measurement and modeling water flow and nitrogen transport and transformation processing in low land paddy field
5.	Amit Nath	Study on process technology for production of potato based ready-to-eat snacks
6.	R. Rajani	Simulation-optimization modelling for efficient management of a coastal groundwater basin
7.	K. Rajitha	Studies on Sustainable Development of Coastal Aquaculture through Remote Sensing and GIS
8.	A. Sachan	Bioconversion of 4-coumaric acid to 4-hydroxybenzoic acid and caffeic acid by selected microorganisms
9.	A. Sarma	Studies on design and performance of maize dehusker-cum-sheller
10.	Susmita Sen	Management guidelines for wise Use of Freshwater wetlands : A community based approach for selected wetlands of West Bengal
11.	V. K. Shiby	Dahi (Curd) Powder : Process technology, Storage & Utilization
12.	A. A. Singh	P dynamics and growth of maize and groundnut cultivars in alfisol

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. B. C. Bhattacharyya and Prof. Rintu Banerjee	Environmental Biotechnology	Oxford University Press	2007
2.	Prof. Rintu Banerjee	Downstream Processing of Biologicals: A Strategic Approach in Advances in Fermentation Technology	Asiatech Publishers, Inc, New Delhi	2008
3.	Mr. R. S. Govindaraju	Moment analysis for	Springer, The	2007

	and Dr. B. S. Das	subsurface hydrologic applications	Netherlands	
4.	Mr. Mainak Chakrabarti and Prof. Rintu Banerjee	Impact of tannery waste on the living system and its bioremediation in Environmental Pollution and Health Risk to Man and Animals	-	2008
5.	Mr. S. S. Bhattacharyya and Prof. Rintu Banerjee	Xenobiotics and heavy metals : Effects on the living world and bioremediation in Environmental Pollution and Health Risk to Man and Animals	-	2008

PATENTS GRANTED

1. A process of preparing esterified karanja oil as a fuel for compression ignition engine and a fuel therefore; Patent No. 205 304, Date of Grant: 30/03/2007
2. Low fat absorbing self-supporting films made from food grade starch and other edible materials; Patent no: 209410

LAURELS & DISTINCTIONS

1. Prof. Suresh Prasad Awarded Best Poster Paper Award in the area of “Edible Oils and Oil Based Products” during ICFost 2007
2. Prof. Suresh Prasad Chairman, Research Advisory Committee (RAC) of CIFT, Cochin nominated by Indian Council of Agricultural Research, New Delhi, 2007
3. Prof. Suresh Prasad Member, High-level Expert Committee appointed by Director General, CSIR for recommending the winner of CAIRD-2007 Award
4. Prof. Suresh Prasad Chairman of the Consortium Advisory Committee (CAC) of the NAIP Project at CIPHET Ludhiana
5. Prof. Suresh Prasad Chairman, Quinquennial Review Team (QRT) of CIPHET, Ludhiana nominated by Director General ICAR, New Delhi
6. Prof. Suresh Prasad Member, Institute Research Committee, Indian Institute of Natural Resins and Gums, Ranchi
7. Mr. S. K. Sharma and Prof. K. N. Best Paper Award, Eleventh Annual

Tiwari	International Conference on Geospatial Information, Technology and Application (Map India 2008) Development and Application
8. Prof. T. K. Goswami and Mr. S. Mangaraj	Received best paper award in ICFoST-2007
9. Prof. T. K. Goswami and Mr. S. Mangaraj	Received best paper award in ISAE, 2008
10. Dr. M. K. Jha	‘Outstanding Book Award’ by the Indian Society of Agricultural Engineers (ISAE), New Delhi in 2007
11. Prof. H. N. Mishra	AIFPA Presidents’ Award for outstanding contribution in growth & development of food processing industry in 2007
12. Prof. H. N. Mishra	Member, Editorial Board, Indian Food Packer, Published by All India Food Processors Association, New Delhi in 2007
13. Prof. H. N. Mishra	President, Association of Food Scientists & Technologists (India) of Agricultural Engineers for his outstanding contribution in Agricultural Machinery Design in 2007
14. Prof. K. P. Pandey and Prof. C. V. Paul	Awarded Gold Medal by the Indian Society in 2006-2007

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Drip and Sprinkler Irrigation	September 3-4, 2007
2. ICFoST 2007 – 19 th Indian Convention of Food Scientists & Technologists	December 31, 2007 – January 02, 2008
3. Microirrigation and Greenhouse Technology	July 30-31, 2007
4. Microirrigation and Greenhouse Technology	November 7-8, 2007
5. Microirrigation for Horticultural Crops	October 4-5, 2007
6. National Workshop on Sustainability of Indian Aquaculture Industry	-
7. National Workshop on Sustainability of Indian Aquaculture Industry	September 28-29, 2007
8. Nineteenth Indian Convention of Food Scientists and Technologists	-
9. Precision Farming in Horticultural Crops	February 28-29, 2008
10. Pressurized Irrigation	January 29-30, 2008
11. Short term course on Engineering and Management in Fisheries and Aquaculture	April 29 – May 09, 2008
12. Workshop on RuTAg	November 28, 2007

DEPARTMENT OF ARCHITECTURE & REGIONAL PLANNING

HEAD : Professor Uttam Kumar Banerjee (upto September 30, 2007)
Professor Arif Noman Merchant (from October 1, 2007)

FACULTY

Professor :

Banerjee, Uttam K.	B.Arch. (Hons.), MCP, Ph.D. (IIT Kharagpur), FITP, FIIA, MISTE, Architecture & Landscape Design, Urban Design, City Planning, Transportation Evaluation, Computer Applications and GIS, Building Automation, IT and Design Simulation
Datta, Rabindra N.	B.Tech. (Hons.), MCP, Ph.D. (IIT Kharagpur), FITP, Transportation Planning and City Planning
Merchant, Arif N.	B.Arch. (Hons.), (IIT Kharagpur), MCP, Ph.D. (Cincinnati, USA), AIIA, AITP, Community Planning, Urban Design, Architecture, Computer Applications, GIS & Remote Sensing
Sengupta, Biplab. K.	B.Arch.(Cal), MCP (IIT Kharagpur), AIIA, FITP, Urban Development Management, Planning Legislation, Metropolitan Planning, New Town Planning and City Planning

Associate Professor :

Barman, Jaydip	B.Arch.(Cal), MCP, Ph.D. (IIT Kharagpur), AIIA, FITP, AIIID, MISTE, MISLE, Urban Design, Architecture, Visual Arts and Interior Design
Basu, Sanghamitra	B.Arch. (Hons.) (JU), PG Diploma in TCP (Hons) (SPA, Delhi), Ph.D. (IIT Kharagpur), Danida Fellow (Housing & Urbanisation, Denmark), MA in Conservation (York, UK), AIIA, AITP, Architecture, Urban & Regional Planning, Conservation
Chattopadhyay, Subrata	B.Arch. (Cal), MURP (SPA, Delhi), Ph.D. (IIT Kharagpur), Cert. Housing (Newcastle, UK), Dip. Housing (Lund, Sweden), AITP, Housing, Urban Planning and Building Materials
Sen, Somnath	B.Arch. (Hons.), MCP, Ph.D. (IIT Kharagpur), AIIA, AITP, Environmental Planning, Metropolitan Planning, GIS & Remote Sensing, Water Resources Planning
Sen, Joy	B.Arch. (Hons.) (IIT Kharagpur), MCRP(Iowa, USA), Minor in Technology and Social Change (UNDP, Iowa, USA), Ph.D. (IIT Kharagpur), AITP, Community & Regional Planning, Architectural Heritage, Historic Research & Documentation, Settlement Dynamics

Assistant Professor :

Ahmed Mokaddes Ali	BE (Civil), MCP, Ph.D. (IIT Kharagpur), Transportation Planning
Chakraborty, Banhi	MRP, Ph.D. (IIT Kharagpur), Regional Geography, Regional Planning, Rural Development
Dutta, Joydeep :	B.Arch. (Hons.) (IIT Kharagpur), MUP (Illinois, USA), AIIA, AITP, Urban Design, Computer Applications and GIS, Retail Planning
Majumdar, Tapan K.	B.Arch. (Cal), MCP(IIT Kharagpur), AIIA, AITP, MISTE, Building Construction, Industrial Architecture and Interior Design
Mazumder, Tarak N.	B.Arch., MCP, Ph.D. (IIT Kharagpur), Transportation Planning, Transportation Economics, Urban Planning, Real Estate Evaluation
Paul, Saikat	B.Arch., MCP (IIT Kharagpur), Environmental Planning, GIS & Remote Sensing, Climatology, Low cost Construction

Emeritus Professor :

Chattopadhyay, Rabindra N.	M.Sc., MRP, Ph.D. (IIT Kharagpur), FITP, AAIP(USA), Rural Development and Regional Planning
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Banhi Chakraborty	Assistant Professor
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RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. **Building Science & Environmental Planning** (Design Simulation and Intelligent Architecture, Building Automation and Management Systems, Sustainable Development, Energy Efficient Design, Appropriate Technologies, Spatial Environmental Planning, Eco-sensitive and Green Architecture)
2. **Art and Architecture** (Indian Traditional Architecture and Heritage studies, Vernacular Architecture, Design, Visual Communication, Visual Simulation, Product design and Industrial design)
3. **Infrastructure and spatial Planning** (Transportation Planning, Traffic Engineering and Management, Hazards and Disaster Mitigation and Management, Urban Design, Eco-tourism, Recreation and Landscape Planning, Conservation and Preservation Studies, Housing and Shelter, Social Infrastructure)
4. **Urban Information System and Planning** (Urban Development Management and Finance, Advanced Planning Informatics, Geographical Information Systems,

Decision support systems and Expert systems, Urban Settlement and Systems Dynamics)

Thrust Areas :

1. Energy efficient design,
2. Urban information system,
3. Traditional Architecture & heritage studies,
4. Visual Communication & Product Design,
5. Environmental planning & design,
6. Disaster Management,
7. Human settlements,
8. Housing,
9. Building Science,
10. Infrastructure Planning & Design

New Acquisitions :

1. Photography Laboratory is now fully functional with both colour as well as monochromatic developing and printing facilities
2. The Environment Laboratory is now fully functional with commissioning of indoor air quality measurement, outdoor weather monitoring station, and computer interfaced data logger

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Development of Women Technology Park in Nayagram Tribal Block, West Midnapore	DST, New Delhi	Rs. 24.71 Lakhs
2.	Study of Ancillary Industry of POSCO-India	POSCO Research Institute	Rs. 21.00 Lakhs
3.	National Programme for Capacity Building of Architects for Earthquake Risk Management	Ministry of Home Affairs, New Delhi	Rs. 25.45 Lakhs
4.	Historical Evolution of India - a new documentation	R.K.M. Institute of Culture, Kolkata	Rs. 3.00 Lakhs
5.	Technology Development and Transfer for Selected Medicinal Plants : Approach through T&D and Ex-situ-cultivation	National Medicinal Plants Board, New Delhi	Rs. 15.00 Lakhs
6.	Technology for vermi-compost plant at Orgram, Burdwan	Navsakti Cements Pvt. Ltd., Kolkata	Rs. 1.25 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Annexe Building of IIT Extension Centre,	IIT Kharagpur	Rs. 7.50 Lakhs

	Salt Lake, Kolkata.		
2.	Architectural Design for New Academic Complex at Bankura Unnayani Institute of Engineering	Bankura Unnayani Institute of Engineering, Subhankar Nagar, Pohabagan, Bankura	Rs. 8.97Lakhs
3.	Architectural Design for Rajiv Gandhi School Of Intellectual Property Law, IIT Kharagpur	Vinod Gupta Charitable Foundation	-
4.	Architectural Design for Rani Laxmi Bai Girls Hostel at IIT Kharagpur	IIT Kharagpur	Rs. 18.00 Lakhs
5.	Architectural Design for Renovation of Tagore Open Air Theatre	IIT Kharagpur	Rs. 15.00 Lakhs
6.	Architectural Design for Vikram Sarabhai Residential Complex for SRIC, IIT Kharagpur	IIT Kharagpur	-
7.	Architectural design of Nalanda class room complex at IIT Kharagpur campus	IIT Kharagpur	Rs. 72.00 Lakhs
8.	City Development Plan for Haldia	Haldia Development Authority	Rs. 22.47 Lakhs
9.	Comprehensive technical consultancy services for town planning, landscape, architectural design and infrastructural facilities for MTPS township, DVC, Mejia	Damodar Valley Corporation	Rs. 112.36 Lakhs
10.	Comprehensive technical consultancy services for town planning, landscape, architectural design and infrastructural facilities for KTPS township, DVC, Koderma	Damodar Valley Corporation	Rs. 146.06 Lakhs
11.	Master Plan of National Institute of Technology, Silchar Campus	NIT Silchar	Rs. 5.61 Lakhs
12.	Mobility Improvement Plan for Asansol	Asansol Municipal Corporation	Rs. 5.05 Lakhs
13.	Mobility Improvement Plan for Durgapur-Asansol Planning Area	Asansol Durgapur Development Authority	Rs. 12.35 Lakhs
14.	Mobility Improvement Plan for Haldia	Haldia Development Authority	Rs. 17.41 Lakhs
15.	Perspective Development Plan for Paschimanchal	Paschimanchal Unnayan Parishad, Government of West Bengal	Rs. 11.02 Lakhs
16.	Perspective Plan - Vision 2030 and Comprehensive Development Plans for Plan Areas of Bhubaneswar & Cuttack Dev. Authority	Housing and Urban Development Department, Govt. of Orissa	Rs. 165.29 Lakhs
17.	Perspective Plan 2030 for Planning areas	Asansol Durgapur	Rs. 27.55 Lakhs

	under ADDA and Burdwan Development Authority	Development Authority	
18.	Perspective Plan for Midnapore Kharagpur Development Authority	MKDA	Rs. 18.08 Lakhs
19.	Population Holding Capacity of Hyderabad	Municipal Corporation of Hyderabad	Rs. 17.50 Lakhs
20.	Preparation of Aizawl Master Plan	Aizawl Development Authority, Mizoram	Rs. 70.22 Lakhs
21.	Preparation of City Development Plan for Burdwan Planning Area	Burdwan Development Authority	11.23 Lakhs
22.	Preparation of Concept Note & EOI for establishment of Biotechnology Park at Kharagpur	West Bengal Industrial Development Corporation Ltd.,	Rs. 26.45 Lakhs
23.	Rapid Appraisal and Planning for Kulti and Panagarh	ADDA	Rs. 5.05 Lakhs
24.	Traffic Studies for Development of Spencer Mall, Kolkata, SYSTRA Consulting India Pvt. Ltd., (May 2007 onwards)	SYSTRA Consulting India Pvt. Ltd.	Rs. 2.0 Lakhs
25.	Traffic Study for Project- ITC East India, Kolkata	ITC Limited	Rs. 2.7 Lakhs
26.	Traffic Study for the Proposed Mixed Use Township Complex in Kasba Area, Kolkata	Bengal-NRI	Rs. 2.4 Lakhs
27.	Urban Environmental Information System and Environmental Profile for the ecocity project towns of Puri, Ujjain and Vrindavan	GTZ ASEM, Indo-German Environment Programme	Rs. 15.03 Lakhs

VISITS ABROAD BY FACULTY MEMBER

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| 1. | Dr. Subroto Chattopadhyay | Attended World Congress on Housing Science and networking, September 3-8, 2007 |
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LECTURE BY VISITING EXPERT

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| 1. | Ron Gupta | Mission Critical Facility Design and Fast Track Design |
| 2. | Sandipan Bhattacharya | Works by LSA, USA in Metro Cities of India |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
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1. Basina Uma Sankar Scheduling the Construction of Large Housing Projects : A Simulation-based Optimization Method

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Dr. Joy Sen	'Principles of Indian Architecture: a timeline study of her contributions on global patterns of civilizations' ISBN: 81-902768-4-0	Cygnus	2008
2.	Dr. Joy Sen	A Methodology to understand the basis of Tibetan Archaeology and Arts' in 'Studies in Sino-Tibetan Buddhist Art' [One Chapter]	The Sino-Tibetan Buddhist Studies Association in North America in association with CASS, Beijing, 2008) A chapter in The Monograph Series	2007
3.	Prof. B. K. Sengupta, Dr. Joy Sen & Haimanti Banerjee	History of Human Settlement	ITPI, New Delhi	2007
4.	Dr. Sanghamitra Basu	Investigations of Historical Structures: A Study of Rational & Irrational Forces [One Chapter]	Macmillan India Ltd	2007

LAURELS & DISTINCTIONS

1. Prof. Uttam Banerjee Awarded the Best Design for the Model Police Station, organized by the Bureau of Police Research and Development in July 2007.

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. National Programme for Capacity Building of Architects for 3 Years Earthquake Risk Management (NPCBAERM), sponsored by Ministry of Home Affairs, Govt. of India.

DEPARTMENT OF BIOTECHNOLOGY

HEAD : Professor Ananta Kumar Ghosh

FACULTY

Professor :

Kundu, Subhas Chandra	Ph.D. (BHU, Varanasi), Molecular Genetics
Das, Debabrata	Ph.D. (IIT Delhi), Biochemical Engineering, Bioprocess Development, Environmental Biotechnology
Dey, Satyahari	Ph.D. (IIT Kharagpur), Microbial & Plant Biotechnology Bioprospecting Transgenics & Molecular farming
Ghosh, Ananta Kumar	Ph.D. (Calcutta University), Molecular Virology
Das, Amit Kumar	Ph.D. (Calcutta University), Structural Biology & Protein Chemistry

Associate Professor :

Maiti, Tapas Kumar	Ph.D. (Kalyani University), Biochemistry
Ghosh, Sudip Kumar	Ph.D. (Kalyani University), Molecular Cell Biology and Immunology, Plant Biotechnology

Assistant Professor :

Sen, Ramkrishna	Ph.D. (IIT Madras), Biochemical & Bioprocess Engineering
Sar, Pinaki	Ph.D. (BHU, Varanasi), Environmental Microbiology Biotechnology
Ghosh, Anindya Sundar	Ph.D. (Calcutta University), Microbial Genetics, Antimicrobial Chemotherapy

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Process development & optimization for the production of an anti-tumor biosurfactant
2. Alkaline lipase production
3. Production of Bio-diesel and its evaluation
4. Bioremediation of heavy metals, radionuclides and organic pollutants; molecular analysis of microbial community structure and function at contaminated sites
5. Development of methods of o-antigens and its relation with pathogenicity in Gram negative bacteria
6. Bioreactor strategies for the enhanced production of probiotic endospores for Nutraceutical formulations and their clinical evaluation
7. Molecular characterization of metronidazole activation and deactivation pathways in *Entamoeba histolytica*

8. Molecular cloning and expression of *E. invadens* chitinase
9. Recombinant protein (therapeutic & diagnostic) expression in plant, animal and microbial systems
10. Structural and functional studies of protein from *M. tuberculosis* aiming at drug and inhibitor design
11. Improvement of hydrogen production from industrial waste using hybrid bioreactor
12. Continuous hydrogen production by immobilized recombinant *E. coli* BL-21
13. Establishment of EST database for tasar silkworm
14. Molecular analysis of cypovirus infecting tasar silkworm
15. Phytomedicine and molecular farming
16. Biomaterials and tissue engineering

Thrust Areas :

1. Biopharmaceuticals development (target and lead)
2. Bio-fuel
3. Bioremediation
4. Tissue Engineering

New Acquisitions :

1. Confocal microscope
2. LC MS-MS Bioanalyzer
3. Laboratory Microscope water purification system
4. Spray drier Lyophilizer
5. UPS
6. X-ray diffraction machine for macromolecular crystallography
7. Gel apparatus
8. Microcentrifuge

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	A study of micro scale transport processes leading to the development of cooling strategy for electronic components	DIT, New Delhi	Rs. 89.75 Lakhs
2.	Amelioration of hydrogen production from sewage sludge using <i>Enterobacter Cloacae</i> IIT-BT 08	DBT, New Delhi	Rs. 14.03 Lakhs
3.	Baseline survey of microbial community structure present in uranium mine areas of UCIL Jaduguda, Jharkhand	DAE, Mumbai	Rs. 23.62 Lakhs
4.	Bio hydrogen production by investigation on the hydrogenase coding gene of high yielding strain of	USA	Rs. 5.25 Lakhs

	Enterobacter cloacae IITBT08 in fast growing E.coli		
5.	Bioinformatics SUB-DIC Programme-DIC	DBT, New Delhi	Rs. 10.00 Lakhs
6.	Bioprocess Development & Optimization for the production and characterization of a Bio surfactant of Marine origin for commercial & Health care Applications	DBT, New Delhi	Rs. 35.16 Lakhs
7.	Bioprocess Development and Optimization for the Production of an Anti-tumor Biosurfactant	IIT Kharagpur	Rs. 3.00 Lakhs
8.	Bioprocess Development, Optimization and Bioreactor Strategies for the Laboratory Scale Manufacture of Nutraceutical Formulations	CSIR, New Delhi	Rs. 13.00 Lakhs
9.	Bioremediation of nuclear wastes : removal of radionuclides/metals and degradation of organic contaminants	DAE, Mumbai	Rs. 10.00 Lakhs
10.	Characterization of silk protein sericin from Indian tropical tasar silkworms	DST, New Delhi	Rs. 23.18 Lakhs
11.	Characterization of two histidine kinases and their cognate response regulator involved in signal Transduction system of Mycobacterium tuberculosis	DBT, New Delhi	Rs. 23.68 Lakhs
12.	Cloning and characterization of a fungal protease inhibitor from the hemolymph of tasar silkworm <i>Antheraea mylitta</i>	ICMR, New Delhi	Rs. 18.00 Lakhs
13.	Crystal structure determination of a β -Carbonic anhydrase (mCA) from Mycobacterium tuberculosis	DST, New Delhi	Rs. 19.88 Lakhs
14.	Development of silk proteins based biomaterials (SPB)	DBT, New Delhi	Rs. 28.00 Lakhs
15.	Establishment of an in vivo Method for Detection of O-antigens in Gram-Negative Bacteria	DBT, New Delhi	Rs. 21.00 Lakhs
16.	Extraction characterization and optimized production of a natural dye from Amaranthus for commercial applications	DBT, New Delhi	Rs. 24.40 Lakhs
17.	FIST program in Biotechnology	DST, New Delhi	Rs. 105.00 Lakhs
18.	Functional characterization of soluble penicillin-binding protein 6 of E. coli	DST, New Delhi	Rs. 21.38 Lakhs
19.	Improvement of hydrogen production from industrial wastes using hybrid bioreactor	DBT, New Delhi	Rs. 23.72 Lakhs
20.	Maximization of gaseous energy recovery by simultaneous hydrogen production and bio methanation	DBT, New Delhi	Rs. 21.55 Lakhs
21.	Microbial removal of heavy metals and	DST, New Delhi	Rs. 7.57 Lakhs

	radionuclides from industrial wastes		
22.	Microorganism based bioremediation of heavy metals and radionuclides containing wastes: understanding the mechanism and process development	CSIR, New Delhi	Rs. 13.46 Lakhs
23.	Modernization and up gradation of Biochemistry and Down stream processing Laboratory	MHRD, New Delhi	Rs. 13.00 Lakhs
24.	Molecular cloning and characterization of <i>Antheraea mylitta</i> cytoplasmic polyhedrosis virus genome segments 8 and 11	CSIR, New Delhi	Rs. 10.70 Lakhs
25.	Molecular epidemiology and identification of immunodominant antigen of <i>Entamoeba</i> in amoebic patients	ICMR, New Delhi	Rs. 20.00 Lakhs
26.	Optimisation of human fibroblast growth factors (diagnostic) production in recombinant plant cells in bioreactor	MHRD, New Delhi	Rs. 12.00 Lakhs
27.	Optimization and production of <i>Antheraea mylitta</i> cytoplasmic polyhedrosis virus anti-polyhedrin monoclonal antibody in bioreactor	MHRD, New Delhi	Rs. 12.00 Lakhs
28.	Scale-up studies on production of hydrogen from <i>Enterobacter cloacae</i> IIT-BT 08	MNCES, New Delhi	Rs. 24.90 Lakhs
29.	Scale-up studies on the production of therapeutically important protein (FGF 8) by recombinant <i>E. coli</i> (Ministry of Human Resource Development)	DST, New Delhi	Rs. 12.00 Lakhs
30.	Screening of <i>Aloe vera</i> L germplasms for cosmetic gel and micropropagation of elite clones	DST, New Delhi	Rs. 14.58 Lakhs
31.	Silencing of gene expression in protozoan parasite <i>Entamoeba histolytica</i> by RNAi	CSIR, New Delhi	Rs. 14.00 Lakhs
32.	Structural and functional studies of major pathogenic proteins of <i>M. tuberculosis</i> (Part -II) (Indo-Norwegian Institutional Cooperation Programme)	INICP, New Delhi	Rs. 31.75 Lakhs
33.	Studies on magnetic nanoparticle assisted hyperthermia activation of enediynes in cancer cells	DBT, New Delhi	Rs. 29.61 Lakhs
34.	Studies on the Fe-hydrogenase genes of prokaryotes and eukaryotes for the improvement of hydrogen production	DST-DAAD, New Delhi	Rs. 3.92 Lakhs
35.	Studies on the immunomodulatory properties of <i>Aloe vera</i> gel and its products	DARL, New Delhi	Rs. 9.97 Lakhs
36.	Synthesis characterization and	DBT, New Delhi	Rs. 60.72 Lakhs

	application of surface functionalized magnetic metal nano-particles for bioseparation and diagnostics		
37.	Technology development & transfer for selected medicinal plants: approach through R&D and ex-situ cultivation	NMPB, New Delhi	Rs. 15.00 Lakhs
38.	Understanding the signalling mechanism from the crystal structures of the two component system proteins and protein phosphatases of Mycobacterium tube	DBT, New Delhi	Rs. 292.80 Lakhs
39.	Exploration of microbial diversity and catabolic potential in contaminated environment : prospect to bioremediation	DST, New Delhi	Rs. 11.80 Lakhs
40.	Exploring the immunopotential of mushroom glucan/proteoglycan as biological response modifier	DST, New Delhi	Rs. 24.49 Lakhs
41.	Cell culture inside the microfluidic channels with extended air water interface	DBT, New Delhi	Rs. 17.40 Lakhs
42.	Molecular approach for monitoring drug resistant malaria parasite in the malaria endemic zone in West Bengal	DST, New Delhi	Rs. 6.36 Lakhs
43.	Silk Protein matrix for cell based tissue engineering	IUSSTF, New Delhi	Rs. 50.33 Lakhs
44.	Biosynthetic silk hydrogel extra cellular matrix analogues for mammalian cell support and drug delivery	DBT, New Delhi	Rs. 45.42 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Establishment of Biotechnology Park Kharagpur : Concept paper	WBIDC	Rs. 24.00 Lakhs
2.	Herbal / bioproduct development : preparation of preliminary report	B. Singha & Co	Rs. 0.10 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Subhas Chandra Kundu	To attend International conference and to carry out part of collaborative research (Gwangju Institute of Science and Technology, Korea)
2.	Prof. Subhas Chandra Kundu	To present paper at International Conference on cellular & Molecular Bioengineering, Singapore
3.	Prof. Subhas Chandra Kundu	To discuss about the collaborative research work, Taiwan National University, Taiwan
4.	Prof. Subhas Chandra Kundu	To discuss about the collaborative work on Biomaterials, Kuala Lumpur Medical University,

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| 5. | Prof. Subhas Chandra Kundu | Malaysia
To present paper at International conference on fibrous protein, University of New South Wales, Sydney and Melbourne, Australia |
| 6. | Prof. Debabrata Das | Invited lecture at the BIO Pacific Rim submit on Industrial Biotechnology and Bioenergy, Honolulu Hawaii, USA |
| 7. | Dr. Pinaki Sar | BOYSCAST- Fellow, Department of Biochemistry and Cell Biology, Rice University, Houston, USA |

INVITED LECTURES BY FACULTY MEMBERS

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| 1. | Prof. Subhas Chandra Kundu | Application of mulberry and non mulberry silk proteins 2D films and 3D scaffolds (Taiwan National University, Taiwan) |
| 2. | Prof. Subhas Chandra Kundu | Silk Protein matrices for cell based tissue engineering (GIST, Korea) |
| 3. | Prof. Subhas Chandra Kundu | Silk Protein for cell based biomedical applications (IIT Kanpur) |
| 4. | Prof. Subhas Chandra Kundu | Silk based biomaterials (San Diego, University of California) |
| 5. | Prof. Debabrata Das | The Synergy of two-stage fermentation process: an approach towards amelioration of biohydrogen production (Aachen University, Germany) |
| 6. | Prof. Debabrata Das | Biohydrogen production by <i>Enterobacter cloacae</i> : an approach towards commercialization (IIT Guwahati) |
| 7. | Dr. Ramkrishna Sen | Biosurfactant enhanced environmental bioremediation (WBUT, Kolkata) |
| 8. | Prof. Satyahari Dey | Investment opportunities utilizing plant resources (New Delhi) |
| 9. | Dr. Pinaki Sar | Bioremediation : how it works and why to adop this (Department of Civil Engineering, IIT Kharagpur) |

LECTURE BY VISITING EXPERT

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| 1. | Dr. Nikhil Basu, Staff Scientist, National Institute of Health, Bethesda, Maryland, USA | Phosphorylation of UDP-Glucuronosyl transferases : Its functional impacts on drug metabolism and detoxification |
| 2. | Dr. Arindam Banerjee, Scientist, Indian Institute of Chemical Biology, Jadavpur, Kolkata | Nanomaterials in Biology |
| 3. | Dr. Jitendra Thakur, Department of Cell Biology, Harvard Medical School, USA | Fungal analogs of metazoan nuclear receptors |

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| 4. | Dr. Giyoong Tae, Department of Materials Science and Engineering, Gwangju Institute of Science & Technology (GIST), Korea | Delivery of Biological Molecules |
| 5. | Prof. Young Ha Kim, Department of Materials Science and Engineering Gwangju Institute of Science & Technology (GIST), Korea | Mechano-active tissue engineering |
| 6. | Dr. Saikat Chakrabarty, National Cancer for Biotechnology Information (NCBI), USA | Towards understanding of structural, functional and evolutionary diversities among proteins |
| 7. | Dr. Ananda Sarkar, Cold Spring Harbor Laboratory, New York, USA | Stem cell regulation and small RNA mediated organ patterning in higher plants |
| 8. | Dr. Penny Martens, University of New South Wales, Australia | Synthetic Hydrogels for Tissue Engineering |
| 9. | Dr. Dipankar Chatterji, Indian Institute of Science, Bangalore | Tracking a single molecule at the central dogma of Molecular Biology |
| 10. | Dr. Pratima Roy, All Indian Institute of Medical Sciences, New Delhi | Development of Vaccine against childhood diarrhea |
| 11. | Dr. Jasim Ahamed, Rockefeller University, New York, USA | Is there life after heart attack |
| 12. | Dr. Santosh Panjikar, EMBL Hamburg outstation, DESY, Germany | Automated structure determination as a tool for validation of X-ray data and crystal structure determination of enzymes involved in Ajmaline Biosynthetic pathway |
| 13. | Dr. Srirupa Mukhopadhyay, Indian Institute of Chemical, Biology, Kolkata | Role of 1 integrin activation in oxidized LDL mediated atherosclerosis |
| 14. | Dr. Suryasarathi Dasgupta, INSERM UMRS 872, Paris, France | Investigation on the genesis of immune response to therapeutic factor VIII |
| 15. | Dr. Sanjay Banerjee, University of Pittsburgh, PA – 15206 | Genetic of cardiovascular diseases: from PRKAG2 mutations to Glycogen Storage cardiomyopathy |
| 16. | Dr. Pijush K. Das, Indian Institute of Chemical Biology, Kolkata | Role of intracellular cAMP in resistance against macrophage oxidative damage in <i>Leishmania donovani</i> |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Devrani Mitra	Structure characterization of mammalian cell entry proteins and peptidyl-prolyl cis-trans isomerase A of Mycobacterium tuberculosis
2.	Dipanjan Ghosh	Immunomodulatory and anti tumor effects of abrus agglutinin
3.	Rashmi Shrivastava	Protein-Protein interaction of two component signal transduction proteins coded by Rv0606c, Rv0601c and Rv0602c of Mycobacterium tuberculosis

PATENTS GRANTED

1. Prof. P. Das, Dr. R. Sen, Mr. B. B. Ghosh, Mr. H. B. Prasad, Prof. S. Dey A Novel Biofuel Additive for Diesel Engines
2. Prof. D. Das Development of high rate and yield hydrogen production process

LAURELS & DISTINCTIONS

1. Dr. Ramkrishna Sen Biographical profile published in the Marquis Who's Who in the World
2. Prof. Debabrata Das International Association for Hydrogen Energy (IAHE) Akria Mastusi Award
3. Dr. Ramkrishna Sen Travel Grant under UKIERI Programme, British Council
4. Prof. Debabrata Das Fellow-INAE
5. Dr. Pinaki Sar BOYSCAST Fellowship, DST- India

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Bioinformatics in Genomics and Proteomics 2 days
2. International Conference on Biohydrogen Production Technology (IWBT-2008) 3 days

DEPARTMENT OF CHEMICAL ENGINEERING

HEAD : Professor Dibyendu Mukherjee

FACULTY

Professor :

Das Gupta, Sunando	Ph.D.(RPI, New York), Transport Phenomena, Membrane Separation
De, Sirshendu	Ph.D.(IIT Kanpur), Transport Phenomena, Membrane Separation, Heat Transfer
Mukherjee, Dibyendu	Ph.D.(IIT Kharagpur), Multiphase Flow, Modeling & Simulation.
Pradhan, Narayan Chandra	Ph.D.(UDCT Bombay), Mass Transfer Operations, Petroleum Refinery Engineering, Petrochemical Technology, Reaction Engineering
Samanta, Amar Nath	Ph.D. (IIT Kharagpur), Advanced Process Control, Nonlinear Process Control

Associate Professor :

Basu, Jayanta Kumar	Ph.D.(IIT Kharagpur), Reaction Engineering, Adsorption and Separation Science, Water Pollution Control
Chakraborty, Sudipto	Ph.D.(IIT Kharagpur), CFD and Heat Transfer, Real-time Process Modeling & Simulation, Mineral Beneficiation
Das, Gargi	Ph.D.(IIT Kharagpur), Multiphase Flow, Two Phase Instrumentation, Fluid Mechanics
Ganguly, Saibal	Ph.D.(IIT Kanpur), Refinery, Petrochemicals, Polymer, Coal, Real Time Simulation & Control, Optimization
Kargupta, Kajari	Ph.D.(IIT Kanpur), Interfacial Fluid Dynamics, Thin Films, Nano-science
Kundu, Gautam	Ph.D.(IIT Kharagpur), Polymer Engineering, Fluid Dynamics, Mineral Engineering
Neogi, Sudarsan	Ph.D.(Ohio University), RF Plasma Processing, Plasma Deposition, Material Syntheses using RF Plasma, Chemical Vapor Deposition, Plasma Processing for Biomedical Application
Neogi, Swati	Ph. D.(Ohio University), Polymer Application Research, Composite manufacturing technology, Materials development, Fiber optics Cable design, Polymer fracture analysis/durability, Flame retardant materials development
Patwardhan, Anand Vinayak	Ph.D.(UDCT Mumbai), Green Technology, Mass Transfer Operations, Heterogeneous Reactions, Microchannel Reactors

Assistant Professor :

Chakrabarty, Saikat	Ph.D.(University of Houston), Chemical Reaction
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Ganguly, Somenath	Engineering, Biomedical Engineering Ph.D.(University of Kansas), Flow through thin channel, porous medium, membrane separation, Numerical methods & use of AI based tool, Visco-elasticity & diffusion in hydrogel
Jana, Amiya Kumar	Ph.D.(IIT Kharagpur), Reactive Distillation, Control System, Modeling and Simulation
Kar, Debdulal	Ph.D.(IIT Kharagpur), Fluidization Engineering, Mineral Beneficiation
Meikap, Bhim Charan	Ph.D.(IIT Kharagpur), Industrial Pollution Control, Hazardous Waste Management and Safety, Multi-Phase Flow System, Environmental Engineering
Ray, Subhabrata	M.Tech.(IIT Kharagpur), Petroleum Refining, Process Control
Sengupta, Sonali	Ph.D.(UDCT Mumbai), Heterogeneous and homogeneous catalysis, Petroleum and petrochemicals engineering

Emeritus Professor :

Saha, Ranajit Kumar	Ph.D.(IIT Kharagpur), Combustion Engineering, Fuels & New Energy Conversion Processes, Fluidization Engineering
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Officer :

Brahma, Nitosh Kumar	Dipl. Ing. (TUB, Berlin), Biomedical Engineering & Bacterial Pathogen, Bio & Nano biotechnology, Organic & Bio-chemistry in CEP, Bioleaching of Minerals
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Prof. Somnath Ganguly	Assistant Professor
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Faculty Promotion :

Prof. Swati Neogi	Associate Professor
Prof. N. C. Pradhan	Professor
Prof. S. De	Professor

Faculty Retirement :

Prof. R. K. Saha	Professor
Prof. D. Bhattacharya	Assistant Professor

Faculty on Re-employment (Upto 65 years age) :

Prof. R. K. Saha	Emeritus Professor
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Faculty Resignation :

Prof. Kajari Kargupta

Associate Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Heterogeneous reactions with application to chemical process development with special emphasis on greener alternatives
2. Utilisation of non-edible oils for manufacturing of value-added chemicals
3. Steam reforming of petroleum feedstock in mini-and micro-reactors for production of Hydrogen
4. Advanced separation processes involving membranes with emphasis on water purification, dye removal, effluent treatment processes etc.
5. Simulation and modeling of coal & biomass combustion processes in pulverized and fluidized combustors
6. Multi-phase processes & reactions in gas-liquid, liquid-solid, solid-liquid and liquid-liquid systems using pipelines, ejector based systems, fluidized bed, column flotation etc.
7. Real-time inferencing & property prediction for polymerization reactor, blast furnace reactor etc.
8. Development of innovative catalysts from fly ash for organic chemical synthesis (alkylation, isomerisation etc.)
9. Development & performance of novel bubble column scrubber/reactor for removal of SO₂ and fly ash
10. Technology of composite materials
11. Pattern Formation of Soft Materials utilizing Interfacial Instability
12. Training of Personnel for construction and maintenance of Bio Gas Plants

Thrust Areas :

1. Green chemical process technology
2. Advanced separation processes & environmental process engineering
3. Multiphase flow and reaction engineering
4. Petroleum reaction engineering & petrochemical processes
5. Real-time process control
6. CFD application in chemical processes and equipment design
7. Technology of composite materials
8. Thin Films, Interfacial and Nano Science
9. Hydrogen Production by steam reforming in micro reactor
10. Manufacture and testing of Polymer Composites

New Acquisitions :

1. Particle Size Analyzer
2. Ammonia TPD Apparatus
3. Bubble Cap Distillation Column
4. Stefan Boltzmann Apparatus

5. Spray Column Extraction Unit
6. Pressure Drop in Pipe Fittings
7. Hydrocyclone
8. Flow through Nozzles
9. Vapor-liquid Equilibrium Data Collection Cell
10. Thermal Conductivity Measurement

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Investigations on oil-water core-annular flow through experiments and theoretical analysis for the production and processing of heavy oils	IIT, Kharagpur	Rs.1.00 Lakh
2.	A study of Microscale transport processes leading to the development of a cooling strategy for electronics components	Department of Information Technology	Rs.89.76 Lakhs
3.	Abatement of Dust, SO ₂ and NO _x by Wet Scrubbing Process	MHRD, New Delhi	Rs.8.00 Lakhs
4.	Ammonia Production By Using Urea For Flue Gas Conditioning	National Thermal Power Corporation (NTPC), New Delhi	Rs.65.00 Lakhs
5.	Bio Gas development & training Centre	Ministry of New & Renewable Energy	Rs.6.00 Lakhs
6.	CFD and experimental study of multi-phase systems (solid-liquid and gas-liquid)	IIT Kharagpur	Rs.3.00 Lakhs
7.	Composite Applications Laboratory	TIFAC, DST, New Delhi	Rs.346.20 Lakhs
8.	Computational fluid dynamics modeling and flow visualization of a gas liquid mixture through a nozzle and subsequent spray	MHRD, New Delhi	Rs.9.00 Lakhs
9.	Design of bench scale unit for chemical beneficiation	Tata Steel, Jamshedpur	Rs.15.00 Lakhs
10.	Development of Catalysts for Petroleum Refining from Flyash	MHRD, New Delhi	Rs.5.00 Lakhs
11.	Development and application of ceramic foam supported catalysts in petrochemical industries	CSIR, New Delhi	Rs.8.04 Lakhs
12.	Development and characterization of a high efficiency wet scrubber with internals for air pollution control	IIT Kharagpur	Rs.3.00 Lakhs
13.	Development of client server and GUI based optimization and control network for utilization in the chemical leaching pilot	Tata Steel Limited, Jamshedpur	Rs.11.60 Lakhs

	plant of Tata Steel		
14.	Development of low cost household filter for arsenic and other pollutant free drinking water using modified laterite	DST, New Delhi	Rs.20.40 Lakhs
15.	Development of new regeneration process with the chemical leaching circuit to upgrade high ash Indian coal	Tata Steel, Jamshedpur	Rs.13.00 Lakhs
16.	Development of optimally controlled drug release device using multilayered electroactive nanopolymers	DBT, New Delhi	Rs.28.60 Lakhs
17.	Development of sensors for gas-liquid and liquid-liquid two phase flow	MHRD, New Delhi	Rs.14.00 Lakhs
18.	Flow visualization and theoretical prediction of transition criteria during up flow of liquid-liquid and gas-liquid-liquid mixtures through Vertical a	DST, New Delhi	Rs.7.32 Lakhs
19.	Flux enhancement and fouling reduction during effluent (leather & dye) treatment using membrane separation	DST, New Delhi	Rs.22.00 Lakhs
20.	Formation of ordered meso patterns using interfacial instability and dewetting polymers	DST, New Delhi	Rs.20.00 Lakhs
21.	Hydrodynamic study of Vortex and air-core formation in a two phase flow for simple geometries	Tata Steel, Jamshedpur	Rs.2.20 Lakhs
22.	Hydrodynamics Studies on Micro Bubble Generators	Tata Steel, Jamshedpur	Rs.4.62 Lakhs
23.	Micellar enhanced ultrafiltration for removal of organic and inorganic pollutants from aqueous streams	DST, New Delhi	Rs.10.00 Lakhs
24.	Nonlinear State Estimation and Control of a Reactor for Heterogeneous Reaction	IIT, Kharagpur	-
25.	Performance Evaluation of Bag Filters in the Sponge Iron Plants in Orissa-Field Investigation	Min. of Environment & Forest, Govt. of Orissa	Rs.32.00 Lakhs
26.	Performance study of a hydrocyclone	Tata Steel, Jamshedpur	Rs.8.00 Lakhs
27.	Process development and engineering analysis of greener routes for commercially important organic diisocyanates, and epoxidised non-edible oils	IIT Kharagpur	Rs.3.00 Lakhs
28.	Removal of Toxic Dyes from Industrial Effluent using a Copmbination of Adsorption and Membrane Separation Process	MHRD, New Delhi	Rs.8.00 Lakhs
29.	Steel Technology Centre	DST, New Delhi	Rs.2025.00 Lakhs
30.	Studies in Reforming of Methane to Syn Gas in Mini & Micro-reactor for Production of Hydrogen	Min. of Chemical & Fertilizer, New Delhi	Rs.50.00 Lakhs
31.	Studies on Effective Use of Microwave	CSIR, New Delhi	Rs.13.30 Lakhs

	Energy for Green Mineral Beneficiation and Pipe Line Slurry Transport		
32.	Studies on in-situ Reaction and Separation of Steam Reforming Product Mixtures in Membrane Reactor	Min. of Chemicals & Fertilizer, New Delhi	Rs.71.53 Lakhs
33.	Surfactant based separation processes for the treatment of industrial effluent	MHRD, New Delhi	Rs.13.00 Lakhs
34.	Synthesis & Characterization of Semiconducting Polymers	IIT, Khagagpur	Rs.3.00 Lakhs
35.	Synthesis & Engineering of Advanced Materials Using RF Plasma for Chemical, Microelectronic, Biochemical and Biomedical Applications	DST, New Delhi	Rs.58.13 Lakhs
36.	Utilization of Hydrogen Sulphide for the Production of Value-Added Chemicals	CSIR, New Delhi	Rs.11.96 Lakhs
37.	Water lubricated transport of heavy oils – experimentation and theory	DST, New Delhi	Rs.19.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Behavior of coating on optical fiber performance	Sterlite Optical Technologies	Rs.0.30 Lakhs
2.	Consultancy input for Data Acquisition and Control at Tata Steel	Tata Steel	Rs.2.00 Lakhs
3.	Consultancy Input for design and optimization & evaluation of Technoeconomics	Tata Steel, Jamshedpur	Rs.9.17 Lakhs
4.	Consultancy Input for design of operator station with structured database for pilot unit	Tata Steel, Jamshedpur	Rs.6.25 Lakhs
5.	Consultancy input for upgradation of Indian Coal at Tata Steel	Tata Steel	Rs.9.00 Lakhs
6.	Consultancy Input on Design and Hydrodynamics Studies of Micro Bubble Generator	Tata Steel, Jamshedpur	Rs.2.50 Lakhs
7.	Design and development of a mathematical model for ultra fast cooling of steel strips	Tata Steel, Jamshedpur	Rs.5.61 Lakhs
8.	Design of an industrial scale hydrocyclone	Tata Steel, Jamshedpur	Rs.6.56 Lakhs
9.	Design of bubble column with external bubble generator	Tata Steel, Jamshedpur	Rs.6.00 Lakhs
10.	Design Verification of Bag Filters installed at various Sponge Iron Plants in Orissa	State Pollution Control Board, Orissa, Bhubaneswar	Rs.11.82 Lakhs
11.	Development of mixing model for alloy dissolution in steel ladles	Tata Steel, Jamshedpur	Rs.4.00 Lakhs
12.	Development Of Software For Design Of	TISCO, Jamshedpur	Rs.2.12 Lakhs

	Two Phase Flow System With Simple Geometries		
13.	Development of Synthetic Resins	Suparna Chemicals Limited, Mumbai	Rs.4.00 Lakhs
14.	Exploratory Work on Dry Beneficiation of Iron Ore and Coal Fines	Tata Steel	Rs.2.97 Lakhs
15.	Lime Calcination project at TISCO	TISCO	Rs.2.00 Lakhs
16.	Optical fiber cable design & process	Sterlite Optical Fiber Technologies Ltd.	Rs.0.30 Lakhs
17.	Real Time Simulator and expert GUI for Blast Furnaces	NML Jamshedpur	Rs.40.00 Lakhs
18.	Scoping Study for development of Chemical Leaching pilot plant for Tata Steel	Tata Steel Jamshedpur	Rs.3.00 Lakhs
19.	Technical Support and guidance to Improve Quality of Lead Acid Battery	Bright Solar	Rs.0.25 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Mr. Nitosh Kumar Brahma To present papers entitled PPP-C and IT, BT and NT in Social reform (University Vrijee, Amsterdam and University Granada, Spain), 14 days
2. Dr. Sonali Sengupta Visiting Professor (Lunghuya University of Science and Technology, Taiwan and Vanung University of Technology, Taiwan), 7 days
3. Prof. Narayan Chandra Pradhan Collaborative research as Visiting Scientist (University of Saskatchewan, Saskatoon, Canada), July 2 - December 24, 2007

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. Sudipto Chakraborty Heat transfer augmentation using nano-fluid (National Workshop on modeling of fluids – macro to nano scale, IIT Kharagpur)
2. Mr. Nitosh Kumar Brahma MBT (Microbial Biotechnology); EBT (Environmental Biotechnology), MBPT (Microbial Bioprocess) and CPT (Institute of genetic Engineering, Badu, Kolkata-700128)
3. Dr. Bhim Charan Meikap Abatement of Hazardous Gaseous Pollutants in a Multi-Stage Fluidized Bed Reactor (National Institute of Techology, Rourkela)
4. Prof. Sirshendu De Desalination (IIT, Guwahati)
5. Prof. Sirshendu De Industrial Applications of Membrane Separation Processes (IIT, Guwahati)
6. Prof. Sunando Das Gupta Membrane Surface Modification using Plasma Treatment (2007) (IIT, Guwahati)
7. Prof. Sunando Das Gupta Flux Enhancement Techniques in Membrane

LECTURE BY VISITING EXPERT

- | | |
|--|---|
| 1. Mr. Partha S. Deb, VP, Reliance Industries Ltd., Mumbai | Oil-refining Technology & Oil-refining Scenario in India |
| 2. Dr. Dibakar Das, PDF, University of Cincinnati, USA. | Synthesis and Characterization of Diamond Thin Film for High Performance Electronics Applications |
| 3. Prof. Vishwas G. Pangarkar, Professor, Department of Chemical Engineering, UICT, University of Bombay, Mumbai | Academic as an Industrial Consultant |
| 4. Prof. Jerry Y. S. Lin, Chairman & Professor, Department of Chemical Engineering, Arizona State University, Tempe, USA | Microporous Inorganic Membranes for Gas Separation <i>by</i> |
| 5. Dr. Ujjwal K. Ghosh, RE, CRC for Greenhouse Gas Technologies, The University of Melbourne, Victoria, Australia | Carbon Capture and Storage in Australia – an Overview |
| 6. Dr. Rabibrata Mukherjee, Scientist 'C', CGCRI, Kolkata | Instability, Self-Organization and Patterning of Thin Polymer Films |

THESES (Doctoral and MS)

- | # | Name of Scholar | Title of Thesis |
|----|---------------------|--|
| 1. | Sunil Kumar Maity | Multiphase Reactions (Utilization of Hydrogen Sulfide for the Production of Value-added Chemicals) |
| 2. | Vaibhav Vasant Goud | Heterogeneous Reactions (Epoxidation of Non-edible Vegetable Oils: Development of Value-added Products from Renewable Natural Sources) |
| 3. | Ujjwal Ghosh | Studies on Membrane Pervaporation: Separation of Organics from Aquuous Solutions and Intensification of Chemical Reactions |
| 4. | Rajaram Vijayan | Studies in Synthesis and Characterisation of Ceramic Membranes for Hydrogen Separation |

PATENTS GRANTED

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| 1. Dr. Bhim C. Meikap | A Modified Multi-Stage Bubble Column for Versatile , High Efficiency Gas-liquid /Gas-Liquid-Solid contacting |
| 2. Prof. Narayan C. Pradhan | A Process for the Manufacture of Polyurethaneurea |

3. Prof. Sirshendu De Process for recovery of inorganic chemicals from kraft black liquor

LAURELS & DISTINCTIONS

1. Prof. Sirshendu De Dr. A. V. Rama Rao Foundations's award, IChE
2. Dr. Bhim Charan Meikap GE Ecomagination Award-2007 for Best M. Tech. Thesis and Research
3. Dr. Gautam Kundu IIME Best Paper Published Award on Beneficiation

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Workshop on "Filament Winding Technology" April 12–13, 2007
2. "ChemInsIghT2008" Conference March 14–6, 2008

DEPARTMENT OF CHEMISTRY

HEAD : Professor Amit Basak

FACULTY

Professor :

Basak, Amit	Ph.D.(Calcutta), D.Phil.(Oxon), Organic / Bioorganic Chemistry
Bhattacharjee, Manish	Ph.D.(NEHU), Inorganic Chemistry, Organometallic Chemistry
Chattaraj, Pratim Kumar	Ph.D.(IIT Bombay), Theoretical Chemistry, Quantum Chaos, Quantum Toxicology
Mal, Dipak Ranjan	Ph.D.(Missouri), Organic chemistry
Pathak, Tanmaya	Ph.D.(Uppsala, Sweden), Bioorganic Chemistry
Pal, Tarasankar	Ph.D.(Burdwan University), D.Sc. (Viswabharati University), Inorganic Chemistry
Pramanik, P	Ph.D.(IIT Kharagpur), Nano Materials, Material Chemistry, Advanced Ceramic, Optical Materials, Catalyst, Mesoporous Material
Ray, Debashis	Ph.D.(Jadavpur University), Synthetic Inorganic Chemistry, Metallacrown complexes, Magnetically coupled metal complexes.
Ray, Jayanta Kumar	Ph.D.(Calcutta University), Synthetic Organic Chemistry
Roy, Sujit	Ph.D.(Kanpur), Homogeneous Catalysis, Organometallic Chemistry
Sarkar, Tarun Kumar	Ph.D.(Calcutta University), Organic chemistry, Organometallic chemistry
Srivastava, Suneel Kumar	Ph.D.(IIT Kharagpur), Solid State Chemistry

Associate Professor :

Bandyopadhyay, Sanjoy	Ph.D.(IISc., Bangalore), Theoretical and Computational Chemistry, Computational Biophysics, Molecular Modeling
Das Gupta, Swagata	Ph.D.(RPI New York), Protein Chemistry, Biophysical Chemistry, Protein Structure Analysis
Dey, Joykrishna	Ph.D.(IIT Kanpur), Physical Chemistry
Hajra, Saumen	Ph.D.(Pune University), Synthetic Organic Chemistry
Maiti, Mrinal Mohan	Ph.D.(IIT Kharagpur), Polymer Chemistry
Sarkar, Nilmoni	Ph.D.(Jadavpur University), Physical Chemistry
Taraphder, Srabani	Ph.D.(IISc., Bangalore), Theoretical Physical Chemistry, Statistical Mechanics

Assistant Professor :

Biradha, Kumar	Ph.D.(Hyderabad), Structural Chemistry
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Halder, Mintu	Ph.D.(IACS), Ultra Fast Spectroscopy, Spin Chemistry, Biophysics, Chemical Education
Mahanty (Pathak), Amita	Ph.D.(IIT Kharagpur), Nanomaterials : Synthesis & Characterization, Solid State Chemistry
Mani, G	Ph.D (IISc., Bangalore), Synthetic Inorganic Catalysis and Nanomaterials
Milton, Marilyn Daisy	Ph.D. (Delhi), Organometallic Chemistry, Synthetic Organic chemistry, Homogeneous Catalysis
Nag, Ahindra	Ph.D.(Jadavpur University), Bioorganic Chemistry
Nanda, Samik	Ph.D.(IICT, Hyderabad), Organic Chemistry
Singh, Pradeep N.D.	Ph.D.(Madras University), Organic Photochemistry
Raj, C Retna	Ph.D.(Madurai Kamaraj University), Biosensor, Nanomaterials, Electroanalytical Chemistry

Visiting Assistant Professor :

Dhara, Dibakar	Ph.D. (Osmania University), Polymer, Physical Chemistry
Rajakumar, A.	Ph.D., Environmental Analytical Chemistry

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The department is actively pursuing research embracing both basic and applied aspects of chemistry. Currently, the department is handling over 40 sponsored projects from various agencies. The department is equipped with various sophisticated instruments such as Bruker-Nonius MACH-3 Single Crystal X-ray Diffractometer, A Bruker AC 400 NMR Spectrometer, Bruker AC 400 NMR Spectrometer, Shimadzu DT-40 model 883 IR Spectrometer, PW-1729/1710 X-Ray Diffractometer, Cyclic Voltammeter Model P9001, Chrompac Gas Chromatograph and JASCO DIP 30 digital polarimeter, Spex Fluorolog 3 fluorimeter, and a Perkin Elmer C240 CHN Analyzer. Active research in synthetic organic and inorganic chemistry is underway on the design and synthesis of novel enediynes as DNA cleaving agents, on the total synthesis of bioactive natural products such as anthracyclines, angucyclines, furocomarines, indole alkaloids, furoterpenes, lactams and heterocyclic quinonoids. Enzyme mediated synthesis and a substrate analog approach to determine the active site of enzymes is being studied as is the enzyme inhibition approach to drug design. Isolation and characterization of an angiogenic protein is in progress with an aim to determine the specificity by studying several dinucleotide substrates. Supramolecular chemistry relating to these awareness and redox switchable receptors is in progress. Development of highly selective and green methodologies based on organometallic, radical and Chiron approaches. In the area of catalysis, micellar, zeolite and bimetallic catalysts are being developed. In the field of bioinorganic chemistry, research is being pursued on electron transfer processes with emphasis in dioxygen chemistry. Department's research interest also cover helical coordination by covalent organic strands via self-assembly allowing incorporation of cations and anions in a variety of coordination modes within 3 d metal clusters. Work on metallamacrocycles has generated significant scope for self-assembly and control of magnetic exchange phenomena. Active research is also underway in the areas of crystal engineering and development of metal nanoparticles, nanocrystalline

ferrites, ceramics and composites. Materials for high temperature and superconducting applications and solar energy conversion are also underway. Catalysis involving photoactivation techniques and micelle stabilized nanoparticles are currently being investigated to solve environmental pollution related problems. Investigation also being conducted on the aggregation behavior of polyelectrolytes and block copolymers in aqueous media. Capillary electrophoresis is being employed for the chiral separation of drugs. Photophysical studies of different organic molecules in pure solution and organized assemblies are being investigated using fluorescence spectroscopy. Theoretical physical chemistry I in the department includes studies relating to density functional theory, chemical reactivity ab initio calculations, quantum chaos, chemical reaction dynamics in liquids and biological macromolecules, molecular modeling and computer simulation studies of complex biological systems such as : membranes, proteins etc. Protein structure analysis on the loop regions in proteins is also underway.

Thrust Areas :

1. Transition metal spin cluster complexes
2. Ligand design and formation and hydrolysis of imidazolidine and iminodioxocin rings
3. Drug design.

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Role of water in predicting the protein folding-unfolding pathways: Computer simulation studies	DST, New Delhi	-
2.	Synthetic Approaches to Nine-member Eneidyne	CSIR, New Delhi	Rs. 10.00 Lakhs
3.	Use of Kinugasa Reaction for the Synthesis of Heterocycle-Eneidyne Chimera	DST, New Delhi	Rs. 37.00 Lakhs
4.	Hyperthermia on Eneidyne	DBT, New Delhi	Rs. 36.00 Lakhs
5.	Isolation of phosphatase from Mycobacterium and development of inhibitors	DBT, New Delhi	Rs. 300.00 Lakhs
6.	A conceptual DFT approach towards metal toxicity	BRNS, Mumbai	Rs. 7.00 Lakhs
7.	Assessment of biological activity and toxicity : An in Silico investigation based on the combined quantum mechanics and molecular Silico investigation based on the combined quantum mechanics and molecular dynamics study	CSIR, New Delhi	Rs. 12.00 Lakhs
8.	Enantioseparation of Drugs and Small	CSIR, New Delhi	Rs. 7.50 Lakhs

	Organic Molecules by Electrokinetic Capillary Chromatography Using Vesicles as Pseudo-stationary Phase		
9.	Interactions Between Water-Soluble Hydrophobically Modified Polymers and Surfactants: Rheology, Fluorescence Probe, and Calorimetric Studies	BRNS, Mumbai	DAE, Rs. 14.90 Lakhs
10.	Preparation of Stable Vesicles of Catanionic Surfactants. Characterization by Surface Tension, Fluorescence Probe, Light Scattering, and Microscopi	DST, New Delhi	Rs. 24.00 Lakhs
11.	Spin-Chemistry of photo-generated Radical-pairs in Room Temperature Ionic Liquids (RTILs) and in organized molecular assemblies : Studies on some mo	CSIR, New Delhi	Rs. 10.00 Lakhs
12.	Magnetic Field Effect on Radical-pair Recombination in Chemical and Bio-chemical Systems: An Optical Spectroscopic Study	DST, New Delhi	Rs. 15.70 Lakhs
13.	Preparation and Tribological Properties of MoS ₂ -Graphite-Viton	DST, New Delhi	Rs. 9.55 Lakhs
14.	Nanocomposites Synthesis of Inorganic Fullerene-type MoS ₂ and WS ₂ Nanoparticles and Study of their Lubrication Properties	IIT Kharagpur	Rs. 4.15 Lakhs
15.	Total Synthesis of Chrymutasins	DST, New Delhi	Rs. 23.00 Lakhs
16.	Processing and Performance of Biodiesel	DST, New Delhi	Rs. 19.00 Lakhs
17.	Recycling Of Plastics	IIT Kharagpur	-
18.	Production of Lipase and its application	DBT, New Delhi	Rs. 25.00 Lakhs
19.	Mono-, Di- and Bisvinyl Sulfone-Modified Carbohydrates as Versatile Synthons: A New "Chiron Approach" to Heterocycles, Carbocycles, Sugar Cluster	DST, New Delhi	Rs. 21.72 Lakhs
20.	Synthesis and Biological Studies of Azido and Aminohexopyranosyl Nucleosides and Aminohexopyranose Containing Oligomers: Towards New Classes of Antivi	Indo-French Centre for the Promotion of Advanced Research	Rs. 35.00 Lakhs
21.	Characterization of Micelles, Reverse Micelles in Room temperature ionic liquids (RTILs) using Dynamic Light Scattering, Fluorescence Spectroscopy	DST, New Delhi	Rs. 38.55 Lakhs
22.	Study of ultrafast processes in ionic liquid containing micro hetero geneous media	CSIR, New Delhi	Rs. 10.46 Lakhs
23.	Photoinduced electron and energy	DST, New Delhi	Rs. 38.50 Lakhs

	transfer of some organic molecules in biologically relevant organized media		
24.	Spectroscopic Study of Solvation dynamics and Photochemical reactions in solution and organized assemblies	CSIR, New Delhi	Rs. 6.36 Lakhs
25.	Epoxy-reinforced inorganic material filled organic polymer composites in tribological applications	DRDO, New Delhi	Rs. 24.60 Lakhs
26.	Development and characterization of semiconducting nano tubes and nanorods for thermoelectric applications	DST, New Delhi	Rs. 17.00 Lakhs
27.	Development and characterization of nanofillers in for polymer composites	MHRD, New Delhi	Rs. 20.00 Lakhs
28.	Simulation and fabrication of a CVD/CVI set up for Ceramic Matrix Composites in general and SiC reinforced Graphite Matrix composites in particular	DRDO, New Delhi	Rs. 13.60 Lakhs
29.	Development and characterization of semiconducting thin films of layer transition metal dichalcogenides	-	Rs. 10.46 Lakhs
30.	Investigations on development and characterization of new layer type ternary and quaternary chalcogenides with ZnIn ₂ S ₄ IIIa and a FeGa ₂ S ₄ structures	CSIR, New Delhi	Rs. 8.68 Lakhs
31.	Development and characterization of organic polymer-inorganic materials nanocomposites	CSIR, New Delhi	Rs. 6.60 Lakhs
32.	Theoretical Modelling of the Role of Hydration in Proton Transfer Processes in	CSIR, New Delhi	Rs. 9.51 Lakhs
33.	Generation & reactivity of bimetallic tin-transition metal complexes	CSIR, New Delhi	Rs. 3.00 Lakhs
34.	Cooperative Bimetallic Catalysis	DST, New Delhi	Rs. 31.00 Lakhs
35.	Physico-Chemical Characterization of Metal Based Drugs	DST, New Delhi	Rs. 20.00 Lakhs
36.	Design, Synthesis and characterization of lipophilic polyelectrolyte gels	DST, New Delhi	Rs. 17.00 Lakhs
37.	Electrophoresis of polyethylene glycol copolymers	IIT Kharagpur	Rs.1.00 Lakhs
38.	Combinatorial biocatalysis: Generation of compound libraries based on small molecule scaffold, taking the lead from nature	DST, New Delhi IIT Kharagpur	Rs.20.00 Lkhs
39.	Screening for hydroxynitrile lyase from cyanogenic plant species in Indian subcontinent: their application in asymmetric organic synthesis	IFS, Sweden, DBT, New Delhi	Rs.15.00 Lakhs

40. White Biotechnology: Biocatalysis CSIR, New Delhi Rs.11.50 Lakhs
using enzymes and microorganisms,
synthesis of fine chemicals and APIs

VISITS ABROAD BY FACULTY MEMBER

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|---------------------|---|
| 1. Prof. T. Pathak | National Tsing Hua University, Hsinchu, Taiwan (3 days),
Purpose : 1st India-Taiwan Conference on Frontiers of Organic Chemistry. |
| Prof. T. Pathak | University of Grenoble, France (One month),
Purpose : Visiting scientist (sponsored by Indo-French Centre for the Promotion of Advanced Research). |
| 2. Prof. Amit Basak | Russian Chemical Society, Moscow (Sept-23-Sept' 27),
Purpose : As an invited speaker in INDO-Russian symposium |

INVITED LECTURES BY FACULTY MEMBERS

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| 1. Prof. Sanjoy Bandyopadhyay | Indo-German Conference on Modeling Chemical and Biological Reactivity, Indian Institute of Chemical Technology, Hyderabad, India |
| 2. Prof. Sanjoy Bandyopadhyay | Workshop on Structure and Dynamics of Biomolecules 2007, S. N. Bose National Centre for Basic Sciences, Kolkata, India |
| 3. Prof. Amit Basak | Radical Mediated DNA cleavage, IIT Kanpur (Invited Lecture) |
| 4. Prof. Amit Basak | A Radical Approach to Anticancer Agents, Bethune College, Kolkata (Speaker) |
| 5. Prof. Amit Basak | Chemistry of Ene-diynes, Bankura Sammilani College (Speaker) |
| 6. Prof. Amit Basak | Foundations of Chemistry, Govt. V. Y. T. P. G Autonomous College, Durg, Chattisgarh (IAS, INSA and NAS sponsored Workshop (Resource Person) |
| 7. Prof. Amit Basak | Chemistry and Biology of Radicals, Burdwan University (Speaker) |
| 8. Prof. P. K. Chattaraj | National Seminar programme on, "Frontiers in Chemistry – V", Department of Chemistry, University of North Bengal, March 2008 (Lecture on 'Conceptual DFT and Chem. Reactivity') |
| 9. Prof. P. K. Chattaraj | National Symposium on, "Quantum Chemistry, Soft Computing & Optimization", Indian Association for the Cultivation of |

10. Prof. P. K. Chattaraj Science (IACS), April 2008 (Lecture on 'Reactivity, Aromaticity and Toxicity')
National Symposium on, "Electronic Structure and Properties of Atoms and Molecules", Central University, Hyderabad, April 2008 (Lecture on 'Conceptual DFT and Chem. Reactivity')
11. Prof. P. K. Chattaraj Indo- German Conference on, Modeling Chemical and Biological (Re)activity, IICT, Hyderabad, September, 2007 (Member, Sci. Adv. Comm. & Lecture on 'Quant. Traj.')
12. Prof. P. K. Chattaraj International Conference on "Recent Developments in Non-linear Dynamics, School of Physics, Bharathidasan University, Tiruchirapalli, February 2008 (Lecture on 'Quantum Trajectory')
13. Prof. P. K. Chattaraj IAS (Bangalore), INSA (New Delhi) and NAS (Allahabad) Sponsored workshop on 'Concepts in Chemistry', Ramananda College, Bishnupur, September, 2007 (Resource Person and lecture on 'Chem. Reactivity')
14. Prof. P. K. Chattaraj Refresher Course in Chemistry for College and University Teachers, Science College, Calcutta University (Lecture on 'Conceptual DFT and Chem. Reactivity')
15. Prof. P. K. Chattaraj National Conference on Windows of Chemistry, Bankura Sammilani College, West Bengal, February, 2008 (Chairman, tech. session; lecture on 'Chem. React.')
16. Prof. P. K. Chattaraj Organised: National workshop on 'Physics of warped extra dimensions', IIT Kharagpur, February 2008 (Welcome address)
17. Prof. P. K. Chattaraj Organised: IAS (Bangalore), INSA (New Delhi) and NAS (Allahabad) sponsored workshop on 'Foundations of Chemistry', Govt. V. Y. T. P. G. Autonomous College, Durg, Chhattisgarh, March 2008 (Organizer & Resource Person)
18. Prof. D. R. Mal Tandem annulation strategy for convergent synthesis of benzonaphthopyranones: total synthesis of at Indian Institute of Technology (one hour)
19. Prof. T. Pathak 1st India-taiwan Conference on Frontiers of Organic Chemistry, National Tsing Hua University, Hsinchu, Taiwan
20. Prof. T. Pathak Vinyl Sulfone-modified Carbohydrates: An Unexplored Group of Chiral Building Blocks. at Departement of Molecular Pharmacochemistry, CNRS / Universite Joseph Fourier-Grenoble 1, France

- | | | |
|-----|----------------------|--|
| 21. | Prof. T. Pathak | Synthetic Modification of Carbohydrates and Nucleosides. at Department of Chemistry, Universite Claude Bernard Lyon 1, France |
| 22. | Prof. T. Pathak | Vinyl Sulfone-modified Carbohydrates: An Unexplored Group of Chiral Building Blocks. at Organic Chemistry (Synthesis) Department, NCL, Pune |
| 23. | Prof. D. Ray | Winter School in Bioinorganic Chemistry, Indian Institute of Technology, Bombay, November 17-30, 2007 (Invited) |
| 24. | Prof. D. Ray | UGC sponsored refresher course on perspectives in chemistry, Jadavpur University (Invited Speaker and Resource Person) |
| 25. | Prof. D. Ray | A journey from mononuclear to tetranuclear complexes of cobalt at Department of Chemistry, Indian Institute of Technology, Kanpur, August 16, 2007 |
| 26. | Prof. D. Ray | Nickel in biomimetic structural model, metallocrown, metallocubane, and spin-coupled cluster at Indian Institute of Technology, Guwahati |
| 27. | Prof. Nilmoni Sarkar | Chemical Research Society Kolkata Chapter meeting, Jadavpur university, Kolkata, August 02, 2007 |
| 28. | Prof. Nilmoni Sarkar | International Congress on Ionic Liquids (COIL-2), Yokohama, Japan, 2-5 August 2-5, 2007 (Invited lecture) |
| 29. | Prof. S. Taraphder | 4th IFLASC meeting of the Joint Indo-French Laboratory, Indian Institute of Science, Bangalore (Invited Speaker) |
| 30. | Prof. S. Taraphder | Workshop on Structure & Dynamics of Biomolecules-2007, S.N. Bose National Centre for Basic Sciences, Kolkata (Invited Lectures) |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Sachin G. Deshpande	Studies on the Synthesis of New Hexopyranosyl Thymines.
2.	Indrajit Das	Synthesis and Synthetic Applications of Endocyclic and Exocyclic Vinyl Sulfone-Modified Furanosides
3.	Jyoti R. Ota	One dimensional nanostructures of some group V-VI semiconductors: Synthesis, characterization and coating with conducting polymers
4.	Poloumi Roy	Development and characterization of some important nanodimensional semiconducting metal chalcogenides

5. Himadari Acharya Development and characterization of some polyolefinic nanocomposites
6. Bidyut Senapati Anionic [4 + 2] cycloaddition in the synthesis of carbazoles and synthetic studies towards furanosteroids
7. Pallab Pahari Studies on the synthesis of selected isobenzofuranone and angucyclinone natural products
8. Surajit Some Synthetic Studies Toward Substituted Benzene, Quinoline Indoloquinoline Derivatives from Bromovinylaldehydes and Stereoselective Synthesis of Tricyclic Thiophene Derivatives
9. Sasmita Mohapatra Synthese and Characterizations of Functionalized Iron Oxide Nanoparticles for Biological Applications
10. Soumen Basu Studies of Interparticles Interaction with and without Metal Nanoparticles in Different Solvents
11. Snigdhamayee Praharaj Size Selective Synthesis of Metal and Semiconductor Nanoparticles: Application in Spectroscopy and Catalysis
12. Sohaham Dasgupta Studies on the Coordination Chemistry of Iron (III) and Copper (II) with Modified SALEN and Amino Acid Ligands
13. Bikash Kumar Jena Synthesis and Characterization of Nanostructured Metal Particles for Electrocatalytic and Bioelectrocatalytic
14. Ujjal Kanti Roy Tuning the Reactivity of Tin(II) by Transition Metal Catalysts: An Organometallic Approach

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. P. K. Chattaraj	Theory of Chemical Reactivity: A View from Density Functional Theory	Taylor and Francis, Boca Raton, Florida	2008 (in press)
2.	Prof. A. Nag	Biofuels Refining and Performances	McGraw Hill Publishers, USA	2007
3.	Mr. S. Giri, Prof. D. R. Roy and Prof. P. K. Chattaraj	Variation of Local Reactivity during Molecular Vibrations, Internal Rotations and Chemical Reaction <i>in</i> Theory of Chemical Reactivity: A View from Density Functional Theory	Taylor and Francis, Boca Raton, Florida	2008 (in Press)
4.	Mr. D. Seth and Dr. N. Sarkar	Dynamics of Solvent and Rotational Relaxation of	Taylor and Francis / CRC Press	2008

- Room Temperature Ionic Liquids (RTILs) in RTILs Containing Microemulsions *in Review*
 Book : Microemulsions : Properties and Applications
 Polymers for Biomedical Applications, Second Edition
 American Chemical Society Publication
5. Dr. D. Dhara

PATENTS GRANTED

1. Dr. D. Dhara Radiation stable aromatic carbonate polymer compositions US Patent 7,374,718
 2. Dr. D. Dhara Electrically conductive compositions and method of manufacture thereof US Patent 7,354,988

LAURELS & DISTINCTIONS

1. Prof. Amit Basak Orissa Chemical Society Award, 2007
 2. Prof. Amit Basak Council Member, NOST, 2007
 3. Prof. Amit Basak Member, Program Advisory Committee DST (organic), 2007
 4. Prof. P. K. Chattaraj Elected to the Fellowship of the Indian National Science Academy, New Delhi, 2008
 5. Prof. P. K. Chattaraj Elected Council Member, Chemical Research Society of India, 2008
 6. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Chemical Sciences, Bangalore, 2008
 7. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Assam Science Society, Assam, 2008
 8. Prof. P. K. Chattaraj Member, Editorial Board : Canadian Journal of Pure & Applied Science, 2008
 9. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Molecular Structure: THEOCHEM, 2008
 10. Prof. P. K. Chattaraj Reviewer: J. Am. Chem. Soc., J. Phys. Chem., J. Org. Chem., Chem. Phys. Lett., Int. J. Quantum Chem., Langmuir, J. Chem. Phys., 2008
 11. Prof. P. K. Chattaraj Bioorg. Med. Chem., J. Astrop. Astron., Tetrahedron, Chem. Res. Tox., Org. Lett., Int. J. Bif. and Chaos, Int. J. Mol. Sci., Int. Elect. J. Mol. Des., 2008
 12. Prof. P. K. Chattaraj Pramana-J. Phys., Proc. Ind. Acad. Sci. (Chem. Sci.), Proc. Natl. Acad. Sci., Natl. Acad. Sci. Lett., Ind. J. Chem., Ind. J. Phys.,

- 2008
13. Prof. P. K. Chattaraj Bioorg. Med. Chem. Lett., Chirality, QSAR & Comb. Sci., Pak. J. Sci. Ind. Res., J. Chem. Educ., Ind. Eng. Chem. Res., Nucl. Ac. Res., 2008
 14. Prof. P. K. Chattaraj J.Comp. Chem., J.Chem. Theor. Comp , New J. Chem., J. Polym Sc. Tech., J. Mol. Liq.,), Bull. Mat. Sci., J. Mol. Modeling , J. Biomed. Biotech., 2008
 15. Prof. P. K. Chattaraj The European Physical Journal D (epjd), Chem.Bio & Drug.Desg., J. Coll. Interf. Sci., Int. J. Mod. Phys. B, J. Nanosci. & Nanotech., 2008
 16. Prof. P. K. Chattaraj UGC (Dr. D. S. Kothari Postdoctoral Fellowship, Application); World Scientific Publishing, McGraw-Hill Education (Book Proposal), 2008
 17. Prof. P. K. Chattaraj CSIR, DST, BRNS (Project Proposals) etc., 2008
 18. Prof. P. K. Chattaraj Chem. Rev. 106, 2065, 2006 is featured as one of the Most- Accessed, Most- Cited and Hot-Articles published during 2006-2007, 2008
 19. Prof. Debashis Ray Bronze Medal of Chemical Research Society of India (CRSI), 2008.
 20. Dr. Nilmoni Sarakr Chemical Physics Letters Most Cited paper 2003-2007 Award for the paper Chem. Phys. Lett., 381 (2003)697-704, 2008.
 21. Prof. Sujit Roy Fellow, Indian Academy of Sciences, 2008

DEPARTMENT OF CIVIL ENGINEERING

HEAD : Professor Shambhu Pada Das Gupta

FACULTY

Professor :

Bandyopadhyay, Janendra Nath	Ph.D.(IIT Kharagpur), Structural Engineering
Bhattacharyya, Sriman Kumar	Ph.D.(IIT Kharagpur), Structural Health Monitoring, Structural Engineering, Fluid-structure Interactions, Restoration of Structures
Das Gupta, Shambhu Pada	Ph.D.(IIT Kanpur), Geotechnical Engineering
Dey, Subhasish	Ph.D.(IIT Kharagpur), Hydromechanics
Ghosh, Deba Prasad	Ph.D.(IIT Kharagpur), Geotechnical Engineering
Ramachandra, Lingadahally	Ph.D.(IIT Madras), Structural Engineering
Reddy, Kusam Sudhakar	Ph.D.(IIT Kharagpur), Transportation Engineering

Associate Professor :

Baidya, Dilip Kumar	Ph.D.(IISc Bangalore), Geotechnical Engineering
Barai, Sudhir Kumar	Ph.D.(IISc Bangalore), Structural Engineering
Bhattacharya, Baidurya	Ph.D. (Johns Hopkins University), Fracture and damage mechanics, Stochastic methods, Probability based design, Nanomechanics, Atomistic simulations
Desai, Venkappayya R	Ph.D.(Clemson University), Water Resources Engineering & Management
Dhang, Nirjhar	Ph.D.(IIT Kharagpur), Structural Engineering, Biomechanics
Ghangrekar, Makarand Madha	Ph.D (IIT Bombay), Environmental Engineering, Water and Wastewater Treatment, Anaerobic Treatment, Bio-electricity Production.
Gupta, Ashok Kumar	Ph.D.(IIT Bombay), Environmental Engineering
Maitra, Bhargab	Ph.D.(IIT Bombay), Transportation Planning & Traffic Engineering
Maity, Damodar	Ph.D.(IIT Kharagpur), Structural Engineering
Sen, Dhrubajyoti	Ph.D.(IIT Delhi), Water Resources Engineering

Assistant Professor :

Chakraborty, Sushanta	Ph.D.(IIT Kharagpur), Structural Engineering
Goel, Sudha	Ph.D.(Johns Hopkins University), Environmental Engineering
Pal, Anjali	Ph.D. (Calcutta University), Nanoscience and Nanotechnology, Environmental Science and Engineering, Analytical Spectroscopy

Roy, Debasis	Ph.D.(University of British Colombia), Geotechnical Engineering
Sen Gupta, Aniruddha	Ph.D.(Illinois University), Geotechnical Engineering, Earthquake Engineering
Reddy, M. Amaranatha	Ph.D. (IIT Kharagpur), Transportation Engineering

Lecturer :

Hussain, S. J.	Ph.D. (IIT, Kharagpur), Structural Engineering
Verma, S.	Ph.D. (IIT, Bombay), Environmental Engineering

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty on Re-employment (Upto 70 years age) :

Prof. B. B. Pandey	Professor
Prof. S. Majumdar	Visiting Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. EnE : Microbial Fuel Cells: Application for wastewater treatment and energy recovery, Onsite treatment of domestic sewage from small community, Studies on granulation in UASB reactor treating low strength wastewater to enhance efficiency of the reactor, Water quality and health assessment, Biological treatment of solid waste, Factors affecting the use of chlorine in water supply systems; Nanoparticle synthesis, their characterization and application; Photo degradation of organic pollutants; Adsorbilization/adsorption; Monitoring and modelling of tropospheric solid state polydisperse aerosols and ozone and assessment of pulmonary deposition in Kolkata urban region; Monitoring and modelling of ambient air quality in residential, commercial and industrial regions of Kolkata; Removal of Fluoride from ground water using low cost adsorbents; Removal of Arsenic from ground water using low cost adsorbent; Photocatalytic degradation of dye containing effluents using Ag+ doped TiO₂.
2. TE : Cell filled low cost rural roads, Analysis and Evaluation of Concrete and flexible pavements, Specifications for bituminous mixes and Urban transportation planning.
3. HWRE : Investigations of effect of lateral flow on turbulent submerged jets, Study of coherent turbulent structure over gravel beds and bed-forms, development and comparative study of flood inundation models, drought characterization and forecasting, development and comparison of different models for flood forecasting.
4. GTE : Landslides and slope stabilization, Geotechnical Earthquake engineering, and Shallow and deep foundations
5. STE : Recycled construction materials, Stability of plates and shells, Biomechanics, Reliability of bridge structures.

Thrust Areas :

1. EnE : Water and Wastewater treatment, Solid Waste Engineering, Environmental Microbiology, Environmental Impact Assessment, Air Pollution Modeling, Bio-energy.
2. HWRE : Submerged Jets, Coherent Turbulent Structure, Sediment Transport and Scour, Numerical Study of Surface Flow, Hydrological Model.
3. TE : Pavement Design, Traffic Planning and Design, Low-cost Road Construction.
4. GTE : Geotechnical Earthquake Engineering, Rock Slope Stability, Ground Improvement with Natural additives and Foundation Strengthening of Monumental Structures.
5. STE : Reliability Engineering, Nonlinear Mechanics, Structural Health Monitoring, Fluid-Structure Interaction.

New Acquisitions :

1. Dynamic Shear Rheometer
2. Cyclic Simple Shear Apparatus

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	A study on The Effects of Layering on The Dynamic Response of Foundations	CSIR, New Delhi	Rs. 8.50 Lakhs
2.	Bridge scour estimation, measurement and protection and use of various time systems like TDR, TTS and SA	RDSO	Rs. 151.00 Lakhs
3.	Coupled sloshing Response in a stiffened composite container	AR&DB	Rs. 5.17 Lakhs
4.	Design of Stilling Basin under variable hydraulic conditions	Ministry of Water Resources, New Delhi	Rs. 19.50 Lakhs
5.	Development of durable, water-repellent jute geotextiles	Jute Manufacturer's Development Council	Rs. 168.72 Lakhs
6.	Development of Low-cost Technology for Arsenic Removal and an Easy to Detect Method for Arsenic Analysis for the Rural Areas of West Bengal	DST, New Delhi	Rs. 5.60 Lakhs
7.	Evaluation of bituminous mixes using bituminous pavement analyzer	IIT Kharagpur	Rs. 5.00 Lakhs
8.	Exploratory investigation on development of damage mechanics based methodologies for lifing of aeroengine components	DMRL, Hyderabad	Rs. 10.00 Lakhs

9.	Modeling & Monitoring of Landslide Hazard in Sikkim Himalayas	DST, New Delhi	Rs. 23.00 Lakhs.
10.	Multi-scale modeling to study the role of atomic scale defects in CNT-based nanocomposites	DST, New Delhi	Rs. 20.50 Lakhs
11.	Multiscale modeling of small scale interfacial phenomena in carbon nanotube reinforced composites	IIT Kharagpur	Rs. 3.00 Lakhs
12.	Production of bioenergy during wastewater treatment	Ministry of Environment and Forest, New Delhi	Rs. 13.22 Lakhs
13.	Recycled Aggregate based concrete	UGC, New Delhi	Rs. 8.96 Lakhs
14.	Resource mapping / Flood analysis of Ajay and Mayurakshi rivers using RS/GIS	DST, New Delhi	Rs. 15.00 Lakhs
15.	Rural Roads Performance Study	National Rural Roads Development Agency	Rs. 10.00 Lakhs
16.	Seismic Evaluation of Aged Concrete Gravity Dams	IIT Kharagpur	Rs. 3.00 Lakhs
17.	Simulation studies of mechanical behaviour and failure of carbon nanotubes	DMRL, Hyderabad	Rs. 10.00 Lakhs
18.	Software capabilities for reliability analysis of ship structures	Indian Register of Shipping	Rs. 4.00 Lakhs
19.	Status of Landslide Problem in Sikkim	DST, New Delhi	Rs. 0.30 Lakhs
20.	Synthesis and characterization of mono and bimetallic nanoparticles on supported systems and their application for the degradation of organic pollutant	IIT Kharagpur	Rs. 5.00 Lakhs
21.	Theoretical & Experimental Investigation of Strain Localization in Cohesive Soils under Plane Strain Condition	DST, New Delhi	Rs. 13.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Adequacy of measures taken by Rourkela Steel Plant regarding the sewage treatment system of Rourkela Steel Plant Township	SAIL, Rourkela	Rs. 8.08 Lakhs
2.	Checking of Design of siphon aqueduct over river Sagada at RD 2820m of Upper Indravati right main extension canal	Upper Indravati Irrigation Project, Govt. of Orissa	Rs. 5.00 Lakhs
3.	Checking of Launching scheme for Railway over bridges on NH-41	CWHEC-HCIL (J.V.)	Rs. 3.50 Lakhs

4.	Checking of Structural Designs & Drawings of Lucknow Airport	S. Ghosh & Associates	Rs. 9.00 Lakhs
5.	Checking of the design of lighting masts	B. P. Projects, Kolkata	Rs. 1.50 Lakhs
6.	Checking of the Distressed water tank	P.H. Division-III, Govt. of Orissa	Rs. 1.01 Lakhs
7.	Checking of the design of lighting masts	B. P. Projects, Kolkata	Rs. 1.50 Lakhs
8.	City Development Plan for Haldia	Haldia Development Authority, Haldia	Rs. 22.47 Lakhs
9.	Construction of arterial road and back up area behind berth no. 2 of Haldia Dock Complex	Haldia Dock Complex, Kolkata Port Trust	Rs. 4.50 Lakhs
10.	Construction of Girls' Hostel - Rani Laxmibai Hall of Residence	IIT Kharagpur	Rs. 17.60 Lakhs
11.	Cyclone risk assessment for West Bengal coast	Department of Relief, Govt. of West Bengal	Rs. 40.00 Lakhs
12.	Cyclone Shelter at Orissa coast	PMO	Rs. 25.00 Lakhs
13.	Design checking of Road Over Bridges	IRCON International Ltd., Chennai	Rs. 6.06 Lakhs
14.	Design of Coal Transportation Roads	Southeastern Coalfields Limited, Bilaspur	Rs. 6.75 Lakhs
15.	Design of UASB reactor for bio-diesel wastewater treatment	Industrial Water Engineers, Malaysia	Rs. 4.00 Lakhs
16.	Development of reliability based criteria for containment design	BARC, Mumbai	Rs. 9.50 Lakhs
17.	Development of Software for the analysis of steel-cord pipe conveyor belt	Phoenix-Yule Ltd.	Rs. 2.20 Lakhs
18.	Drainage plan for Shantiniketan - Sriniketan	Shantiniketan - Sriniketan Development Authority	Rs. 15.00 Lakhs
19.	Environmental Impact Assessment (EIA) and Environmental Management Plan(EMP) for the proposed Dwarakeswar Gandheswari Reservoir project (West Bengal)	Irrigation & Waterways Directorate, Govt. of West Bengal	Rs. 20.22 Lakhs
20.	Health Monitoring of a building Structure	West Bengal Housing Board, Kolkata	Rs. 3.00 Lakhs
21.	Health monitoring of Factory building structure	Titagarh Wagons Ltd.	Rs. 4.00 Lakhs
22.	Improvement of Drainage Facilities at dock and adjoining area at Haldia Dock Complex	Haldia Dock Complex, Haldia	Rs. 20.50 Lakhs
23.	Improvement of Road Connectivity, Traffic Mobility and Safety in the Influence Area of Keventer Premises in Barasat	Keventer Fresh Limited, Kolkata	Rs. 2.02 Lakhs

24.	Investigation of Rutting Failure on NH-2	Progressive Construction	Rs. 3.00 Lakhs
25.	Measures for Improving Traffic Mobility around the Proposed Mixed Use Development at Rishra	Keventer Fresh Limited, Kolkata	Rs. 2.70 Lakhs
26.	Monitoring of RE Wall reconstruction at km 18.2, NH-6	NHAI, New Delhi	Rs. 2.00 Lakhs
27.	Non-destructive testing at BRBNML, Salboni	Espace Planning Services Pvt. Ltd.	Rs. 3.00 Lakhs
28.	Paschimanchal Perspective Plan for 2020	Paschimanchal Unnayan Parishad, Govt. of West Bengal	Rs. 10.00 Lakhs
29.	Preparation of Aizawl Master Plan	Aizawl Development Authority, Govt. of Mizoram	Rs. 70.22 Lakhs
30.	Preparation of City Development Plan for Burdwan Planning Area	Burdwan Development Authority, Burdwan	Rs. 11.23 Lakhs
31.	Preparation of detailed project Report for periphery road	Bharatiya Note Mudran Ltd., Salboni	Rs. 10.00 Lakhs
32.	Preparation of Master Plan of Drainage System in Planning Area of Sriniketan Santiniketan Development Authority (SSDA)	Executive Officer, SSDA Bholpur	Rs.15.00 Lakhs
33.	Preparation of Perspective Plan–Vision 2030 and Comprehensive development Plan areas of Bhubaneswar and Cuttack Development Authority	Housing and Urban Development Department Govt. of Orissa	Rs. 165.29 Lakhs
34.	Preparation of Storm Water drainage Master Plan for Haldia Municipal Area	Haldia Development Authority, Haldia	Rs. 25.84 Lakhs
35.	Proof checking report on feasibility study for desilting and renovation of lake system in Indian Botanic Garden, BSI at Howrah	Ministry of Environment & Forests, New Delhi	Rs. 3.36 Lakhs
36.	Rain Water Harvesting for Tata Metaliks Limited Kharagpur Plants	Tata Metaliks Ltd., Kharagpur	Rs. 3.35 Lakhs
37.	Rainwater Harvesting in BRBNMPL Campus, Salboni	Bharatiya Reserva Bank Note Mudran (P) Ltd., Salboni	Rs. 5.00 Lakhs
38.	Scrutiny of Technical Proposals for Pradhan Mantri Gram Sadak Yojana work	NRRDA, Delhi	Rs. 5.50 Lakhs
39.	Software capabilities for reliability analysis of ship structures	Indian Register of Shipping	Rs. 4.00 Lakhs
40.	Study of water supply distribution / storage and source availability for Darjeeling Municipality	District Magistrate, Darjeeling	Rs. 4.82 Lakhs
41.	Sump model study for CW system pkg - NTPC	Kirloskar Brothers Limited	Rs. 9.00 Lakhs
42.	Testing & Evaluation of 100m	Webel Mediatronics	Rs. 4.07 Lakhs

	Transmission Tower at AIR Kohima	Ltd.	
43.	Traffic Study for Project - ITC East India, Kolkata	Wilbur Smith Associates	Rs. 1.80 Lakhs
44.	Traffic Study for the Proposed Mixed Use Township Complex in Kasba Area, Kolkata	Bengal-NRI	Rs. 2.40 Lakhs
45.	Vetting of design and drawing of railway crossing structure at chainage of 175-20 of right main canal and at chainage 244-00 of left main canal of Bihar	Water resources Department, Govt of Jharkhand	Rs. 4.00 Lakhs
46.	Vetting of Pavement Design for Tezpur Airfield	CE (AF), Shillong Zone, Shillong	Rs. 1.50 Lakhs
47.	Vikram Sarabhai Residential Complex	IIT, Kharagpur	Rs. 9.60 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Prof. Subhasish Dey
Università della Calabria, Italy
To offer 2-day short course on "Turbulent flow, sediment transport and scour"
2. Prof. Subhasish Dey
Politecnico di Milano, Italy
To offer 2-day short course on "Sediment transport and scour"
3. Dr. Debasis Roy
Taipei, Taiwan
Attend 3rd International Conference on Site Characterization, moderate session, present paper
4. Dr. Ashok Kumar Gupta
Texas A&M University Kingsville, Texas
To develop research collaboration in the area of air quality
5. Dr. Baidurya Bhattacharya
Tokyo, Japan
Attend the 10th International Conference on Application of Statistics and Probability in Civil Engineering (4 days)
6. Dr. Makarand Madha Ghangrekar
Moncton, Canada
Participation in the conference
7. Dr. Bhargab Maitra
University of Dar Es Salaam, Tanzania
External Examiner for the Department of Transportation and Geotechnical Engineering
8. Dr. Bhargab Maitra
Technische Universität Darmstadt, Germany
Invited Presentation for Workshop and Congress: Traffic and Transport 2030

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Subhasish Dey
Turbulent flow over sediment beds and sediment threshold (ISI Kolkata)
2. Dr. Sudhir Kumar Barai
Improving Engineering Education: ICT in Learning and Teaching (NIT Rourkela)

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|-----|----------------------------------|---|
| 3. | Dr. Anjali Pal | Selected toxic organic pollutants and their photodegradation: A green chemistry approach (Junwani, Bhilai (C. G.)) |
| 4. | Dr. Dilip Kumar Baidya | Earthquake and Liquefaction of soils (NIT, Culicut) |
| 5. | Dr. Baidurya Bhattacharya | Fracture and Fracture resistance of carbon nanotubes. Workshop on Mechanical Behaviour of Systems at Small Length Scales -2) (Indian Institute of Science, Bangalore) |
| 6. | Dr. Venkappayya R. Desai | Concept models on 'Rainwater powered pumped storage hydro turbine (RAPPORT)' & 'Relief well (REWEL)' (Anna University, Chennai) |
| 7. | Dr. M. Amaranatha Reddy | Structural Evaluation of Pavements (NIT Rourkela) |
| 8. | Prof. Sriman Kumar Bhattacharyya | Application of Structural Dynamics in RCC Analysis & Design (NIT, Rourkela) |
| 9. | Prof. Sriman Kumar Bhattacharyya | Sloshing of Liquid – Abuse & Use (NIT Rourkela) |
| 10. | Dr. Shaikh Jahangir Hossain | Newmark-Scheme on Manifold of Finite Rotations and its Applications (IIT, Madras) |

LECTURE BY VISITING EXPERT

- | | | |
|----|--|--|
| 1. | Prof. S Khasnabis, Professor of Civil Engineering and Interim Associate Dean of Research, College of Engineering, Wayne State University, Detroit, Michigan, USA | Asset Management Strategies to Optimize Transportation Investment |
| 2. | Prof. Manfred Boltze, Professor, Darmstadt University, Germany | Traffic Management in the German Region Frankfurt Rhein Main |
| 3. | Prof. Debasish Roy, Department of Civil Engineering, Indian Institute of Science, Bangalore | Smooth Finite Elements through Tensor-product and Triangular B-splines |
| 4. | Prof. Debasish Roy, Department of Civil Engineering, Indian Institute of Science, Bangalore | Statistical Methods in Civil Engineering |
| 5. | Prof. C. S. Manohar, Civil Engineering Department, Indian Institute of Science, Bangalore | Probabilistic Methods for Nonlinear Structural System Identification |

THESES (Doctoral and MS)

- | # | Name of Scholar | Title of Thesis |
|----|-----------------|--|
| 1. | Ammasi Mani | Application of Artificial Neural Networks and Rating curve in flood Prediction |

- | | | |
|----|------------------|--|
| 2. | Navneet P. Singh | Local Scour at Submerged Pipelines and Their Supports |
| 3. | S. Ayoob | Sorptive Removal of Fluoride From Drinking Water Alumina Cement Granules |

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. J. N. Bandyopadhyay	Design of Concrete Structures	Prentice-Hall of India Private Limited	2008

LAURELS & DISTINCTIONS

- | | | |
|----|-------------------------------|--|
| 1. | Dr. Sudhir Kumar Barai | Best Paper Award : Int. Association for Automation and Robotics in Construction September 2007 |
| 2. | Dr. Sudhir Kumar Barai | Erskine Visiting Fellowship : Visit to University of Canterbury, New Zealand May-June 2008 |
| 3. | Prof. Subhasish Dey | Fellow of Indian National Academy of Engineers (2008) |
| 4. | Dr. Makarand Madha Ghangrekar | Prof. R. C. Singh Medal by Institution of Engineers (India), for the year 2007 |

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

- | | | |
|----|--------------------------------------|--------------------|
| 1. | Solid and Hazardous Waste Management | August 13-17, 2007 |
|----|--------------------------------------|--------------------|

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

HEAD : Professor Indranil Sengupta

FACULTY

Professor :

Basu, Anupam	Ph.D.(IIT Kharagpur), Assistive Technology, Embedded Systems, Language Processing
Chakrabarti, Partha Pratim	Ph.D.(IIT Kharagpur), Computer Science & Engineering
Dasgupta, Pallab	Ph.D.(IIT Kharagpur), VLSI CAD & Electronic Design Automation, Formal Verification, Verification of Automotive Control
Ghose, Sujoy	Ph.D.(IIT Kharagpur), Networks, Algorithms, AI, Info Systems
Kumar, Rajeev	Ph.D.(Sheffield), Programming Language Systems, Software Engineering, Embedded & Multimedia Systems, Evolutionary Algorithms
Majumder, Arun Kumar	Ph.D.(Calcutta), Ph.D.(Florida), Data and Knowledgebased Systems, Medical Informatics, Design Automation
Mall, Rajib	Ph.D.(IISc Bangalore), Software Engineering, Real-Time Systems, Testing Object-Oriented Programs
Mukhopadhyay, Jayanta	Ph.D.(IIT Kharagpur), Image Processing, Computer Vision, Computer Graphics, Pattern Recognition, Medical Informatics
Pal, Ajit	Ph.D.(Calcutta University), VLSI, Embedded Systems, Networking
Pal, Sudebkumar Prasant	Ph.D.(IISc Bangalore), Design and analysis of algorithms, Computational geometry
Roychowdhury, Dipanwita	Ph.D.(IIT Kharagpur), Cryptography, Cellular Automata, VLSI
Sarkar, Dipankar	Ph.D.(IIT Kharagpur), Formal Verification, Symbolic Logic and Automated Reasoning
Sarkar, Sudeshna	Ph.D.(IIT Kharagpur), Artificial Intelligence, Machine Learning, Information Retrieval, Natural Language Processing
Sengupta, Indranil	Ph.D.(Calcutta University), Computer Science and Engineering

Associate Professor :

Gupta, Arobinda	Ph.D.(Iowa), Distributed Systems
Mandal, Chittaranjan	Ph.D.(IIT Kharagpur), Internet Technologies, VLSI, System Verification

Assistant Professor :

Bishnu, Arijit	Ph.D., Algorithms for digital imaging, Computational Geometry and applications
Das, Abhijit	Ph.D.(IISc. Bangalore), Arithmetic and algebraic algorithms, Cryptography and network security
Ganguly, Niloy	Ph.D.(BESU, Calcutta), Computer Science
Mitra, Pabitra	Ph.D.(ISI, Calcutta), Machine learning, Information retrieval

Lecturer :

Dey, Partha Sarathi	M.Tech.(IIT Kharagpur), Digital Logic Design, Data Structure, Computer Architecture & Organization, Microprocessor & Microcontroller, Systems Programming, Operating System, Object Oriented Design
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Gaurav Harit	Assistant Professor
Dr. Partha Bhowmik	Assistant Professor
Dr. Debdeep Mukhopadhyay	Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Baisakhi Keyboard (A Bangla Keyboard)
2. Microcontroller for Sensor Networks

Thrust Areas :

1. Artificial Intelligence
2. Assistive Technology
3. Bioinformatics
4. Combinatorial and Computational Geometry
5. Computer Graphics
6. Computer Networks
7. Cryptography
8. Databases
9. Embedded Systems
10. Fault Tolerant Computing
11. Formal Verification
12. Image Processing and Computer Vision
13. Mobile Computing
14. Multimedia
15. Natural Language Processing

16. Object Oriented Design Tools
17. Parallel and Distributed Processing
18. Real Time Systems
19. Software Engineering
20. Speech Recognition and Synthesis
21. VLSI Design and CAD tools
22. Quantum Information and Computation

New Acquisitions :

1. The laboratory for "Geometric, Combinatorial and Algebraic Computation" is a new thematic laboratory in CSE department

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	A Multilingual Processing of Language in a Lexico-Semantic Perspective	STIC-Asia	
2.	Advanced VLSI Consortium	Multiple Consortium	Rs.100.00 Lakhs
3.	An Integrated Framework for Testing	DST, New Delhi	Rs.10.00 Lakhs
4.	Approximate Search and Coverage Based Analysis	IBM Faculty Award	Rs.3.00 Lakhs
5.	Automated Processing of Text Documents	MHRD, New Delhi	Rs.8.00 Lakhs
6.	Combinatorial and Geometric Approaches to Digital Imaging Applications	IIT Kharagpur	Rs.1.35 Lakhs
7.	Cross Language Information Access	MCIT, New Delhi	Rs.65.00 Lakhs
8.	Design and Analysis of an Efficient Cryptosystem for Safe Messaging over Vehicular Adhoc Network	General Motors, Bangalore	Rs.20.00 Lakhs
9.	Design and development of a signal processing system-on-chip (SOC) for micro sensor	MHRD, New Delhi	Rs.6.00 Lakhs
10.	Design and implementation of a cryptosystem resistant to vulnerabilities and side channel attacks	DIT, New Delhi	Rs.138.00 Lakhs
11.	Design of a processor having an asynchronous ALU to counter side channel attack	ISRO	Rs.0.50 Lakhs
12.	Design of An Indigenous Encryption Algorithm for SDH-16	Indian Telephone Industry, Bangalore	Rs.40.00 Lakhs
13.	Designing robust and self-organised p2p system over peer-to-peer networks	DST, New Delhi	Rs.20.00 Lakhs
14.	Developing robust and efficient services for open source Internet telephony over	DST-BMBF	Rs.3.92 Lakhs

	peer to peer network		
15.	Developing robust services for peer to peer networks	IIT Kharagpur	Rs.3.00 Lakhs
16.	Development of Cross-Lingual Information Access (CLIA) system	MCIT, New Delhi	Rs.61.51 Lakhs
17.	Development of Custom Application Language	Usha Communications, Kolkata	Rs.2.00 Lakhs
18.	Development of Indian Language to Indian Language Machine Translation System (IL-IL MT)	MCIT, New Delhi	Rs.46.00 Lakhs
19.	Development of infrastructure for centre of excellence on information assurance	Headquarters Integrated Defense Staff, Ministry of Defense, New Delhi	Rs.50.00 Lakhs
20.	Development of Multimedia Hardware-Software system for the Education of Students with Cerebral Palsy and Communication	Ministry of Social Justice and Empowerment, New Delhi	Rs.17.00 Lakhs
21.	Development of Spatio-Temporal Access Control Models	DST, New Delhi	Rs.16.18 Lakhs
22.	Distributed data synchronization algorithms (ASD)	Applied Research Works	Rs.2.16 Lakhs
23.	Efficient testing for system-on-chip design - a new VLSI manufacturing paradigm	DST, New Delhi	Rs.9.40 Lakhs
24.	Enabling Research with ICT	National Institute of Mentally Handicapped, Hyderabad	Rs.5.00 Lakhs
25.	Encompression - Encryption in Compressed Domain	ISRO, Ahmedabad	Rs.2.00 Lakhs
26.	Extending the Frontiers of Design Validation using Formal Property Verification and Symbolic Simulation	DST, New Delhi	Rs.19.29 Lakhs
27.	Fundamental research in information assurance	Headquarters Integrated Defense Staff, Ministry of Defense, New Delhi	Rs.48.10 Lakhs
28.	Games in System Design and Verification	DST, New Delhi	Rs.8.40 Lakhs
29.	GM Collaborative Research Laboratory on ECS for Education	General Motors	Rs.125.00 Lakhs
30.	High Level Synthesis and Verification of Digital Circuits	MHRD, New Delhi	Rs.6.00 Lakhs
31.	High Speed End to End ASIC Design of Rijndael for AES Rijndael Cryptosystem	ISRO, Ahmedabad	Rs.13.50 Lakhs
32.	INAE Visveswarya Chair Professor Project	INAE, New Delhi	Rs.16.74 Lakhs

33.	Indian Language Machine Translation	MCIT, New Delhi	Rs.45.00 Lakhs
34.	Investigation of Cryptanalytic Techniques	Headquarters, Integrated Defence Staff, Ministry of Defence, New Delhi	Rs.44.30 Lakhs
35.	Low Power Circuits and Systems	Intel Corporation, USA	Rs.22.00 Lakhs
36.	Machine Learning for Cross Language Information Retrieval	IIT Kharagpur	Rs.3.00 Lakhs
37.	Modelling and Management of Dynamic Multimedia Objects	DST, New Delhi	Rs.18.00 Lakhs
38.	Multimedia Modeling of Dynamic Objects	DST, New Delhi	Rs.18.00 Lakhs
39.	Multiobjective Evolutionary Algorithms for Combinatorial Optimization Problems	MHRD, New Delhi	Rs.10.00 Lakhs
40.	Nokia Mobile Phone Interface Verification	Kingston University & Nokia	Rs.4.50 Lakhs
41.	Shruti: A Vernacular Speech Recognition System	Media Lab Asia	Rs.25.00 Lakhs
42.	Special Manpower Development Programme for VLSI Design and Related Software (SMDP-II)	MCIT, New Delhi	Rs.90.00 Lakhs
43.	Survivable System Architecture with Intrusion Tolerance, Containment and Recovery in Distributed Environment	MCIT, New Delhi	Rs.55.00 Lakhs
44.	VLSI and Wireless Technologies	IIT Kharagpur	Rs.5.00 Lakhs
45.	Web Enabled Medical Information Access Using Handheld Devices in a Wireless Environment for Telemedicine Applications	MCIT, New Delhi	Rs.62.10 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Sanyog: A Communication System for the Speech Impaired and Children with Cerebral Palsy Phase II	Media Lab Asia	Rs.72.00 Lakhs
2.	Advisor for Communications and Networking Plan	National Insurance Company	Rs.2.40 Lakhs
3.	Automatic Property Extraction from System Verilog Test Benches	Synopsys (India) Pvt. Ltd.	Rs.11.00 Lakhs
4.	Behavioral Modeling and Verification of Mixed-signal Circuits	National Semiconductor Corp, USA	Rs.27.00 Lakhs
5.	Call Centre & Data Warehousing	WBSEB	Rs.7.00 Lakhs
6.	Coal Net (Phase I & 2)		Rs.2725.00 Lakhs
7.	Computerized Toll bridge	Hoogly River Bridge Commissioners	Rs.10.00 Lakhs

8.	Concept Note for EDA Park	DIT, Govt. of West Bengal	Rs.6.00 Lakhs
9.	Content Based Search in Satellite Image Repository	Defence Electronics Lab.	Rs.9.50 Lakhs
10.	Coverage metrics for design intent coverage	Intel Corporation, USA	Rs.22.50 Lakhs
11.	Deployment of Telemedicine in Tripura	Min. of Information Technology, Govt. of India and WECS Ltd., Kolkata	Rs.27.00 Lakhs
12.	Design IT Roadmap for HCL	Hindusthan Copper Limited	Rs.7.30 Lakhs
13.	Development of Telemedicine in West Bengal Government Hospitals	Min. of Information Technology, Govt. of India and WEBEL, Kolkata	Rs.29.00 Lakhs
14.	Developments tools for CR-16	National Semiconductor Corporation, USA	Rs.112.50 Lakhs
15.	ERP Implementation (for Bridge & Roof)	Bridge & Roof	Rs.4.50 Lakhs
16.	External Network Consultant for West Bengal State Wide Area Network (WBSWAN) Expansion Project	Ministry of Information Technology, Govt. of India, and WEBEL Techn. Ltd. Kolkata	Rs.30.00 Lakhs
17.	Formal Methods for Component Based Design Validation	General Motors Collaborative Research Lab.	Rs.23.00 Lakhs
18.	Formal Verification of Web Interfaces	Google Inc.	Rs.20.00 Lakhs
19.	Functional Extraction for Automatic Stimulus Generation	National Semiconductor Corp., USA	Rs.22.50 Lakhs
20.	GM Collaborative Research Laboratory on Electronics, Controls and Software : Projects	General Motors	Rs.425.00 Lakhs
21.	Hindi Named Entity Recognition	Microsoft Research	Rs.10.00 Lakhs
22.	HP-UX lan driver development, as project	Pursuit Software Inc.	Rs.20.00 Lakhs
23.	Interlinking of JIS campuses	JIS Group, Kolkata	Rs.1.00 Lakhs
24.	IT Consultancy	UCO Bank	Rs.2.50 Lakhs
25.	IT Implementation and Computerization of DVC	Damodar Valley Corporation	Rs.19.10 Lakhs
26.	IT Roadmap for WBSETCL	West Bengal State Electricity Transmission Co. Ltd.	Rs.1.12 Lakhs
27.	LAN Design for Vidyut Bhavan	WBSEB	Rs.0.15 Lakhs
28.	Memory Compiler	National Semiconductor Corporation, USA	Rs.50.00 Lakhs

29.	Multimodal Participatory Tutoring System for Rural Schools	Media Lab Asia	Rs.24.00 Lakhs
30.	Nabarun Core Technology	Grameen Sanchar Society, Kolkata	Rs.50.00 Lakhs
31.	Named Entity Recognition	Microsoft Research Inc.	Rs.10.00 Lakhs
32.	Named Entity Recognition and Part of Speech tagging for Hindi	Microsoft Research India	Rs.10.00 Lakhs
33.	Object-Oriented (C#/.NET centric) Courseware Development	Microsoft Corp., USA	Rs.11.00 Lakhs
34.	Personalized content and commerce recommendations	Minekey Inc.	Rs.62.00 Lakhs
35.	Position Paper on Development of Semiconductor Facility	Xenitis Infotech.	Rs.3.75 Lakhs
36.	Road Map for ERP	DVC	Rs.1.00 Lakhs
37.	Roadmap for ERP Implementation for DVC	Damodar valley Corporation	Rs.1.00 Lakhs
38.	Setting up of Telemedicine Facilities in Tripura	Ministry of Information Technology, Govt. of India and WEBEL, Kolkata	Rs.27.00 Lakhs
39.	Shruti: Embedded Text to Speech Systems for Indian Languages Phase II	Media Lab Asia	Rs.21.00 Lakhs
40.	Software Tools for Embedded Systems	National Semiconductor Corporation, USA	Rs.50.00 Lakhs
41.	Synthesis and Property Extraction from System Verilog Models	Synopsys India Pvt. Ltd.	Rs.26.00 Lakhs
42.	Technical Consultancy on IT Matters	UCO Bank	Rs.1.00 Lakhs
43.	Telemedicine (DOTP)	WEBEL	Rs.29.00 Lakhs
44.	Telemedicine (DTGH)	WEBEL	Rs.29.00 Lakhs
45.	Telemedicine on Ophthalmology (TPLM)	WEBEL, Kolkata	Rs.3.00 Lakhs
46.	Telmedicine (SUTF)	WEBEL	Rs.36.00 Lakhs
47.	Template Extraction	National Semiconductor Corporation, USA	Rs.100.00 Lakhs
48.	Toll Booth for Vidyasagar Setu	HRBC	Rs.9.50 Lakhs
49.	Training and Research Analysis	Infosys Ltd. Bangalore	Rs.1.60 Lakhs
50.	Verification in Virtual Silicon	Virtio Corporation	Rs.50.00 Lakhs
51.	Verification of UML Models	General Motors	Rs.23.00 Lakhs
52.	W.B. State Wide Area Network	WTL	Rs.30.00 Lakhs
53.	Web portal Development Consutancy	WBSEDCL	Rs.3.00 Lakhs
54.	Zonal Data Warehouse and Online CRM Project of CRM	WBSEB	Rs.7.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Prof. Jayanta Mukhopadhyay Research (University of Southern California, Los

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| 2. | Prof. Indranil Sengupta | Angeles, USA) August 01 – December 12, 2007
Participation and delivering a tutorial talk at TENCON 2007 (Taipei, Taiwan) October 30 – November 02, 2007 |
| 3. | Prof. Rajev Kumar | Participation in GECCO-07 (London) 1 week |
| 4. | Prof. Rajev Kumar | Participation in ICIP 2007 (San Antonio, Texas, USA) 4 days |
| 5. | Prof. Pallab Dasgupta | Delivering DAC Tutorial at San Diego, and visiting National Semiconductors at Santa Clara (California, USA) June 2-10, 2007 |
| 6. | Prof. Sudeshna Sarkar | Presentation of paper in SNLP 2007 (Pattaya, Thailand) December 13-15, 2007 |

INVITED LECTURES BY FACULTY MEMBERS

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|-----|---------------------------------|---|
| 1. | Prof. Sudebkumar Prasant Pal | Combinatorial methods for studying LOCC incomparability (Institute of Physics, Bhubaneswar, International School and Conference on Quantum Information) |
| 2. | Prof. Jayanta Mukhopadhyay | Telemedicine Experience in West Bengal and Tripura (Delhi) |
| 3. | Prof. Jayanta Mukhopadhyay | Image processing in the DCT domain (Department of Electrical Engineering, University of Southern California, Los Angeles, USA) |
| 4. | Prof. Jayanta Mukhopadhyay | Trajectory Analysis of Broadcast Soccer Videos (Department of Computer Science & Engineering, University of Southern California, Los Angeles, USA) |
| 5. | Prof. Jayanta Mukhopadhyay | Image processing in the block DCT space (Hyderabad) |
| 6. | Prof. Jayanta Mukhopadhyay | Video Conferencing: Fundamentals and Applications (Netaji Subhas Open University, Kolkata) |
| 7. | Prof. Jayanta Mukhopadhyay | Trajectory Analysis of Broadcast Soccer Videos (DAIT, Gandhinagar) |
| 8. | Prof. Partha Pratim Chakrabarti | Design and Implementation Validation of Embedded System Applications (NIT Durgapur) |
| 9. | Prof. Partha Pratim Chakrabarti | Education and Research Opportunities (Bannari Amman Institute of Technology) |
| 10. | Prof. Partha Pratim Chakrabarti | Challenges in Information Assurance (New Delhi) |
| 11. | Prof. Rajeev Kumar | Virtual Execution Environments (National Institute of Technology, Rourkela) |
| 12. | Prof. Rajeev Kumar | Programming Pearls and Pitfalls (Jaypee Institute of Information Technology University, Noida) |
| 13. | Prof. Pallab Dasgupta | Verifiable Methods for Integrating Power |

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| 14. | Prof. Pallab Dasgupta | Management ICs (NSVL Distinguished Professor Lecture, National Semiconductors, Santa Clara, California) |
| 15. | Prof. Dipanwita Roychowdhury | Model Driven Integration: Putting together the bits and pieces of verification (DVM'2008 (Keynote Address), Bangalore, India) |
| 16. | Prof. Dipanwita Roychowdhury | New Paradigm of the Design of Block Cipher (SAG, New Delhi, DRDO) |
| 17. | Prof. Sudeshna Sarkar | Design and Analysis of N X K S-box (National Workshop on Cryptology, Coimbatore) |
| | | Examples of paradigms and rules for handling Bengali and Hindi computational morphology (TCS NLP Winter School 2008, Hyderabad) |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Devshri Roy	Automatic Annotation of Learning Materials for E-Learning
2.	Philip Samuel	Automatic Test Case Design using UML Behavioral Models
3.	Debdeep Mukhopadhyay	Design and Analysis of Cellular Automata Based Cryptographic Algorithms
4.	Tathagata Rai Dastidar	New methods for Automated Synthesis and Verification of Analog Circuits
5.	Hemanta Kumar Pati	Reservation and Admission Control for QOS provisioning in Mobile Networks
6.	A Vadivel	Content-based Image and Video Retrieval using the properties of the HSV color space
7.	Suman Kundu :	Patient Management in Wireless Environment using Handheld Devices
8.	Sanjay Chatterjee	Algorithms for post compilation power optimization in Embedded Processors
9.	Roshni Chatterjee	Cryptographic Hash Algorithms: Some Issues and Approaches
10.	Anirban Lahiri	Battery aware Embedded Systems Design through Scheduling and Code-Partitioning
11.	Anupam Chakraborty	Evolutionary Algorithms for Discovery of Bi-clusters from Gene Expression Data
12.	Soumyajit Dey	Embedded Architectures for Speech and Machine Learning: A Design Space Exploration Approach

LAURELS & DISTINCTIONS

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| 1. | Dr. Chittaranjan Mandal | ADCOM 2007, Best Student Paper Award; received by scholar for jointly authored paper |
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2. Dr. Chittaranjan Mandal Best Paper Award in Sensorware 2007
3. Prof. Pallab Dasgupta IBM Faculty Award
4. Dr. Chittaranjan Mandal IEEE APCCAS 2006, Best Paper Award (1 of 7 BPAs)
5. Prof. Partha Pratim Chakrabarti INAE Visveswarya Chair Professor
6. Dr. Chittaranjan Mandal Industrial Fellow (Honorary), Kingston University, UK
7. Prof. Anupam Basu National Award for Best Technology Innovation for the Physically Disabled, Ministry of Social Justice and Empowerment
8. Prof. Rajeev Kumar Fellow - Indian National Academy of Engineering

DEPARTMENT OF ELECTRICAL ENGINEERING

HEAD : Professor Avinash Kumar Sinha

FACULTY

Professor :

Bandopadhyay, Soumitro	Ph.D.(IIT Delhi), Nonlinear Dynamics
Barua, Alok	Ph.D.(IIT Kharagpur), Instrumentation, VLSI
Basu, Tapan Kumar	Ph.D.(IIT Delhi), Power Systems, DSP, Speech Processing
Bhattacharya, Tapas Kumar	Ph.D.(IIT Kharagpur), Electrical Machines & drives, Circuits, Electromagnetics, LIM., Transformer, Inrush current minimization
Das, Debapriya	Ph.D.(IIT Delhi), Power System Engineering
Das, Sarit Kumar	Ph.D.(IIT Kharagpur), Control Systems
Dutta, Pranab Kumar	Ph.D.(IIT Kharagpur), Signal Processing, Instrumentation, Image processing
Kishore, N. K.	Ph.D.(IISc. Bangalore), Applications of High Voltages, High Voltage & Insulation Engineering, Condition monitoring of Power Apparatus
Mohan, Bosukonda Murali	Ph.D.(IIT Kharagpur), Control Systems
Mukhopadhyay, Siddhartha	Ph.D.(IIT Kharagpur), CAD and Testing of Mixed Signal VLSI, Instrumentation, Control and Automation, Estimation, Monitoring and Diagnosis, Aerospace Control, Tracking and Guidance
Pal, Jayanta	Ph.D.(IIT Roorkee), Control System, Power System
Patra, Amit	Ph.D.(IIT Kharagpur), Control Systems, Power Electronics
Ray, Goshaidas	Ph.D.(IIT Delhi), Control System Engineering
Sen Gupta, Sabyasachi	Ph.D.(IIT Kharagpur), Machine Drives and Power Electronics
Sen, Siddhartha	Ph.D.(IIT Kharagpur), Instrumentation, Control Systems
Sinha, Avinash Kumar	Ph.D.(Pilani), Power Systems Engineering

Associate Professor :

Chakraborty, Chandan	Ph.D.(IIT Kharagpur), Ph.D. (Japan), Machines, Drives and Power Electronics
Kastha, Debaprasad	Ph.D.(Tennessee), Machine Drives and Power Electronics
Maka, Srinivasu	Ph.D.(IIT Kharagpur), Control Systems, Instrumentation Engineering, Biomedical Engineering
Pradhan, Ashok Kumar	Ph.D. (Sambalpur University), Power System Relaying, Power Quality, Digital Signal Processing
Routray, Aurobinda	Ph.D.(Sambalpur University), Real Time DSP Algorithms, Intelligent Signal Processing, Real Time Embedded Systems

Assistant Professor :

Chatterjee, Dheeman	Ph.D.(IIT Kanpur), Power Systems Dynamics, FACTS
Chattopadhyay, Souvik	Ph.D. (IISc. Bangalore), Power Electronics
Deb, Alok Kanti	Ph.D.(IIT Delhi), Computational Intelligence, Control Systems
Mukherjee, Anirban	Ph.D. (IIT Kharagpur), Instrumentation
Poddar, Gautam	Ph.D.(IISc. Bangalore), Power Electronics and Drives
Sahoo, Nirod Chandra	Ph.D.(University of Singapore), Power System Operation and Control, Applied Soft Computing

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Alok Kanti Deb	Assistant Professor
Dr. Dheeman Chatterjee	Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

From classical to modern, from milli watts to thousands of Mega watts, from conventional to non-conventional, the electrical engineering department investigates these all. The range of investigation for this department is one of the broadest in this institute. The major on going activities are categorized as follows :

Machine Drives and Power Electronics : Magnetic Levitation; Superconducting magnetic energy storage; Variable frequency AC-Drives; Simulation of power electronic circuits; Resonant Converters; Design of integrated circuits for Power Management; Nonlinear phenomena in Power Electronics; Automotive Electronics; Diagnostic of drives; Drive fatigue analysis

Control and Dynamic Systems : Neuro-fuzzy controllers; Control of chaotic systems; Discrete event and hybrid systems; Fault-tolerant control of aero-space systems; Attitude control of satellites and launch vehicles; Robust stabilization using periodic controllers; Reduced order modeling; Control of Variable Air-Volume Air-Conditioning Systems; Bifurcation theory of hybrid dynamical systems; Delta domain digital control analysis and design; Neural networks applications in control; Genetic algorithm applications in control; Decentralized control of large scale systems; Nonlinear dynamics; Fractional order system and their applications

Power and Energy Systems : Wind turbines; Power system dynamics; Real-time digital simulation of power systems; Power system protection; Intelligent relaying; State estimation of power systems; Condition and Diagnostic Monitoring of Power Apparatus; Energy audit and management; Power system planning and optimization; Wavelet Application to Power system Transients; Neural Net Application to Partial Discharge Phenomenon; Electric Field Computations; Lightning Protection; Material Characterization; FACTS

Instrumentation and Signal Processing : Laser based profile measurement; Image based measurement systems; Motion estimation using MRI and colour Doppler imaging; Non-Linear and Statistical Signal Processing; Real Time Algorithms for Detection and Diagnostics; Testing of analog and digital VLSI circuits; Fault detection and diagnosis of analog circuits; Control and instrumentation of bio-reactors; Fibre-optic components and sensors; Biomedical signal processing; Analysis of ECG signals; Sensors fusion; Multimedia Security; Convex Optimization and LMI applications to Signal Processing; Design and development of MEMS accelerometer; Seismic signal processing, active noise control; Fast algorithms for real time signal processing

Thrust Areas :

This Department has identified three thrust areas viz.

- (i) Efficient power converters and drives,
- (ii) Embedded sensors and systems and
- (iii) Microgrids and renewable energy

Other cutting edge technologies where the faculty members are working are – MEMS; VLSI applications in power converters; Automotive electronics and electric vehicles; Non-conventional energy; Control of aerospace systems; Bifurcation and chaos; Fault tolerant and embedded system; Distributed generation; FACTS; Prognosis & diagnosis of catastrophic failures in power systems

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Analytical & Computational Evaluation of Various parameters involved in the design of SC Cables (CIC) type to be used for Fusion Grade magnets	BRFS	Rs. 42.70 Lakhs
2.	Application of Chaos in DC/DC Converters for Reduction of EMI	ISRO	Rs. 8.60 Lakhs
3.	Artificial Heart Development Program	DST, New Delhi	Rs. 8.16 Lakhs
4.	Attitude control of launch vehicles	IIT Kharagpur Cell	Rs. 3.00 Lakhs
5.	AVLSI Consortium	Multiple Organizations in India and Abroad	Rs. 100.00 Lakhs
6.	Cultural Dimension in Digital Multimedia Security Technology	EU-India Cross cultural program, New Delhi	Rs. 35.00 Lakhs
7.	Design & Development of Spark Plasma Sintering facility for Nanomaterial Compaction	MHRD, New Delhi	Rs. 20.00 Lakhs
8.	Design of algorithm target for an embedded redundancy management system for fault tolerance of an electric	Defence Research and Development Laboratory, Hyderabad	Rs. 4.95 Lakhs

	actuator		
9.	Design of an optimal control strategy for GSLV MK3	Indian Space Research Organization	Rs. 2.00 Lakhs
10.	Development of decision support tools for secure energy management	Ministry of Power, New Delhi	Rs. 24.00 Lakhs
11.	Development of a Low Cost On-Line Distribution Monitoring Device with Wireless Local Loop Capability	Central Power Research Institute, Bangalore	Rs. 25.44 Lakhs
12.	Development of an Automotive Electronics Laboratory	MHRD, New Delhi	Rs. 16.00 Lakhs
13.	Development of an Autonomous Underwater Vehicle	DoD, New Delhi	Rs. 267.00 Lakhs
14.	Development of an Economical Variable Speed Constant Frequency Generation System Suitable for Wind Power Generation	Central Power Research Institute, Bangalore	Rs. 26.00 Lakhs
15.	Development of an intelligent, embedded sensor system for measuring thermal, electrical & hydraulic properties of soil	DST, New Delhi	Rs. 15.00 Lakhs
16.	Development of Decision Support Tools for Secure Energy Management	Central Power Research Institute, Bangalore	Rs. 24.70 Lakhs
17.	Development of Embedded Diagnostics Algorithms for HVAC systems in automobiles	General Motors, USA	Rs. 250.00 Lakhs
18.	Development of MEMS based Capacitive Accelrometer	Department of Information Technology, New Delhi	Rs. 103.00 Lakhs
19.	Development of Microscopic Imaging System for Dynamic Study of Fundamental Organisms (Fungus)	IIT Kharagpur	Rs. 3.00 Lakhs
20.	Development of Real Time Algorithms for Detection of Fatigue in Human Drivers	Ministry of Information Technology, New Delhi	Rs. 21.80 Lakhs
21.	Development of roof fall prediction system for underground mines using wireless network	Coal India Ltd.	Rs. 216.98 Lakhs
22.	Development of Roof fall prediction system for underground mines using wireless network	Coal India Limited	Rs. 216.98 Lakhs (Jointly with Mining Engg.)
23.	Development of Sesors for Gas-Liquid and Liquid-Liquid Flow	MHRD, New Delhi	Rs. 14.00 Lakhs
24.	Development of the theory of nonsmooth bifurcations in hybrid dynamical systems	BRNS, DAE	Rs. 7.00 Lakhs
25.	Educational Component of General Motors Collaborative Research Laboratory	General Motors Corporation	Rs. 125.00 Lakhs
26.	Full Spectrum Real Time Digital Simulator	C-DAC, Trivandrum	Rs. 5.47 Lakhs

27.	National Mission on Power Electronics Technology	C-DAC, Thiruvananthapuram	Rs. 70.00 Lakhs
28.	On-board Diagnostics of Automotive Engines	GM-IIT Kharagpur Collaborative Research Laboratory	Rs. 500.00 Lakhs
29.	Seeker, Radar and INS data fusion and filtering for kinematic state estimation of aerospace targets	Ministry of Defense, New Delhi	Rs. 24.75 Lakhs
30.	Setting up a research and development center for Damodar Valley Corporation at Kolkata (Phase-I)	Damodar Valley Corporation	Rs. 2132.70 Lakhs (Jointly with Mechanical Engineering)
31.	STATCOM with four arm configuration	C-DAC, Trivandrum	Rs. 4.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Development of performance monitoring system for critical stand motors of Rail & Structural Mill, Bhilai Steel Plant	RDCIS, Ranchi	Rs. 10.00 Lakhs
2.	Assessment of Dielectric Properties	KE Tex Prembazar Kharagpur	Rs. 0.20 Lakhs
3.	Behavioral Modeling and Top-Down Design of Switching Converter ICs	National Semiconductor Corporation, USA	Rs. 50.00 Lakhs
4.	Behavioral modeling and Verification of Analog and Mixed Signal Designs	National Semiconductor Corporation, USA	Rs. 50.00 Lakhs
5.	Behavioral Modeling of Power Converters	National Semiconductor Corporation, USA	Rs. 60.00 Lakhs
6.	Bus Paralleling Controller with CAN Interface	C-DAC, Trivandrum	Rs. 1.50 Lakhs
7.	Design and Development of a Twenty MegaHertz Switcher	National Semiconductor Corporation	Rs. 8.00 Lakhs
8.	Development of a Substation Automation System Phase I (Monitoring)	DVC	Rs. 25.70 Lakhs
9.	Development of Online Surface Inspection System for Hot Rolled flat Products	RDCIS, SAIL	Rs. 10.00 Lakhs
10.	Development of Parameterized Templates and R-extraction Tools - Phase II	National Semiconductor Corporation, USA	Rs. 90.00 Lakhs
11.	Electronic paralleling of UPS System	C-DAC, Trivandrum	Rs. 10.00 Lakhs

12.	Impulse Test on 2500 kVA 0.415/11 kV	M/s Synergy Power Eqpt. Pvt. Ltd., Jamshedpur	Rs. 0.35 Lakhs
13.	Impulse Test on 5 MVA 33/11 kV Transformer	Marsons Ltd., Kolkata	Rs. 0.85 Lakhs
14.	Impulse Test on 6.3 MVA 33/11 kV Transformer	Marsons Ltd., Kolkata	Rs. 0.80 Lakhs
15.	Impulse Test on 630 kVA, 11/433 KV Transformer	A. P. Electricals Pvt. Ltd., Kolkata	Rs. 0.35 Lakhs
16.	Macro-Modelling of Operational Amplifiers	National Semiconductor Corporation, USA	Rs. 60.00 Lakhs
17.	Process Monitoring of Rolling Process at RSM, BSP, SAIL	SAIL R&D, Ranchi	Rs. 5.00 Lakhs
18.	Remedial Measures to Mitigate Voltage Dip Problem at CTPS Bus	Damodar Valley Corporation	Rs. 3.15 Lakhs
19.	Series compensator for six step inverter	Veeral Control Pvt. Ltd., India, Bhabha Atomic Research Centre (BARC), India	Rs. 1.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Soumitro Bandopadhyay	Research collaboration (Newcastle University, UK) One month
2.	Prof. Soumitro Bandopadhyay	Collaborative research (Beijing University of Aeronautics & Astronautics, China) 3 weeks
3.	Prof. N. K. Kishore	To attend II ICIIS 2007 (University of Peradeniya, Kandy, Sri Lanka) August 6-10
4.	Prof. N. K. Kishore	To attend IEEE CEIDP 2007, visit UBC & BC Hydro (Vancouver Canada) October 14-17
5.	Dr. Ashok Kumar Pradhan	Research (McGill University, Montreal, Canada) 10 months
6.	Dr. Aurobinda Routray	IEEE International Conference on Industrial Information Technology (Vienna, Austria) 7 days
7.	Dr. Chandan Chakraborty	To organize a special session and to attend IEEE IECON 2007 conference and ADCOM meeting. (Taipei, Taiwan) November 5-9, 2007
8.	Prof. Siddhartha Mukhopadhyay	Project related Meetings (National Semiconductor, USA) 2 weeks
9.	Prof. Murali Mohan Bosukonda	To present a paper in an international conference (Sri Lanka) 6 days

INVITED LECTURES BY FACULTY MEMBERS

1.	Dr. Nirod Chandra Sahoo	Solving Shortest Path Problem using Particle Swarm Optimization and Noising
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| 2. | Dr. Nirod Chandra Sahoo | Metaheuristics (Distingusihed Lecture Program and National Workshop – Sponsored by INAE) (ITER, Bhubaneswar) |
| 3. | Prof. N. K. Kishore | Torque Control of Switched Reluctance Motor using a Fuzzy System Based Scheme (Distingusihed Lecture Program and National Workshop – Sponsored by INAE) (ITER, Bhubaneswar) |
| 4. | Prof. N. K. Kishore | Industrial Applications of HVE (NIT Durgapur) |
| 5. | Prof. N. K. Kishore | DSM & Distribution Reforms, Electrical Safety at High Voltages (Jyothishmati Institute of Science & Technolgy, Karimnagar, AP) |
| 6. | Prof. N. K. Kishore | Lightning Overview (CVR College, Hyderabad) |
| 7. | Prof. N. K. Kishore | Introduction to GIS (KLC College of Engineering, near Vijayawada) |
| 8. | Prof. N. K. Kishore | DSM & Distribution Reforms, Lightning, Electrical Insulation in Power Apparatus and Nanodielectrics (Mother Teresa Institute of Science & Technology, Sattupally, Khammam, AP) |
| 9. | Prof. N. K. Kishore | Introduction to GIS (IEEE Kharagpur Section) |
| 10. | Dr. Chandan Chakraborty | Protection of Power System Elements (DVC Towers, Calcutta) |
| 11. | Dr. Aurobinda Routray | Induction Motor Drives : Vector Control & Beyond (NIT, Durgapur) |
| 12. | Prof. Siddhartha Mukhopadhyay | Real Time Power Signal Processing (IIT Kanpur) |
| 13. | Prof. Siddhartha Mukhopadhyay | Towards a Semi-Automated Environment for Design and Testing of Analog and Mixed Signal Circuits with (NSVL Distinguished Lecture) (National Semiconductor Corporation, Santa Clara, USA) |
| 14. | Prof. Siddhartha Mukhopadhyay | Sensing Beyond Sensors : Intelligent Virtual Sensing (C-DAC, Thiruvananthapuram) |
| 15. | Prof. Jayanta Pal | Fault Diagnosis with Discrete Event Models : Theory for the User (General Motors India Science Lab, Bangalore) |
| | | Simulation and Control of Large Scale Systems Using Reduced Order Models (Shri Vishnu Engineering College for Women, Vishnupur, Bhimavaram, Andhra Pradesh) |

LECTURE BY VISITING EXPERT

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| 1. | Dr. Pinaki Ghosh | Intellectual property with case studies in electronics and electrical sciences |
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2.	Prof. Sivaji Chakravorti	Modern tools for impulse fault diagnosis in transformers
3.	Prof. Ian Hiskens	Practical computational tools for hybrid dynamical systems
4.	Prof. Sakti Pramanik	Bioinformatics: from genome sequencing to tree of life
5.	Prof. S. S. Bhattacharyya	Dataflow transformations in high-level DSP system design
6.	Dr. A. T. Kalghatgi	Trends in nanotechnology-nano electronics & sensors
7.	Prof. J. Amarnath	Particle movement in gas insulated systems
8.	Dr. M. Joy Thomas	Condition monitoring of gas insulated systems
9.	Dr. B. P. Singh	Medium voltage gas insulated systems
10.	Dr. B. Hemalatha	Dielectric spectroscopy gas insulated systems
11.	Dr. Joydeep Mitra	Secure power delivery through autonomous microgrids
12.	Ms. Vartica Singh	Numerical solutions of takagi-Sugeno fuzzy model state equations via block pulse functions
13.	Prof. V. Ramanarayanan	Linear electromagnetic stirrer for metallurgical applications
14.	Prof. Bhim Singh	Power quality improvements

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Partha Sarathi Bera	On Some Aspects of Dynamic Stability of Power Systems
2.	Leena, G.	Design of Controllers for Multivariable Systems
3.	Suvajit Mukherjee	Medium Voltage Squirrel Cage Induction Motor Drives using Three-level Neutral Point Clamped Inverter Modules
4.	H. N. Nagaraja	Efficiency Improvement of Multiphase Synchronous Buck Converter with Coupled Inductor Topology
5.	Suvarun Dalapati	Power Converters based on Controlled Capacitor Charging Technique
6.	Pradipta Patra	Design and On-Chip Implementation of a Single-Inductor Triple-output DC-DC Buck Converter
7.	Prabir Saha	Design of Low Phase Noise Low Power CMOS Quadrature Voltage Controlled Oscillator
8.	Samrat Ray	A Hierarchical Approach to Resistance Extraction of Power Arrays
9.	Rajarshi Paul	Design of a 20MHz Switching Voltage Regulator IC with a Precision Voltage Reference
10.	Siddartha Swarnakar	Development of a Fault Tolerant BLDC drive for aerospace actuators

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. M. K. Ghosh, Prof. S. Sen and Prof. S. Mukhopadhyay	Measurement and Instrumentation Trends and Applications	Ane Books / CRC Press	2008

PATENTS GRANTED

1. An Instrumentation System For Measurement of Velocity of Solid, Liquid and Gaseous Materials in Two Phase Flows
2. A Pumping System for Increasing Pressure of Blood or a fluid in a Controlled and Stepwise Mode
3. Visible Wavelength Laser Diode Based Diameter Gauge

LAURELS & DISTINCTIONS

1. Prof. Pranab Kumar Dutta
Certificate of Merit by Institution of Engineers (India)
2. Prof. Pranab Kumar Dutta
ISTE best M.Tech. thesis award
3. Prof. Soumitro Bandopadhyay
Fellow of the Indian National Science Academy (INSA)
4. Prof. Amit Patra
Winner of Cadence Design Contest
5. Prof. Siddhartha Mukhopadhyay
Editorial Board Member, Journal of Systems Science & Engineering
6. Prof. Siddhartha Mukhopadhyay
Honorary Editor, Controls, IETE Journal of Research
7. Prof. Siddhartha Sen
Editor, Journal of Systems Science and Engineering, Published by Systems Society of India
8. Prof. Siddhartha Sen
Associate Editor, International Journal on Smart Sensing and Intelligent Systems
9. Prof. Avinask K. Sinha
Editorial Board Member, ICFAI Journal of Science and Technology, Published by ICFAI University Press
10. Dr. Chandan Chakraborty
Editorial Board Member, IET Power Electronics (UK)
11. Dr. Chandan Chakraborty
Editorial Board Member, IEEE Industrial Electronics Magazine
12. Dr. Ashok K. Pradhan
Editorial Board Member, International Journal of Power and Energy Conversion (IJPEC), Published by Inder Science

**DEPARTMENT OF ELECTRONICS & ELECTRICAL COMMUNICATION
ENGINEERING**

HEAD : Professor Ajay Chakraborty

FACULTY

Professor :

Banerjee, Swapna	Ph.D.(IIT Kharagpur), Microelectronics & VLSI Design
Biswas, Dhruves	Ph.D.(Illinois, USA)
Biswas, Prabir Kumar	Ph.D.(IIT Kharagpur), Image and Video Processing, Computer Engineering
Chakraborty, Ajoy	Ph.D.(IIT Kharagpur), Electromagnetics, EMI/EMC, Array Antenna, Computational Techniques
Chakraborty, Mrityunjay	Ph.D.(IIT Delhi), Digital and Adaptive Signal Processing, VLSI for Signal Processing, Signal Processing for Wireless Communication
Datta, Debasish	Ph.D.(IIT Kharagpur), Telecommunications
Garg, Ramesh	Ph.D.(IIT Kanpur), Microwave and RF Engineering
Maiti, Chinmay Kumar	Ph.D.(IIT Kharagpur), Microelectronics (Si Heterostructures)
Pathak, Sant Sharan	Ph.D.(IIT Delhi), Digital Communication
Rajakumar, Ratnam Varada	Ph.D.(IIT Kharagpur), Digital Signal Processing, Communication Systems
Ray, Ajoy Kumar	Ph.D.(IIT Kharagpur), Image Processing, Pattern Recognition, Soft computing
Sanyal, Subrata	Ph.D.(IIT Kharagpur), RF & Microwave Engineering, E.M.Scatter
Sen Gupta, Somnath	Ph.D.(IIT Bombay), Image Processing and Computer Vision

Associate Professor :

Chakrabarti, Indrajit	Ph.D. (IIT Kharagpur), VLSI Design
Chattopadhyay, Santanu	Ph.D.(IIT Kharagpur), VLSI, Low power design, Testing
Dhar, Anindya Sundar	Ph.D.(IIT Kharagpur), Microelectronics and VLSI Design

Assistant Professor :

Bhattacharya, Amitabha	Ph.D.(IIT Kharagpur), Microwave Communication
Bhattacharyya, Tarun Kanti	Ph.D. (Jadavpur University), Microelectronics and VLSI
Chakraborty, Paritosh Kumar	Ph.D. (IIT Kharagpur), Solid State Science & Technology
Datta, Raja	Ph.D.(IIT Kharagpur), Computer Networks, Distributed Processing, Algorithms
Ghosh, Bratin	Ph.D.(University of Manitoba), Microwave Engineering
Mahapatra, Sudipta	Ph.D.(IIT Kharagpur), Computer Engineering
Mandal, Pradip	Ph.D.(IISc. Bangalore), CAD for CMOS analog VLSI,

Mukhopadhyay, Sudipta	Analog circuit design
Roy, Rajarshi	Ph.D. (IIT Kanpur), Visual Information Processing
Roy, Rajat	Ph.D. (Brooklyn University), Telecommunication Systems and Networks, Queueing theory, Stochastic Optimization
Saha, Goutam	Ph.D. (University of Mumbai), Microwaves
	Ph.D.(IIT Kharagpur), Signal Processing, Modelling & Prediction

Scientific Officer :

Sahoo, Ghanashyam	Ph.D. (Jadavpur University), EMI, EMC, Microwave & Antenna
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RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Signal Processing : Digital and Adaptive Signal Processing, Architectural Optimization of DSP algorithms, Adaptive Delay Estimation, Signal Processing for Wireless Communication.
2. Image Processing : Image retrieval for Mammograms, Construction of Abdominal Atlas for Ureter, Image retrieval for Cervical Spine Images, Image Quality Enhancement for US Image, Medical Image Processing, Automated Visual Information, Multimedia Networking, Fuzzy Min-Max Neural Network for Pattern Recognition.
3. Wireless Networks : Development of secure routing protocols in Mobile ad-hoc networks (MANET), Development of addressing schemes for secure ad-hoc networks, Development of improved routing protocols for sensor actuator networks (SANET).
4. Optical Networks: Design of Survivable Wavelength Division Multiplexing (WDM) networks for Dynamic Requests.
5. Speech Processing : Speech Enhancement, Speaker Recognition, Speech Recognition; Biomedical Signal Processing, Heart Sound, Lung Sound, Neuro-signal (EEG, MEG etc.) Analysis
6. Design of efficient hardware architectures for motion estimation and turbo-decoder.
7. Efficient hardware architectures for motion estimation (used in video compression) and turbo-decoder (used in forward error correction in communication)

Thrust Areas :

1. Microelectronics
2. Wireless Communication

New Acquisitions :

The Telecom-Networks Laboratory has been developed in the Department of Electronics & Electrical Communication Engineering, by the Department of Science & Technology, Government of India, under the FIST program. A number of new equipments have been procured for doing communication-networking related experiments. Equipments like CISCO

Routers, Switches, Wireless Access Points, Network Terminal NT-B have been used to set-up experiments to give a first hand idea about how routing is done in communication networks. Ericsson Advanced Digital ISDN ready EPABX system along with ISDN phones are used for ISDN set-up. A Video Conferencing system has also been procured to set up a video conference experiment under the Lab. A number of servers like Sun Fire V215 and Wipro Netpower have been procured to facilitate the communication related experiments. The lab is also equipped with Falcon Mobile Telephony Communication Trainer and Benchmark LAN-Trainer

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Design of High Speed and / or Low Power Adaptive Decision Feedback Equalizer – an Architectural Optimization Approach	MIT, New Delhi	Rs. 30.40 Lakhs
2.	Content based Image Retrieval for medical Images	IIT Kharagpur	Rs. 3.00 Lakhs
3.	Lossless Image Compression of Satellite Images	IIT Kharagpur	Rs. 0.50 Lakhs
4.	Development of Traditional Tongue Based Diagnostic Software Through Grabbing and Processing of Tongue Images for Storage, Retrieval and Rule Generatio	DST, New Delhi	Rs. 6.02 Lakhs
5.	Design of a Hardware Accelerator for Gabor Filter Bank Based Image Processor and its Implementation on FPGA	IIT Kharagpur	Rs. 3.00 Lakhs
6.	Design and Development of Secure Routing protocols for Mobile Ad-hoc Networks	IIT Kharagpur	Rs. 3.00 Lakhs
7.	Complex Biomedical Analysis	DST, New Delhi	Rs. 7.00 Lakhs
8.	Development of speaker recognition software for telephone speech	ISRO, Bangalore	Rs. 10.00 Lakhs
9.	Development of a speaker recognition chip Phase-I : FPGA implementation	AVLSI Consortium	Rs. 5.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Real Time Image Processing Algorithm Development for Conveyor Belt Health Monitoring	Phoenix Conveyor Belt Systems, Germany	Rs. 22.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Prof. Mrityunjy Chakraborty Visiting Professor at the City University of Hong

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| 2. | Prof. Mrityunjoy Chakraborty | Kong (45 days)
Invited to an academic leaders' summit on formation of an asia-pacific signal processing society at the Tokyo Institute of Technology, Tokyo, Japan |
| 3. | Prof. Mrityunjoy Chakraborty | Visiting Professor at the Kyoto University (2 weeks) |
| 4. | Prof. Mrityunjoy Chakraborty | Presented paper at the IEEE ISCAS-2008 at Seattle, USA and also attended editorial board meeting of the IEEE Transactions Circuits and Systems, Part II |
| 5. | Dr. Santanu Chattopadhyay | Asian Test Symposium, October 8-11, 2007, Beijing China IEEE Workshop on RTL and High Level Testing, October 12-13, Beijing, China |
| 6. | Prof. Swapna Banerjee | Presented paper at the IEEE ISCAS-2008 at Seattle, USA |

INVITED LECTURES BY FACULTY MEMBERS

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|----|------------------------------|---|
| 1. | Prof. Mrityunjoy Chakraborty | “VLSI Digital Signal Processing”, (S. T. Microelectronics, Greater Noida, UP) |
| 2. | Dr. Sudipta Mukhopadhyay | “Wavelet Transform” (International Conference on Statistical Paradigms - Recent Advances and Reconciliations. ICSPRAR-2008, January 01-04, 2008) (Kolkata, India) |
| 3. | Dr. Raja Datta | Optical WDM : Solution for Next Generation Networks. (Workshop on Physics and Technology of All-Optical Communication Components and Devices, October 16, 2007) (IIT Kharagpur) |
| 4. | Dr. Raja Datta | Wavelength Division Multiplexed Networks and Generalized Multi-protocol Label Switching. (Communication Seminar, March 18, March 2008) (Indian Air Force Station, Salua) |

LECTURE BY VISITING EXPERT

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| 1. | Prof. S. S. Bhattacharyya
Department of Electrical and Computer Engineering
University of Maryland at College Park, USA | Dataflow Transformations in High-level DSP System Design |
| 2. | Prof. Keshab K. Parhi
Department of Electrical and Computer Engineering
University of Minnesota, MN, USA | Biomedical Signal Processing |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Rajarshi Mahapatra	Studies on Link-Adaptive Wireless Communications
2.	Sushrut Das	Analysis of Rectangular Waveguide Based Passive Devices and Antennas Using Multiple Cavity Modeling Technique
3.	Paramesha	Estimation of Error Induced in the Near Field due to Measuring Probe
4.	Kolekar Maheshkumar Hanmant	Automated Semantic Concept Extraction and Highlight Generation of Sports Video Sequences
5.	Anirban Das	Lifting Based Architectures for Realizing 2 and 3 Dimensional Discrete Wavelet Transform
6.	Sanjoy Kumar Dey	Design of an 8-bit 2.5 GSPS A/D Converter using 0.25 μm Si/SiGe BiCMOS Technology
7.	Arindrajit Ghosh	Design of a Low Power 8-Bit 200-MSPS A/D Converter
8.	Ravi Shankar Prasad	Design of High Speed Digital to Analog Converter
9.	Manabendra Maji	Knowledge-Based Expert System for Doppler Ultrasonography Spectrogram
10.	Pralay Mandal	An Approach to Non-Invasive Blood Glucose Detection
11.	Debasish Paul	Design & Fabrication of Silicon based Microstructure for Tunneling Application to MEMS
12.	Rajarshi Bhattacharya	Frequency Domain Identification of Linear Distributed RF Systems by Particle Swarm Optimization
13.	Debasis Sarkar	Region-of-Interest Based Video Coding for Low Bitrate Applications

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. C. K. Maity	Selected Works of Professor Herbert Kroemer	World Scientific, Singapore	2008
2.	Prof. Herbert Taub, Prof. Donald L Schilling, Dr. Goutam Saha	Principles of Communication Systems, Third Edition	McGraw-Hill, India	2008

PATENTS GRANTED

- | | |
|--|---|
| 1. Goutam Saha (Patent Filed Application No. 85/Kol/08 dated 10.01.2008) | An integrated system to acquire and process digital heart sound signal for identification of valvular heart diseases with training, self-test, report generation and display facilities |
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LAURELS & DISTINCTIONS

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|---------------------------------|---|
| 1. Prof. Mrityunjoy Chakraborty | Invited to join the editorial boards of the IEEE Transactions on Circuits and Systems, Part I (2007) and Part II (2008) as Associate Editor |
| 2. Prof. Mrityunjoy Chakraborty | Invited as a guest editor of a special issue of the EURASIP JASP on Distributed Space Time Processing |
| 3. Prof. Mrityunjoy Chakraborty | Invited as TPC member of the IEEE International conf. on communications, 2007 (Glasgow), 2008 (Beijing) and IEEE Globecom (2008) |
| 4. Dr. Sudipta Mukhopadhyay | Honorary Member of the Editorial Board of the International Journal of BioSciences and Technology |
| 5. Prof. P. K. Biswas | Member, Editorial Board: International Journal on Medical Engineering and Informatics, Published by Inderscience Publication (2007) |
| 6. Dr. Raja Datta | Honorary Member of the Editorial Board of the International Journal of BioSciences and Technology |

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

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| 1. VLSI Signal Processing | 6 days |
| 2. Conference on Advances in Space Science and Technology | 3 days |
| 3. INDAC'08 at IIT Kharagpur | 2 days |
| 4. "Technology CAD for VLSI Design" for engineering college teachers. | 4 days |
| 5. Instruction Enhancement Program (IEP) on "Technology CAD" under Special Manpower Project, Sponsored by the Ministry of Communication and Information Technology was held at IIT Kharagpur | 6 days |

DEPARTMENT OF GEOLOGY & GEOPHYSICS

HEAD : Professor Anil Kumar Gupta

FACULTY

Professor :

Bhattacharya, Abhijit	Ph.D. (IIT Kharagpur), Metamorphic Petrology, Igneous Petrology
Das, Subhasish	Ph.D. (IIT Kharagpur), Sedimentology, Basin Tectonics
Gupta, Anil Kumar	Ph.D. (Benaras Hindu University), Paleoclimatology, Paleooceanography, Marine Micropaleontology, Marine Geology
Mishra, Biswajit	Ph.D. (IIT Kharagpur), Ore Geology & Metaorphic Petrology
Sarkar, Anindya	Ph.D. (Gujarat), Sedimentology, Isotope Geochemistry, Palaeoclimatology, Geochronology
Nath, Sankar Kumar	Ph.D. (IIT Kharagpur), Earthquake Seismology, Geophysical Tomography, Mathematical Geophysics, Geophysical Signal Processing
Sengupta, Debashish	Ph.D. (Gujarat), Nuclear Geophysics, Environmental Radioactivity
Tripathy, Subhasish	Ph.D. (IIT Bombay), Environmental Geochemistry

Associate Professor :

Bhowmik, Santanu Kumar	Ph.D. (Jadavpur University), Metamorphic Petrology, Geochemistry, Igneous Petrology
Gupta, Saibal	Ph.D. (Cantab), Structural Geology, Metamorphic Petrology, Tectonics
Mamtani, Manish A	Ph.D. (MS University), Structural Geology, Microtectonics
Panigrahi, Mruganka Kumar	Ph.D. (IIT Kharagpur), Economic Geology, Computer Applications
Sharma, Shashi Prakash	Ph.D. (Benaras Hindu University), Electrical and EM Geophysics, Groundwater investigation, Inverse theory

Assistant Professor :

Basu, Arindam	Ph.D. (Hong Kong), Engineering Geology, Rock Mechanics
Dalai, Tarun K	Ph.D. (PRL), Low temperature geochemistry
Mitra, Supriyo	Ph.D. (Cantab), Continental Tectonics, Seismic Tomography, Earthquake Seismology, Lithospheric Structure
Mohanty, William Kumar	Ph.D. (Delhi), Seismic Hazard Analysis, Microzonation, Grav. & Mag. Methods of Prospecting
Nair, Rajesh R	Ph.D. (NGRI), Geophysics: Signal Processing
Ray, Sanghamitra	Ph.D. (Calcutta University), Vertebrate Palaeontology
Sanyal, Prasanta	Ph.D. (PRL), Sedimentology, Stable Isotope Geochemistry

Lecturer :

Dutta Indira Ph.D. (IIT Kharagpur), Mathematical Geology, Remote Sensing

Senior Scientific Officer :

Sengupta, Probal Ph.D., Seismology, Seismic Hazard & Microzonation, Seismic Prospecting

RESEARCH AND DEVELOPMENT**Brief descriptions of on-going activities :**

Studies on Indian monsoon (both modern and ancient) and paleoclimate studies of the Indian subcontinent and paleoceanography of the Indian Ocean. Tectonic evolution of craton – mobile belt ensembles in parts of the Indian shield; Emplacement mechanism, tectonic evolution and metallogenesis in Precambrian Granitoids in India; Gold mineralization and gold potentials of the schist belts in Dharwar Craton, India; Studies on Indian microvertebrates, Lithospheric structure across Himalaya, Deformation at Collisional boundaries, Isotopes in Himalayan foreland sediments; Paleogene climate of Kutch, Rajasthan, Environment in ancient sedimentary basins in India; Seismic Hazard assessment and microzonation in the NE India and metropolitan cities, Mechanical characterization of rock materials, Groundwater potential assessment and pollution by natural and anthropogenic causes; Waste utilization and wasteland development; Natural radiation hazard estimation

Thrust Areas :

1. Paleoclimatology (Paleontology, Geochemistry)
2. Crustal Evolution and Metallogeny
3. Seismology
4. Environmental Hazards and Mitigation

New Acquisitions :

1. PUNDITplus PC1006 digital ultrasonic tester (Institute Grant)
2. CNSFARNELL (AT 241/E) rebound hammer (Institute Grant)

ON-GOING RESEARCH PROJECTS**Sponsored Projects :**

#	Title of the Project	Sponsor(s)	Amount
1.	Tectonothermal evolution of polycyclic granulite enclaves in amphibolites from the Sandmata complex, Rajasthan :	DST, New Delhi	Rs. 13.01 Lakhs

2.	constraints from P-T evolution, petro Tectono-metamorphic evolution of the Higher Himalayan rocks of Western (Kemeng Corridor) and eastern Arunachal Pradesh : A comparative Study	DST, New Delhi	Rs. 7.42 Lakhs
3.	Establishment of Electron Probe Micro Analyzer (EPMA)-National Facility IIT, Kharagpur	DST, New Delhi	Rs. 555.00 Lakhs
4.	Contrasting Styles Of Exhumation Of Monocyclic And Polycyclic Granulites From The Sausar Mobile Belt In Central India : Constraints From Metamorphic P	DST, New Delhi	Rs. 14.03 Lakhs
5.	Investigation of alteration of cosmic dust particles : Implications for interpretation of 187Os/188Os records in marine sediments and estimates for acc	Department of Space, Govt. of India	Rs. 20.00 Lakhs
6.	Rhenium-Osmium isotope systematics of organic-rich sediments of the Upper Vindhyan Supergroup : Chronology, interbasinal correlation and records of Osm	IIT Kharagpur	-
7.	Decadal Scale variability in the Indian Ocean summer monsoon during the Holocene	DST, New Delhi	Rs. 19.50 Lakhs
8.	The exhumation factor in the genesis of inverted metamorphic sequences - an evaluation from structure, metamorphism, fluid inclusion and earthquakes I	DST, New Delhi	Rs. 14.00 Lakhs
9.	Modeling and Monitoring of landslide hazard in Sikkim Himalayas	DST, New Delhi	Rs. 22.10 Lakhs
10.	Genetic modeling of orogenic gold deposits in the Dharwar Craton : constraints from metamorphism, ore mineralogy and fluid evolution	DST, New Delhi	Rs. 32.02 Lakhs
11.	Investigation of the Deep Seismic Structure in the Foreland of the Himalayan Collision Zone in Eastern India	IIT Kharagpur	Rs. 2.80 Lakhs
12.	3-Dimensional imaging of the lithosphere and active deformation across Sikkim-Darjeeling Himalaya and a comparison with NW-Himalaya (Deep Continental Studies	DST, New Delhi	Rs. 55.00 Lakhs
13.	Seismic Hazard Assessment of Haldia, Bengal Basin Area	DST, New Delhi	Rs. 3.12 Lakhs
14.	Evaluation of Seismic Potential of Talcher area, Orissa	IIT Kharagpur	Rs. 2.40 Lakhs

15.	Broadband seismometry in the north-east region with special emphasis to Guwahati for seismic hazard assessment	DST, New Delhi	Rs. 10.28 Lakhs
16.	Geochemical and fluid inclusion studies on the Malanjhand granitoid complex : Implications for ore genesis and crustal evolution	DST, New Delhi	Rs. 10.00 Lakhs
17.	Functional morphology and osteohistology of some Triassic reptiles from India	IIT Kharagpur	Rs. 3.00 Lakhs
18.	Carbon isotope studies of graphite and coexisting carbonate in Eastern Ghat, Orissa : implication to the source of graphite and temperature of metamorp	IIT Kharagpur	Rs. 3.00 Lakhs
19.	National facility on stable isotope geochemistry, IIT, Kharagpur	DST, New Delhi	Rs. 233.90 Lakhs
20.	A comparative structural analysis of Lonar and Ramgarh Craters for observations on impact structures on hard and soft-target rocks, and geochemical an	PLANEX, Physical Research Laboratory, Ahmedabad	Rs. 3.62 Lakhs
21.	Natural radioactivity and radiation dosimetry in the high background radiation area along the southern coast of Orissa, India	BRNS, Department of Atomic Energy, Mumbai	Rs. 8.68 Lakhs
22.	Measurement and Modeling of Radon Transport and distribution around tailing pond area and dwellings	BRNS, Department of Atomic Energy, Mumbai	Rs. 17.00 Lakhs
23.	Investigation of the basement structure of the Bengal Basin using Gravity and Seismic data	IIT Kharagpur	Rs. 3.00 Lakhs
24.	FIST-II	DST, New Delhi	Rs. 260.00 Lakhs
25.	Geophysical survey using gravity and magnetic methods in south Purulia shear zone	DAE, Government of India	Rs. 19.63 Lakhs
26.	Utilization of hyperspectral data in geological investigation / mapping for mineral exploration	Space Application Centre, Ahmedabad	Rs. 11.44 Lakhs
27.	Reconstruction of monsoonal rainfall from the late Quaternary Himalayan foreland sediments by Stable Isotope tracers: implications to climate forcing	DST, New Delhi	Rs. 11.00 Lakhs
28.	The relationship between anisotropy of magnetic susceptibility, strength anisotropy and microstructure in rocks devoid of mesoscopic foliations	DST, New Delhi	Rs. 15.93 Lakhs
29.	Global Seismic Monitoring by Broadband Seismological Observatory at IIT Kharagpur	Ministry of Earth Sciences, Govt. of India	Rs. 18.20 Lakhs
30.	Microzonation of Sikkim Region	Ministry of Earth	Rs. 42.89 Lakhs

		Sciences, Govt. of India	
31.	Create Infrastructure Facilities and Additional Provisions needed for sustaining a 24-Month M.Tech. Programme in Computational Seismology	Ministry of Earth Sciences, Govt. of India	Rs. 192.60 Lakhs
32.	National Capacity Building in Earthquake Engineering (EER)	Ministry of Home Affairs, Govt. of India	Rs. 33.26 Lakhs
33.	Broadband Seismometry in the North-East region with special emphasis to Guwahati for Seismic hazard assessment	DST, New Delhi	Rs. 72.00 Lakhs
34.	Broadband Seismological Observatory at IIT Kharagpur for Seismotectonic Study of Bengal Basin	DST, New Delhi	Rs. 64.65 Lakhs
35.	Isostatic compensation mechanisms of continental regimes based on application of wavelet	IIT Kharagpur	Rs. 3.00 Lakhs
36.	Coastal sedimentary archives of Tsunami affected Eastern Indian Coast using high resolution Geophysical records	INCOIS, Hyderabad	Rs. 40.00 Lakhs
37.	Spatio spectral localization of isostatic coherence anisotropy of 90 degree East ridge	Ministry of Earth Science, Govt. of India	Rs. 20.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Laser Raman Microspectrometry Analysis	Industry, Academic and Governmental Organizations	Rs. 2.50 Lakhs
2.	Electrical resistivity survey for delineation of Limestone formation around Chaibasa-Jharkhand	Madras Cement	Rs. 2.5 Lakhs
3.	Resistivity Survey for installation for deep tube-well at Kharikamathani	PHED, Govt. of West Bengal	Rs. 0.40 Lakhs
4.	Magnetic Laboratory Maintenance Project	Various Government and Private agencies	Rs. 0.25 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Dr. M. A. Mamtani
Conference on "Deformation Mechanism, Rheology and Tectonics" (Milan, 144, Rendiconti della Societa Geologica Itali)
2. Dr. S. Mitra
Postdoctoral Fellowship (UK, UK-India Education)

3. Dr. W. K. Mohanty and Research Initiative (UKIERI)
Collaborative Research, (University of Trieste & International Center for Theoretical Physics, Italy) (May 14 to July 29).
4. Dr. M. K Panigrahi Collaborative research (Geological Survey of Japan, AIST, Tsukuba, Ibaraki, Japan) (Two weeks).

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. A. K. Gupta Changing face of the Indian summer monsoon : Its impact on marine life, vegetation and human societies (Physical Research Laboratory, Ahmedabad) (January 22-25, 2008)
2. Prof. A. K Gupta Evolution of the Indian Monsoon System during the Neogene : Present status and Unresolved Issues (BSIP, Lucknow) (November 16-17, 2007)
3. Dr. M. A. Mamtani Anisotropy of Magnetic Susceptibility : Introduction to Fundamentals (Department of Geology, Kerala University, Trivandrum)
4. Dr. M. A. Mamtani Graphical Representation of AMS Data (Department of Geology, Kerala University, Trivandrum)
5. Dr. M. A. Mamtani Application of AMS in Structural Geology (Examples from Naturally Deformed Rocks) (Department of Geology, Kerala University, Trivandrum)
6. Dr. W. K. Mohanty Geophysical Methods of Prospecting, Seismology (Utkal University, Bhubaneswar) (March 19-21, 2008)
7. Dr. W. K. Mohanty Seismic Hazard Analysis in India (Trident Institute, Bhubaneswar) (March 23, 2008)
8. Dr. W. K. Mohanty Realistic Modelling of Earthquake Ground Motion in mega cities (CSIR Centre for Mathematical Modelling and Computer Simulation, Bangalore) (March 31 – April 06)
9. Prof. S. K. Nath Seismic Microzonation Framework – Principles & Case Studies (National Disaster Management Authority, Govt. of India at Centaur Hotel, New Delhi) (April 2-3, 2007)
10. Prof. S. K. Nath Tsunamis at the National Workshop on Science and Technology in Disaster Management (Earthquake, Land Slide & Tsunami) “Session VI – Tsunamis”) (NDMA, New Delhi) (April 3, 2007).
11. Prof. S. K. Nath Seismic Microzonation Framework – Principles & Applications (Indian Institute of

12. Prof. S. K. Nath Science, Bangalore) (June 26-27, 2007)
Earthquake Hazard in the Northeast India – A
Computer intensive Seismic Microzonation
Approach with (Indian Statistical Institute,
Kolkata, INAE Kolkata Chapter) (February
12, 2008)
13. Dr. P. Sanyal Origin of Graphite in the Eastern Ghat Mobile
Belt : a carbon isotope approach (Goa)
14. Dr. M. K. Panigrahi Magmatism, Tectonism and Mineralization
(Department of Geology, Kumaon University,
Nanital)

LECTURE BY VISITING EXPERT

1. Prof. B. K. Sahu, Department of Earth Sciences, Indian Institute of Technology, Bombay “Earth Sciences : Teaching, Research and Development” (November 6, 2007)
2. Dr. A. K. Dubey, WIHG, Dehradun “Structural Evolution of the Himalaya” (December 3, 2007)
3. Dr. Alan Collins, The School of Earth & Environmental Sciences, University of Adelaide, Australia "The Ediacaran-Cambrian Evolution of the Circum-Indian Orogens" (January 24, 2008)
4. Dr. S. R. Shetye, Director, NIO, Goa "An Overview of Physics of Mandovi and Zuari Estuaries in Goa" (January 28, 2008)

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Rashmi	Sedimentation Dynamics of the Proterozoic Singhbhum Basin : A perspective from the Bisrampur-Ghatsila-Galudih Region, Eastern India
2.	Indrajit Pal	Seismic Scenario of the Northeast Indian Peninsula
3.	Vikas Chand Baranwal	Integrated Interpretation of VLF Data with other Geophysical Data and Study of Two-Dimensional VLF Modeling and Inversion
4.	Suman Das	P-T-deformation history across the Eastern Ghats Mobile Belt Craton Contact, Indian evidence from the northwestern segment of the belt, and implications

LAURELS & DISTINCTIONS

1. Prof. A. K. Gupta Fellow of the Indian Academy of Sciences, Bangalore, 2008
2. Prof. A. K. Gupta Life Fellow of the Indian Geophysical Union, Hyderabad, 2008

3. Prof. S. K. Nath
Elected "Fellow" of the Indian National Academy of Engineering (INAE) (2007), (FNAE), 2007
4. Dr. S. K. Bhowmik
Nominated for INSA-DFG Fellowship for the year 2008-09
5. Dr. M. A. Mamtani
H.H. Read Memorial Gold Medal Award by the Society of Geoscientists and Allied Technologists, Bhubaneswar, 2007
6. Dr. S. Mitra
UK-India Education and Research Initiative (UKIERI) post doctoral Fellowship, 2008
7. Dr. T. K. Dalai
Marquis Who's Who in Science and Engineering, 2007

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

HEAD : Professor Damodar Suar

FACULTY

Professor :

Basu, Partha	Ph.D.(Calcutta), Economics, Econometrics and Mathematical Economics
Chatterjee, Bani	Ph.D.(BHU), Development Planning, Sustainable Development, International Finance
Chatterjee, Suhita	Ph.D.(IIT Bombay), Sociology of Health and Medicine, Bio-Medical Ethics, Sociology of Architecture
Chopra	
Gera Roy, Anjali	Ph.D.(IIT Bombay), Post-colonial Literatures and Theory, Culture and Media Studies
Mandal, Manas Kumar (on leave)	Ph. D. (Calcutta), Clinical and Social Psychology, Neuropsychology
Srivastava, Kailash	Ph.D.(IIT Kanpur), Human Resource Development, Organizational Behaviour
Bihari Lal	
Suar, Damodar	Ph.D.(IIT Kharagpur), Social and Organizational Psychology, Neuropsychology
Tewari, Hare Ram	Ph.D.(IIT Kharagpur), Rural and Urban Development, Sociology of Organizations

Associate Professor :

Chakraborti, Chhanda	Ph.D.(Utah, USA), Logic, Philosophy of Mind, Applied Ethics
Giri, Vijai Nath	Ph.D.(IIT Kharagpur), Interpersonal Communication, German Language
Nayak, Narayan	Ph.D.(Utkal), Agricultural and Rural Economics, Urban Informal Sector and Migration
Chandra	
Patnaik, Priyadarshi	Ph.D.(Utkal), Indian aesthetics, Communication and Media studies

Assistant Professor :

Behera, Bhagirath	Ph.D.(Bonn, Germany), Environmental and Resource Economics, Institutional Economics
Chakraborty, Jayshree	Ph. D. (IIT Kanpur), Theoretical and Applied Linguistics
Das, Saswat Samay	Ph. D. (Utkal), Post-colonial and Post-modern Studies, Indian Writing in English, Culture Studies
Goswami, Kishor	Ph. D.(IIT Kharagpur), Agricultural Economics, Poverty, Gender and Trade
Komalesha, H. S.	Ph. D.(IIT Kharagpur), Postcolonial Studies, Translation Studies, Indian English Literature
Mahakud, Jitendra	Ph.D.(IIT Bombay), Financial Economics, Investment

Mishra, Pulak	Management, Econometrics Ph. D. (Vidyasagar), Industrial Economics, Public Finance and Policy, Economics of Rural Development
Mishra, Trupti (on leave)	Ph.D.(IIT Kharagpur), Environmental Economics, Finance and Trade, Industrial Economics
Murugan, Seema	Ph.D. (BHU), African American Literature, Communication Skills, Dalit Literature
Pradhan, Rabindra Kumar	Ph.D. (Utkal), Social and Organizational Psychology, Human Resource Development

Visiting Faculty :

Kapoor, Sucheta	Ph.D. (Oxford), Nineteenth Century French Literature, Cultural Studies
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Jayshree Chakraborty	Assistant Professor
Dr. Rabindra Kumar Pradhan	Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Brain-behaviour Relations
2. Economics of Growth
3. Financial Economics
4. Financial Institutions and Markets
5. Gender and Trade
6. Human Resource Development
7. Interpersonal, Intercultural and Organizational Communication
8. Non-verbal Communication
9. Quantitative Economics
10. Sociology of Health and Medicine
11. Visual Aesthetics

Thrust Areas :

1. Development Studies
2. Human Resource Management and Ethics
3. Cultural Studies and Communication

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Animated Texts : Communicating in a Multimedia Environment	Indian Council of Social Science Research	Rs. 3.80 Lakhs
2.	Bollywood's Transnational Flows	Indo-Canadian Shastri Institute	Rs. 6.00 Lakhs
3.	Concept Paper on Disaster Management	Defence Institute of Psychological Research, New Delhi	Rs. 4.86 Lakhs
4.	Demeanor Analysis	Defence Institute of Psychological Research, New Delhi	Rs. 9.80 Lakhs
5.	Development of Training Package on Interview and Interrogation Techniques	Defence Institute of Psychological Research, New Delhi	Rs. 4.85 Lakhs
6.	Gender and Trade in Silk Industry : A Study in Silk Workers in Sualkuchi in Assam	United Nations Development Programme	Rs. 2.64 Lakhs
7.	Impact of Globalization and Adoption of New Technology on Silk Industry in Assam: An Assessment from Gender Perspective	DSIR, New Delhi	Rs. 6.83 Lakhs
8.	Side Bias in Motor Proficiency : A Human Engineering Programme for Accident Prevention and Performance Enhancement	DST, New Delhi	Rs. 14.50 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Comprehensive Socio-Economic Survey for Pakri-Barwadih Coal Mining project	NTPC, Noida	Rs. 17.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Anjali Gera Roy	Visited Canada: Indo-Canadian Shastri Fellowship, 2007
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INVITED LECTURES BY FACULTY MEMBERS

1.	Prof. Suhita Chopra Chatterjee	Health and National Youth Policy (IIM Calcutta)
2.	Prof. Anjali Gera Roy	Is There an Indian Culture? (Bangalore)
3.	Prof. Anjali Gera Roy	How to Publish in International Journals (Kolkata)

- | | | |
|----|-------------------------------------|--|
| 4. | Dr. Priyadarshi Patnaik | Changing Times : Learning in Multimedia Environment (Padmanava College of Engineering, Rourkela) |
| 5. | Prof. Kailash Bihari Lal Srivastava | Knowledge Management (ITER, Bhubaneswar) |

LECTURE BY VISITING EXPERT

- | | | |
|----|---|---|
| 1. | Prof. Eckhard Breiting, Dr. Pia Thielman, University of Bayreuth, Germany | Cultural practices and conflict mediation |
| 2. | Prof. Leslie P. Francis, Prof. John Francis University of Utah, USA | Ethics and law |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Sudeep Budhaditya Deb	Joint Forest Management : A Case Study of Bankura (North Division)
2.	Vani Archana	Foreign Direct Investment in India : Industry and State Level Analysis

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. S. C. Chatterjee, Dr. P. Pattnaik and Mr. V. Chariar (Eds.)	Discourses on aging and dying	Sage, New Delhi	2008
2.	Dr. H. S. Komalesha	Issues of identity in Indian English fiction: A close reading of canonical Indian English novels	Peter Lang, UK	2008
3.	Dr. H. S. Komalesha	Anupama niranjana	Sahitya Akademi, New Delhi	2008
4.	Dr. R. K. Pradhan and Mr. P. Mathur	Emotional intelligence : Perspectives in organisations	Academic Excellence, New Delhi	2008
5.	Prof. A. G. Roy and Mr. M. T. Pillai	Rohinton Mistry : An anthology of recent criticism	Pencraft, Delhi	2007
6.	Prof. A. G. Roy and Mr. N. Bhatia	Partitioned lives : Narratives of home, displacement and resettlement	Pearson Longman, New Delhi	2008

- | | | | | |
|----|--|--|-----------------------------|------|
| 7. | Prof. M. B. Sharan and
Prof. D. Suar (Eds.) | Management through
interpersonal
relationships | Jaico Publishing,
Mumbai | 2008 |
| 8. | Dr. S. M. Singh | The fiction of Alice
Walker : A study of
black images | Authors Press, New
Delhi | 2008 |
| 9. | Dr. S. M. Singh | Success in oral
communication:
Strategies for GD-PI
and presentations | Macmillan, New
Delhi | 2008 |

LAURELS & DISTINCTIONS

- | | | |
|----|---------------------|---|
| 1. | Dr. Kishore Goswami | Associate Editor, International Journal of
Interdisciplinary Social Science, Vol. 2, 2007,
Australia : Common Ground Publisher. |
|----|---------------------|---|

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

- | | | |
|----|--|-----------------------------|
| 1. | Short-term course on Small industries Management | March 27 –
June 30, 2007 |
|----|--|-----------------------------|

DEPARTMENT OF INDUSTRIAL ENGINEERING & MANAGEMENT

HEAD : Professor Pradip Kumar Ray

FACULTY

Professor :

Acharya, D.	Ph.D., Operations Research, Quality Engineering, Production Planning
Banerjee, R. N.	PGDM, Computer Applications, Management Information Systems
Mahanty, B.	Ph.D., Operations Research, Information Systems, System Dynamics, Project Management
Mohapatra, P. K. J.	Ph.D., System Dynamics, Quality Engineering, Software Engineering, E-business
Ray, P. K.	Ph.D., Ergonomics / Human Factors Engineering, Productivity Engineering, Quality Design and Control, Materials Management
Sahu, S.	Ph.D., Operations Management, Logistics and Supply Chain Management
Srinivasan, S.	Ph.D., Engineering Economics, Financial Management

Associate Professor :

Maiti, J.	Ph.D., Safety and Health Management, Probabilistic Risk Assessment, Ergonomics, Statistical Quality Control
Naikan, V. N. A.	Ph.D., Condition Monitoring, Mechanical System Reliability, Quality Planning and Management
Tiwari, M. K.	Ph.D., Intelligent DSS, Design of Manufacturing Systems, Evolutionary Computing, Supply Chain Management

Assistant Professor :

Jenamani, M.	Ph.D., e-Business, Website Design, Web user Behavior Analysis, Electronic Auction and Negotiation
Sarmah, S. P.	Ph.D., Operations Research, Production Planning and Control, Supply Chain Management, Inventory Management

Lecturer (Senior Scale) :

Nandy, A.	Fellow of IIM Calcutta, Networks Modeling, Simulation, Small World Networks
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. M. K. Tiwari
A. Nandy

Associate Professor
Lecturer (Senior Scale)

Faculty Promotion :

Dr. J. Maiti

Associate Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The focus of the department is to provide world-class education to the students and the researchers in the field of industrial engineering and its allied disciplines, and to work closely with the industrial community for improving their work systems and business processes by using the cutting-edge technology and management practices. The department provides an excellent environment which is the right blend of academic and industry interactions to groom its faculties as well as the students. With world-class research, wide industrial exposure, and close faculty-student interaction, the department ensures that a strong foundation is set for the students before they start their journey as industrial experts and consultants.

Further, the department is actively involved in sponsored research and industrial consultancy. Major funding agencies for sponsored research are DST, MHRD, CSIR, ICAR, UGC, and industries. Since its inception, the department has been providing consulting services to the industries and government organizations in the field of industrial engineering and management. The value of this consulting work is around Rs 40 crore during the last five years. The major sponsors of these consulting assignments are: Tata Steel, Coal India, Neyveli Lignite, NALCO, SAIL, IMFA, OMC, ACC, and IAF

Thrust Areas :

The Department is keen on working in the areas pertaining to contemporary industrial problems. Some of these areas are as follows :

1. Product and Production System Design
2. Productivity Engineering
3. Work System Design
4. Product Development
5. Technology Management
6. Quality Control and Engineering
7. Networks and Project Management
8. Inventory Control
9. Logistics and Supply Chain Management
10. Optimization Tools and Techniques
11. Ergonomics and Human Factors Engineering
12. Risk Assessment and Safety Engineering and Management
13. ERP and e-Business

14. Software Engineering and Software Project Management
15. Knowledge Management
16. Evolutionary Computing

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Ergonomics and Human Factor Engineering and e-Business Laboratory Development	DST, New Delhi	Rs. 60.00 Lakhs
2.	Development and Test of a Socio-Technical Model for Assessing Occupational Risk of Injuries and Illness to Mine Workers	CSIR, New Delhi	Rs. 8.64 Lakhs
3.	Development of decision support model for supply chain coordination	IIT Kharagpur	Rs. 3.00 Lakhs
4.	Technology adoption in tea industry with special reference to NE, India	DSIR, New Delhi	Rs. 6.50 Lakhs
5.	Agent-mediated Electronic Auctions and Negotiations	MHRD, New Delhi	Rs. 18.00 Lakhs
6.	Productivity of Agricultural Systems – A Data Envelopment Analysis Approach	ICAR, New Delhi	Rs. 10.76 Lakhs
7.	Hazard evaluation, risk assessment and accident causation in mines – An application of multivariate statistical models and neural networks	DST, New Delhi	Rs. 6.40 Lakhs
8.	Automated negotiation and trust management in electronic market places	IIT Kharagpur	Rs. 3.00 Lakhs
9.	Exploring trust, fraud and privacy issues in E-business	DST, New Delhi	Rs. 8.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Manpower Study at Mines Division of IMFA Ltd., Bhubaneswar	IMFA Ltd., Bhubaneswar	Rs. 8.00 Lakhs
2.	Strategic Options Study for Rural Roads under R D Department	Govt. of Orissa	-
3.	Techno Economic Feasibility Study of Hindustan Cables Ltd., Calcutta	HCL, Kolkata	Rs. 36.00 Lakhs
4.	Study on Ancillary Industry of PSCO India	POSRI, Rep. of Korea	Rs. 26.00 Lakhs
5.	Development of Educational Complex	Tirupati Asset	Rs. 50.00 Lakhs
6.	Study on Ore Loss during Material Handling for OMC Operated Mines	OMC, Bhubneswar	Rs. 7.50 Lakhs

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|---|----------------|
| 7. Developing a Maturity Model to TCS Transform 'Potential' Organizational Resources to Assets (based on AXELL) | Rs. 9.00 Lakhs |
|---|----------------|

VISITS ABROAD BY FACULTY MEMBER

- | | |
|-----------------------------|---|
| 1. Dr. M. Jenamani | International Conference on Industrial Informatics, INDIN 2007, July 23-27, 2007 (Vienna, Austria) |
| 2. Dr. S. P. Sarmah | Present paper and Session Chair at International Conference of IEEEEM, December 2-5, 2007 (Singapore) |
| 3. Prof. B. Mahanty | August 4-10, 2007 (Seoul, Pohang and Gwangyang in South Korea) |
| 4. Prof. P. K. J. Mohapatra | August 4-10, 2007 (Seoul, Pohang and Gwangyang in South Korea) |

INVITED LECTURES BY FACULTY MEMBERS

- | | |
|------------------------|--|
| 1. Dr. M. K. Tiwari | A European Council Project - Next-Gen Project initiated by Prof C Lalwani of University of Leeds, UK, February 02, 2008 (Indian Institute of Technology Mumbai) |
| 2. Dr. Mamata Jenamani | e-procurement organized during International Conference of Issues and Challenges in Supply Chain Management (ICSCM -2008), March 28-30, 2008 (Institute of Technology, Benaras Hindu University, Varanasi) |

LECTURE BY VISITING EXPERT

- | | |
|---|---|
| 1. Prof. M. K. Kolay, University of South Pacific, Suva, Fiji Islands | Real Options in Financial Engineering |
| 2. Prof. Steve Bradley, Lancaster University of Management School, UK | Diversity, choice and the quasi-market: an empirical analysis of England's secondary education policy |
| 3. Dr. Santanu Dey, Center for Operations Research and Econometric, Universite Catholique de Louvain, Belgium | Cutting Planes for Unstructured Mixed Integer Programs Using Multiple Constraints |
| 4. Prof. Gautam Datta
Indian Institute of Management
Ahmedabad | Revenue Management |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Ranjit Kumar Das	Design and Development of a Framework for Warranty Data Analysis
2.	Rajib Kumar Mohapatra	Optimization and Decision Support Models for Supply Chain Management of a Ferro Alloys Company
3.	Indrajit Mukherjee	Modelling and Optimization of Abrasive Metal Cutting Processes
4.	S. V. Patil	e-Governance Focused Conceptual Transformation Model and Framework for Technical Universities in India
5.	Ashutosh Sarkar	Models for Supplier Base Rationalization and Third-Party Logistics
6.	Subhash Chandra Panja	A Study on Signalling Systems of Indian Railways

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Dr. M. K. Tiwari	Swarm Intelligence, Focus on Ant and Particle Swarm Optimization	I-Tech Education and Publishing, Vienna, Austria	2007

LAURELS & DISTINCTIONS

1.	Dr. M. K. Tiwari	Associate Editor of the Journal of Intelligent Manufacturing
2.	Dr. M. K. Tiwari	Editorial Board Member of the International Journal of Mechanical Engineering Science, Proceedings the IMechE, (Part C)
3.	Dr. M. K. Tiwari	Editorial Board Member of the International Journal of Computer Integrated Manufacturing (IJCIM)
4.	Dr. M. K. Tiwari	Editorial Board Member of the International Journal of Business and Systems Research (IJBSR)
5.	Dr. M. K. Tiwari	Editorial Board Member of the International Journal of Mathematics of Operational Research (IJMOR)
6.	Dr. M. K. Tiwari	Editorial Board Member of the International Journal of Manufacturing Research (IJMR)

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Training Programme on Materials Management for Probationary Officers of IR Stores Service (SF) June11 – July 06, 2007
2. Training Programme on Project Management Fundamentals for McNally Bharat Co. Ltd. August 27–31, 2007
3. QIP Short Term Course on Supply Chain Management October 03–10, 2007
4. 3-day Training Programme on Facility Layout Design for Tata Steel, Jamshedpur February, 2008

DEPARTMENT OF MATHEMATICS

HEAD : Professor Akhil Ranjan Roy

FACULTY

Professor :

Alam, S. S.	M.Sc., Ph.D. (IIT Kharagpur), Computer Science, Operations Research, Statistics
Bhattacharyya, S.	M.Sc., Ph.D. (IISc Bangalore), Computational Fluid Dynamics, Numerical Analysis
Biswal, M. P.	M.Sc., Ph.D. (IIT Kharagpur), Operations Research and MCDM, Computational Statistics, Game Theory
Goswami, A.	M.Sc., Ph.D. (Jadavpur University), Computer Science, Operations Research
Gupta, D. K.	M.Sc., DIIT, Ph.D. (IIT Kharagpur), Computer Science and Numerical Analysis
Gupta, U. C.	M.A., Ph.D. (IIT Delhi), Statistics, Queuing Theory
Jain, V. K.	M.Sc., Ph.D. (IIT Delhi), Complex Analysis
Kumar, S.	M.Sc., Ph.D. (IIT Kanpur), Statistical Decision Theory and Inference, Quantum Computing
Misra, J. C.	M.Sc., Ph.D., D.Sc. (Calcutta University), Bio Mathematics
Nanda, S.	M.Sc., Ph.D. (Sambalpur University), Functional Analysis, Fuzzy Mathematics, Optimization
Roy, A. R.	M.Sc., Ph.D. (IIT Kharagpur), Relativistic Cosmology, General Theory of Relativity
Sarkar, A.	M.Sc., Ph.D. (IIT Kharagpur), Statistics, Digital Image Processing, Satellite Image Processing
Srivastava, P. D.	M.Sc., Ph.D. (IIT Kanpur), Functional Analysis, Complex Analysis

Associate Professor :

Kumar, P.	B.Tech., Ph.D. (IIT Kanpur), Computer Science
Murthy, P. V. S. N.	M.Sc., Ph.D. (IIT Kanpur), Convective Transport in Porous Media, Fluid Mechanics
Pandey, R. K.	M.Sc., Ph.D. (IIT Kanpur), Singular Boundary Value Problems, Numerical Analysis, Ordinary Differential Equations
Raja Sekhar, G. P.	M.Sc., M.Phil., Ph.D. (Hyderabad), Mathematical Fluid Mechanics, Boundary Integral Methods for porous media

Assistant Professor :

Chakraborty, D.	M.Sc., Ph.D. (IIT Kharagpur), Information Systems, Operations Research, Fuzzy Logic and Reasoning
Gayen, R.	M.Sc., Ph.D. (Calcutta University), Fluid Dynamics, Integral

	Equations
Ghosal, K.	M.Sc., Ph.D. (Jadavpur University), Sediment Transport in Turbulent Flow
Gnaneshwar, N.	M.Sc., Ph.D. (IIT Bombay), Numerical Functional Analysis, III-posed Problems
Maity, S.	M.Sc., Ph.D. (ISI Calcutta), Combinatorics, Cryptography, Fault-Tolerance, VLSI Architectures, Statistical Designs of Experiments
Nahak, C.	M.Sc., Ph.D. (IIT Kharagpur), Applied Functional Analysis and Optimization, Fractional Calculus
Nanda, A. K.	M.Sc., Ph.D., (Chandigarh), Entropy, Reliability, Statistics
Panda, G.	M.Sc., Ph.D. (Utkal University), Optimization Technique
Panigrahi, P.	M.Sc., Ph.D. (ISI Bangalore), Graph Theory, Combinatorics

Visiting Faculty :

Biswas, D.	M.Sc., Ph.D., (Leeds, UK), Clifford Analysis, Functional Analysis
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Emeritus Professor : INSA Senior Scientist

Gupta, A. S.	D.Sc.
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. D. Biswas	Assistant Professor
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Faculty on Re-employment (Upto 65 years age) :

Prof. J. C. Misra	Professor
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RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Faculty members of the Department are currently engaged in their individual sponsored projects listed below (On-going Research Projects)

Thrust Areas :

1. Fluid Mechanics
2. Functional Analysis

New Acquisitions :

A new FIST sponsored computer laboratory has been set up during the year under review

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Classification of hyperspectral remote sensing data to discriminate between crop condition, variety and stage	ISRO	Rs. 7.50 Lakhs
2.	Wall Proximity on Bluff Body weight : Three Dimensional aspect	CSIR, New Delhi	Rs. 12.00 Lakhs
3.	Boundary Integral Work Bench for Viscous flow through Porous Media	DST, New Delhi	Rs. 9.33 Lakhs
4.	Integration of Fuzziness and Randomness with Special Emphasis to Re-modeling of Inventory Problems	DST, New Delhi	Rs. 5.50 Lakhs
5.	Studies on the equilibrium problems under generalized convexity and generalized monotonicity in banach space	CSIR, New Delhi	Rs. 7.26 Lakhs
6.	Turbulence suspension over sandy bedforms : Experimental and theoretical studies	DST, New Delhi	Rs. 1.26 Lakhs
7.	Singularity methods for Stokes flows in presence of rigid / porous planar interface	CSIR, New Delhi	Rs. 7.56 Lakhs
8.	Nonlinear Singular Boundary Value Problems Arising in Physiology	CSIR, New Delhi	Rs. 5.66 Lakhs
9.	On Stochastic Order Relations with Applications in Reliability	DST, New Delhi	Rs. 7.45 Lakhs
10.	Integration of Fuzziness and Randomness with Special Emphasis to Re-modeling of Inventory Problems	DST, New Delhi	Rs. 3.51 Lakhs
11.	A Genetic Algorithmic Approach to Solve Generalized Non-Linear Optimization Models with Hybrid Data	MHRD, New Delhi	Rs. 5.00 Lakhs
12.	Linguistic Information Processing for Decision Making in An Evaluation Programme	IIT Kharagpur	Rs. 1.00 Lakh
13.	Development of Decision Support Tools for Secure Energy Management	CPRI	Rs. 24.73 Lakhs
14.	Classification of Hyperspectral remote sensing data to discriminate between crop condition variety and stage	ISRO	Rs. 7.48 Lakhs
15.	FIST Program	DST, New Delhi	Rs. 21.00 Lakhs
16.	Wall proximity on bluff body wake : 3-D aspects	CSIR, New Delhi	Rs. 21.00 Lakhs
17.	FIST program	DST, New Delhi	Rs. 22.00 Lakhs
18.	Flow perturbation and sediment suspension over sandy bedforms: Theoretical and	DST, New Delhi	Rs. 6.00 Lakhs

- experimental studies
19. Effects of Non-linearity and viscoelasticity of CSIR, New Delhi Rs. 10.00 Lakhs
 blood and wall tissue and
 magnetohydrodynamic.....states

VISITS ABROAD BY FACULTY MEMBER

1. Prof. S. Bhattacharyya Max Planck Institute, Bremen, Germany (1 year from June 2006 to July 2007)
2. Dr. G. P. Raja Sekhar To initiate collaboration, MoU (Centre for Industrial Mathematics, University of Bremen)
3. Dr. G. P. Raja Sekhar To present a paper in the GAMM 2008 (University of Bremen, Germany)
4. Prof. S. S. Alam To participate in an International Conference (Dallas, Texas, USA) (May 4-7, 2007)
5. Dr. Soumen Maity To present a paper in Indo-French Workshop on Cryptography and Related topics (IFW) (Paris) (July 11–13, 2007)
6. Prof. U. C. Gupta To carry out collaborative research work (Department of Mathematics and Computer Science, Royal Military College of Canada) (June 22 – July 16, 2007)

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. A. K. Nanda Recent Advances in Operations Research and Related Computational Aspects (Department of Applied Mathematics, University of Calcutta)
2. Prof. Somnath Bhattacharyya CFD for Industrial Mathematics (Pune University College)
3. Dr. C. Nahak Mathematical Programming and its Applications (DRIEMS, Cuttack)

LECTURE BY VISITING EXPERT

1. Prof. Gautam Goswami On Quantitative Finance
 Associate Director
 School of Business
 Fordham University (USA)
2. Prof. R.N. Mohapatra Diffusion Wavelets & Optimal Filter for
 University of Central Florida, (USA) Automatics Target
3. Dr. Anirban Banerjee Analyzing Structure and evaluation of a graph
 Bio Mathematics Division by its Laplacian Spectra
 Max Planck Institute of Mathematics
 Germany
4. Prof. M. L. Chaudhri Numerical Inversion of Generating Functions

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| <p>Department of Mathematics and
Computer Science
Royal Military College of Canada</p> | |
| <p>5. Mr. John Leo Cordeau
Department of Mathematics and
Computer Science
Royal Military College of Canada</p> | <p>A complete solution to the queue length
distribution of a bulk arrival / bulk service
queue</p> |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	P. Anantha Lakshmi Narayana	Free Convective Transport in Porous Media with Emphasis on Second Order Effects
2.	Pankaj Dutta	Redifining Some Inventory Management Problems in Imprecise and / or Uncertain Environment
3.	P. K. Parida	Study of Some Third Order Methods for Nonlinear Equations in Banach Spaces
4.	Narmada Behera	Optimality Conditions and Duality Results under Generalized ρ - (η, θ) -B- Invexity Banach Space
5.	S. Dhinakaran	Unsteady Flow and Heat / Mass Transfer form Solid / Porous Bodies – A numerical Treatment

LAURELS & DISTINCTIONS

- | | |
|---------------------------|--------------------------------------|
| 1. Prof. S. Bhattacharyya | Max Planck, Germany Fellowship, 2007 |
|---------------------------|--------------------------------------|

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

- | | |
|--|-----------------|
| 1. Some Recent Research Directions in Graph Theory | May 26–30, 2008 |
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DEPARTMENT OF MECHANICAL ENGINEERING

HEAD : Professor Ajay Kumar Chattopadhyay

FACULTY

Professor :

Bhattacharyya, Ranjan	Ph.D. (Kentucky), Applied Mechanics
Bhattacharyya, Sati Nath	Ph.D.(IIT Kharagpur), Fluid Mechanics
Bhattacharyya, Souvik	Ph.D.(Texas A&M), Thermal Science & Engineering
Brahma, Ranajit Kumar	Ph.D.(IIT Kharagpur), Thermal Science & Engineering
Chattopadhyay, Ajay Kumar	Ph.D.(Jadavpur University), Production Engineering
Das, Prasanta Kumar	Ph.D.(IIT Kharagpur), Heat Transfer, Fluid Flow
Dash, Sukanta Kumar	Ph.D.(IIT Kharagpur), Thermodynamics, Fluid Mechanics, CFD, Heat Transfer
Karmakar, Ranjit	Ph.D.(IIT Kharagpur), Applied Mechanics
Maiti, Rathindranath	Ph.D.(IIT Kharagpur), Machine Design, Material Handling Equipment Design
Mohanty, Amiya Ranjan	Ph.D.(Kentucky), Applied Mechanics
Mukherjee, Amalendu	Ph.D.(IIT Kharagpur), System Dynamics and Control
Pradhan, Brajabandhu	Ph.D.(IIT Kharagpur), Machine Design, FEM
Roy Chowdhury, Samar Kumar	Ph.D.(Birmingham), Industrial Tribology, Nano-Tribology, Bio-Tribology, Flash Temperature between Rubbing Bodies, Feed Back Control System of Bearings
Satyamurty, V. V.	Ph.D.(IIT Kanpur), Thermal Sciences, Solar Energy Thermal Systems Simulation, Meteorological Synthetic Data Generation
Som, Sankar Kumar	Ph.D.(IIT Kharagpur), Thermal Science and Engineering
Maiti, Biswajit	Ph.D.(IIT Delhi), Fluid Machinery, Two-phase Flow, FEM
Paul, Soumitra	Ph.D.(IIT Kharagpur), Manufacturing

Associate Professor :

Biswas, Kajal	Ph.D.(IIT Kharagpur), Manufacturing Science and Engineering
Dasgupta, Anirvan Kumar, Cheruvu Siva	Ph.D.(Kanpur), Mechanics, Dynamics and Control Ph.D.(IIT Kharagpur), Robotics, Control Systems, Computer Networks
Moulic, Sandipan Ghosh	Ph.D.(Arizona), Thermal Engineering
Pratihari, Dilip Kumar	Ph.D.(IIT Kanpur), Soft Computing, Robotics, Manufacturing
Ramgopal, Maddali	Ph.D.(IIT Madras), Refrigeration and air conditioning
Roy, Subhransu	Ph.D.(Penn. State), Heat Transfer
Chakraborty, Suman	Ph.D., CFD, Heat Transfer and Fluid Flow, Modeling / Simulation of manufacturing process
Ray, Kumar	Ph.D.(IIT Kharagpur), Machine Dynamics

- Ray, Manas Chandra** Ph.D.(IIT Kharagpur), Applied Mechanics, Smart Structures, Carbon nanotube reinforced composite, Piezoelectric fiber reinforced composite
- Roy Chowdhury, Asimava** Ph.D.(IIT Kharagpur), Manufacturing Science and Engineering, CNC, Rapid Prototyping, Laser processing, CNC : 2D Machining, 3D freeform machining, RPT : Direct slicing, LOM, Laser: Sintering, Alloying, Coating, Development of nano-structured MMC
- Das, Manab Kumar** Ph.D. (IIT Kanpur). Fluid Mechanics and Heat Transfer

Assistant Professor :

- Bandyopadhyay, Partha Pratim** Ph.D.(IIT Kharagpur), Manufacturing Science and Engineering
- Bhattacharyya, Kingshook** Ph.D. (IIT Kharagpur), Dynamics
- Chakraborty, Goutam** Ph.D. (IIT Kanpur), Applied Mechanics
- Gupta, Sanjay** Ph.D.(Delft), Biomechanics, Stress Analysis
- Pal, Surjya Kanta** Ph.D. (IIT Kharagpur), Manufacturing Process Modeling, Soft Computing in Machining
- Ramanujam, S.** Ph.D.(IIT Kharagpur), IC Engines
- Samantaray, Arun Kumar** Ph.D. (IIT Kharagpur), Modeling and Simulation, Systems and Control, Fault Detection and Isolation, Fault Tolerant Control
- Saha, Partha** Ph.D.(IIT Kharagpur), Laser Processing
- Sarangi Mihir** Ph.D. (IIT Kharagpur), Machine Design Tribology

Emeritus Professor :

- Datta, Gouranga Lal** Ph.D.(IIT Kharagpur), Production Engineering, Welding and Foundry Technology, NDT Evaluation, Quality Assurance and Reliability

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Manab Kumar Das

Associate Professor

RESEARCH AND DEVELOPMENT

Thrust Areas :

1. Analytical & Computational Fluid Dynamics
2. Bio-Mechanics
3. Combustion
4. Composite Materials and Smart Structures

5. Carbon Nanotube Reinforced Composites
6. Condition Monitoring and Diagnostics
7. Echo-Friendly Refrigeration
8. Fluid Drives and Control
9. High Speed Machining, Grinding and Development of Cutting Tools / Grinding Wheel
10. Laser Processing of Materials
11. Micro Manufacturing and Microscale Transport Processes
12. Modeling & Simulation of Mech. Systems
13. Multiphase Flows and Heat Transfer
14. Nonlinear Dynamics
15. Rapid Prototyping
16. Tribological Design of Machineries
17. Automation and control
18. Online fault detection and isolation
19. Fault tolerant control
20. Soft computing and Expert systems
21. Nonlinear Elasticity
22. Rotor Dynamics
23. Coating of cutting tools and environment-friendly high efficiency machining
24. Bio-micro-fluidics and microscale transport processes
25. CFD/Lattice Boltzmann Method in Complex Flows

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Preclinical analysis and development of improved acetabular prostheses	British Council	Rs. 57.18 Lakhs
2.	Biomechanical Analysis and Design of Orthopaedic Implant	DBT, New Delhi	Rs. 51.12 Lakhs
3.	High Power Laser Workstation with Fibre Laser(2kw) and CNC Work Station	MHRD, New Delhi	Rs. 201.00 Lakhs
4.	Visualization and optical diagnosis of two-phase flow; bubbles and droplet distribution and dynamics pertaining to carry-over and carry-under phenomenon	BARC/DAE, Mumbai	Rs. 35.80 Lakhs
5.	2D Laser Doppler Velocimetry and Phase Doppler Particle Analyser	MHRD-FIST, New Delhi	Rs. 120.00 Lakhs
6.	Establishment of an Advanced Research Facility for EB Welding and Process Development Related to Programs of Interest to DAE	DAE/BRNS, Mumbai	Rs. 128.60 Lakhs
7.	Electro-hydrodynamic enhancement of heat transfer in free convection	CSIR, New Delhi	Rs. 5.00 Lakhs
8.	Surface Integrity in High Efficiency Grinding by Super-abrasive Wheels	MHRD, New Delhi	Rs. 25.00 Lakhs

9.	EHD enhancement of natural convection of heat transfer	CSIR, New Delhi		Rs. 10.00 Lakhs
10.	CO2 based industrial heat pumps prototype design and development	MHRD, Delhi	New	Rs. 9.00 Lakhs
11.	Development and characterization of novel nanocrystalline metallic/ceramic based hydrogen sensor materials	MHRD, Delhi	New	Rs. 15.00 Lakhs
12.	Visualization and Optical Diagnosis of Two-Phase Flow Bubbles and Droplet Distribution and Dynamics Pertaining to Carry-Over	BARC, Mumbai		Rs. 39.00 Lakhs
13.	Transient Boiling and Counter Current Flow Phenomena during Direct in Bundle Emergency Coolant Injection	BARC, Mumbai		Rs. 42.00 Lakhs
14.	Compressor driven metal hydride cooling and heating systems	MNES, New Delhi		Rs. 19.50 Lakhs
15.	Studies on Application of Phase Change Materials In Domestic Frost –free refrigerators	IIT Kharagpur		Rs. 0.50 Lakhs
16.	Carbon dioxide based heat pump systems for simultaneous cooling and heating applications	MHRD, Delhi	New	Rs. 7.00 Lakhs
17.	Removal of Obsolence and Modernization of Refrigeration and Air Conditioning Laboratory	MHRD, Delhi	New	Rs. 20.00 Lakhs
18.	Sputter coating of Mos2 based composite on cutting tool	MHRD, Delhi	New	Rs. 12.00 Lakhs
19.	Advanced research in mechanical engineering systems	DST FIST, Delhi	New	Rs. 700.00 Lakhs
20.	Surface integrity in high efficiency grinding	MHRD, Delhi	New	Rs. 25.00 Lakhs
21.	Design, Development and Performance Study of a New Concept Harmonic Drive	DST, New Delhi		Rs. 10.00 Lakhs
22.	FIST Programme-Advanced Research in Mechanical Engineering Systems	DST, New Delhi		Rs. 694.00 Lakhs
23.	Beam delivery system with illumination and imaging optics for micromachining with already operational Excimer laser	DST-FIST, Delhi	New	Rs. 70.00 Lakhs
24.	High Power Laser orkstation	DST-FIST, Delhi	New	Rs. 201.00 Lakhs
25.	Design, Development and Performance Study of a New Concept Harmonic Derive	DST, New Delhi		Rs. 10.00 Lakhs
26.	National Grid Computing Project	GARUDA (IIT Kharagpur, CDAC and ERNET India)		-
27.	Establishment of Nationwide QoS Testbedf network	Ministry of Information Technology, New Delhi		Rs. 126.00 Lakhs

28.	Development of Autonomous Underwater Vehicle	DOD, New Delhi	Rs. 697.00 Lakhs
29.	Composite Applications Laboratory	TIFAC, DST, New Delhi	Rs. 346.00 Lakhs
30.	Active Structural-Acoustic Control of Smart Structures using 1-3 Piezoelectric Composite Materials	DST, New Delhi	Rs. 16.40 Lakhs
31.	Design, Development and Performance Study of New Concept Harmonic Drive	DST, New Delhi	Rs. 10.16 Lakhs
32.	Study of tea rolling processes with aim of quantification and optimization of the processes and subsequent development of new machinery	Tea Board	Rs. 40.00 Lakhs
33.	Synthesis and Characterization of in-situ carbide reinforced austenitic manganese steel matrix composites	Naval Research Board, New Delhi	28.00 Lakhs
34.	Development of sound proofing composite materials using jute products	JMDC	Rs. 32.26 Lakhs
35.	Establishment of Advanced Research Facility	BRNS-DAE, Mumbai	Rs. 43.00 Lakhs
36.	Rural Industrialization in West Bengal	KVIC	Rs. 60.00 Lakhs
37.	Kinematics of flows in diverse context	DST, New Delhi	Rs. 8.50 Lakhs
38.	Modeling and Simulation of Momentum, Heat and Mass Transfer in Laser Surface Alloying	DST, New Delhi	Rs. 9.72 Lakhs
39.	Modeling and Simulation of photothermal interaction of laser beam with living biological tissues	DST, New Delhi	Rs. 4.32 Lakhs
40.	Microfluidics and Microscale Transport Processes	IIT Kharagpur	Rs. 6.00 Lakhs
41.	Development of an advanced micro manufacturing technology characterized by micro surface quality control of Bio – MEMS device	DST, JSPS, New Delhi	Rs. 2.84 Lakhs
42.	Cell Culture inside Microfluidic Channels with Extended Air-water Interface	DBT, New Delhi	Rs. 17.40 Lakhs
43.	A Study of Microscale Transport Processes Leading to the Development of a Cooling Strategy for Electronic Components	DIT, New Delhi	Rs. 89.75 Lakhs
44.	Experimental and Theoretical Studies on DNA Hybridization in Microchannels with Electrokinetically Driven flow	DST, New Delhi	Rs. 4.38 Lakhs
45.	Development of window based interactive software with user friendly GUI for numerical simulation of laser surface treatment of materials	DAE, BRNS, New Delhi	Rs. 9.32 Lakhs
46.	Indo-US Project on Futuristic Manufacturing	Indo-US Forum	-
47.	IRES : US-India Fast DNA Hybridization in Microfluidic Platforms	NSF, USA	-

48.	Drill wear monitoring using softcomputing techniques	IIT Kharagpur	Rs. 3.00 Lakhs
49.	Indo-South African Project on “Machine Tool Vibration Monitoring”	DST (India), NRF (South Africa)	Rs. 3.50 Lakhs
50.	Multi-sensor Based Tool Condition Monitoring in Drilling	CSIR, New Delhi	Rs. 7.56 Lakhs
51.	Online component fault detection and isolation using diagnostic bond graphs	IIT Kharagpur	Rs. 3.00 Lakhs
52.	Intelligent data mining for forward and reverse modeling of manufacturing processes	DST, New Delhi	Rs. 15.18 Lakhs
53.	Design and Development of adapting robot controller using soft computing	DST, New Delhi	Rs. 8.38 Lakhs
54.	Flow and Heat Transfer Modeling in Thrust Chamber of a Rocket Engine	ISRO	Rs. 8.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Shaft bearing system analysis	GE JFWTC	Rs. 1.38 Lakhs
2.	Development of Liquid-Spring Shock Isolation Technology	R&DE (Engineers), DRDO Pune	Rs. 10.00 Lakhs
3.	Setting up a research and development centre for Damodar Valley Corporation at Kolkata	Damodar Valley Corporation, Kolkata	Rs. 110.00 Lakhs
4.	An Integrated Micro-Macro Solidification Algorithm for Direct Numerical Simulation of Large Scale Solidification Structures	General Motors (USA)	Rs. 23.58 Lakhs
5.	Development of a fundamental model for characterizing solidification transport in the mushy region	General Motors, USA	Rs. 38.78 Lakhs
6.	Characterization of surface roughness for pressure driven and/or electro-osmotic liquid flow in a micro-channel	DELPHI	Rs. 7.63 Lakhs
7.	Genetic Algorithms in hydrocyclones	TATA Steel, Jamshedpur	-
8.	Plant Noise Control	Tata Metaliks Limited, Kharagpur	Rs. 4.50 Lakhs
9.	Design and Stress Analysis of Cooling Tower Fan	Paharpur Cooling Towers Limited	Rs. 2.30 Lakhs
10.	Technical support on Acoustical Impedance Tube	AIMIL, Bangalore	Rs. 0.50 Lakhs
11.	Development of Liquid-Spring Shock Isolation Technology	R&D Engineers Pune, DRDO	Rs. 10.00 Lakhs
12.	Design and Development of mathematical model for ultrafast cooling of steel strips	Tata Steel, Jamshedpur	Rs. 5.61 Lakhs
13.	Pressure drop characteristics of Y-type	Sarojini Enterprises,	Rs. 0.51 Lakhs

	and Basket-type strainers	Kolkata	
14.	Experimental sample preparations by wire cut EDM	Various clients	Rs. 0.87 Lakhs
15.	Material Processing by Nd-YAG laser	Various clients	Rs. 0.86 Lakhs
16.	Technology Development of Liquid-Spring based Shock-Isolation System	R&D Engineers, DRDO, Pune	Rs. 10.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Dr. Suman Chakraborty Hubmboldt Fellowship (University of Erlangen) (1 month)
2. Dr. Suman Chakraborty Indo-US Project / DST-NSF Project (UIUC and UCI) (1 month)
3. Dr. Suman Chakraborty Invited Speaker (MIT, UC Berkeley) (7 days)
4. Dr. Suman Chakraborty DST-JSPS Project (University of Tokyo) (3 days)
5. Prof. A. R. Mohanty Attend and Chair Session at the 14th International Congress on Sound and Vibration (Cairns, Australia) (July 09-12, 2007)
6. Dr. A. Roy Choudhury Pre-collaborative meeting (Auckland University of Technology, Auckland, New Zealand) (December 10-19, 2007)
7. Dr. A. K. Nath Scientific Interaction (CSIR, Pretoria, South Africa) (1 week)
8. Prof. G. L. Datta To attend 111th Metalcasting Congress (Houston, Texas, USA) (May 15-18, 2007)
9. Dr. M. C. Ray To conduct collaborative research (Virginia Polytechnic Institute and State University, Blacksburg, Virginia, USA) (May, 15 – July 15, 2007)

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. Sanjay Gupta Biomechanical Analysis and Design of Orghopaedic Implants (CMERI, Durgapur)
2. Dr. A. K. Nath Recent Advances in Lasers and their applications in Biomedical Implants Processing at Two-Day Workshop on Laser in Biomedical Engineering (Jadavpur University, Kolkata) November 22-23, 2007)
3. Dr. A. K. Nath Some Recent Advancements in Laser Material Processing Applications at WALMI 2008 (Jadavpur University, Kolkata) (January 17, 2008)
4. Dr. A. K. Nath Development of High Power Lasers & Laser Material Processing Applications (CSIR, Pretoria, South Africa) (October 2007)
5. Prof. A. R. Mohanty Noise Control and some of its Industrial Applications (National Institute of

- | | | |
|----|----------------------|--|
| 6. | Dr. Surjya Kanta Pal | Technology, Rourkela)
Soft computing techniques and their applications in Manufacturing (Jalpaiguri Government Engineering College) |
| 7. | Dr. D. K. Pratihar | Soft Computing: An Overview (Siddhartha Engineering College, Vijayawada, AP, India) |
| 8. | Dr. D. K. Pratihar | Design and Development of Adaptive Robot Motion Planner (NIT Rourkela, India) |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Abdusamad Alias Salih	Numerical Simulation of Two-Fluid Flows with Sharp Interfaces Using Level Set Method.
2.	Sudarsan Ghosh	High Efficiency Deep Grinding of Bearing Steel and Modelling for Specific Energy Requirement
3.	Muralidhar Manapuram	Studies on Status of Global Foundry Industry and Development of a Framework for a Holonic Casting Manufacturing System
4.	Nirmal Baran Hui	Design and Development of Adaptive Motion Planners for Wheeled Robots
5.	Debashis Khan	New Conservation Integrals for Circular Arc Crack and Computation a Verification
6.	Nilotpal Banerjee	Modeling and Dynamics of Railway Vehicles : A Bond Graph Approach
7.	Suvankar Ganguly	Some Studies on Multi-Phase Transport Phenomena in Multi-Component Alloy Solidification Processes
8.	Mahesh B. Parappagoudar	Modelling of Moulding Sand Systems Using Conventional Regression Tools and Neural Network-Based Approaches
9.	Sashi Kanta Panigrahi	Adhesion Failure and Delamination Damage Analyses of Bonded Joints in Laminated FRP Composites
10.	P. Ramesh Babu	Thermoelastic Analyses of Interlaminar Delamination Growth Behaviour Emanating from Free and Pin-Loaded Holes In Laminated FRP Composites
11.	Arun Kumar Pradhan	Performance of Vertically / Obliquely Reinforced 1-3 Piezoelectric Composites for Active Control of Smart Laminated Composite Structures
12.	Amitava Ghosh	On Development and Performance Evaluation of Advanced Single Layer Brazed cBN Wheel
13.	Kate Ramesh Prabhakar	Investigations on External and Internal Hydraulic Jumps

- | | | |
|-----|-----------------------|--|
| 14. | D. S. Nagesh | Studies on Modeling of Bead Geometric Parameters in Welding Processes Using Design of Experiments, Artificial Neural Network and Genetic Algorithm |
| 15. | Manas Mohan Mahapatra | Thermomechanical Finite Element Analyses and Experimental Investigations on Angular Distortions and Weldment Characteristics of Arc Welded Joints |

PATENTS GRANTED

- | | | |
|----|----------------------|---|
| 1. | Prof. R. Maiti | Split Cam Design for a Novel Harmonic Drive |
| 2. | Prof. R. Maiti | An Improved Drive System such as a Two-Gear Epicyclic Drive Similar to Harmonic Drive System |
| 3. | Prof. R. Maiti | A novel torque amplifier using alternating flow hydraulics and epitrochoid generated rotary piston hydraulic motor principles |
| 4. | Prof. R. Maiti | A machine for generating a motion to generate internal and external epitrochoids |
| 5. | Dr. A. Roy Choudhury | 5-Axis Curved Layer Fused Deposition Modelling Machine |

LAURELS & DISTINCTIONS

- | | | |
|----|-----------------------|---|
| 1. | Dr. Sanjay Gupta | UKERI, Collaborative Research Work, 2007–2008 |
| 2. | Dr. Suman Chakraborty | Swarnajayanti Fellowship Award, Government of India, 2008 |
| 3. | Dr. Suman Chakraborty | Platinum Jubilee Young Scientist Award, National Academy of Science, 2007 |

DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

HEAD : Professor Nirupam Chakrabarti

FACULTY

Professor :

Chakraborty, Madhusudan	Ph.D. (IIT Kharagpur), Solidification Processing, Scanning Electron Microscopy, Failure Analysis, Metal Matrix Composites
Chakraborti, Nirupam	Ph.D. (University of Washington), Materials Processing, Applications of Genetic Algorithms
Das, Siddhartha	Ph.D. (Illinois University, USA), Mechanical and Physical Metallurgy, Nano Materials, Electron Microscopy, Composite Materials, Surface Engineering
Dhindaw, Brij Kumar	Ph.D. (IIT Kharagpur), Solidification, Steel Technology, Composites
Godkhindi, Mahadev Malhar	Ph.D. (IIT Bombay), Powder Metallurgy, Ceramics
Manna, Indranil	Ph.D. (IIT Kharagpur), Phase transition, Nanostructure materials, Thermodynamic and numerical modeling, Surface engineering by laser and plasma
Pabi, Shyamal Kumar	Ph.D. (IIT Kharagpur), Physical Metallurgy, Materials Science, Nanostructure materials; Modeling; Diffusion
Panigrahi, Sarat Chandra	Dr.Tech.Sc. (Krakow), Metal castng, Composites, Energy cons.
Ray, Kalyan Kumar	Ph.D. (IIT Bombay), Physical Metallurgy, Stereology, Fracture Mechanics, Nondestructive Evaluation, Structural Integrity, Failure Analysis, Advanced Structural Materials, Modeling and Simulation
Roy, Sanat Kumar	Ph.D. (IIT Kharagpur), Process Metallurgy, Thermodynamics and Kinetics, Environmental Degradation of Materials, Laser Surface Engineering

Associate Professor :

Acharya, Narendra Nath	Ph.D. (IIT Kharagpur), Particulate Tech. Multimedia, (metals, non-metal), Modelling (ANN & GA)
Das, Karabi	Ph.D. (Wisconsin University, USA), Physical Metallurgy, Electron Microscopy, Composite Materials, Nano Materials
Dutta Majumdar, Jyotsna	Ph.D. (IIT Kharagpur), Dr.-Ing. (T.U. Clausthal, Germany), Surface Engineering, Laser Materials Processing, Corrosion and surface Protection, Biomaterials, Modelling and simulation, Tribology
Mitra, Rahul	Ph.D. (Northwestern University, USA), Mechanical behaviour of metals, Composite Meterials, Internal interfaces of solids, Physical Metallurgy

Roy, Gour Gopal Ph.D. (IIT Kanpur), Extractive Metallurgy, Materials Processing, Modeling and Simulation

Singh, Shiv Brat Ph.D. (Cambridge University, UK), Mechanical Metallurgy, Phase Transformation, Physical Metallurgy of Steel

Assistant Professor :

Bhaduri Amit M.Tech. (IIT Kharagpur), Mechanical Metallurgy, Physical Metallurgy

Biswas, Koushik Ph.D. (MPI University of Stuttgart, Germany), Powder Metallurgy, Ceramic, Nano materials, structural, functional and bio-ceramic, Modeling-MD, Ab initio, FEM, Tribology

Datta, Bidyut Kanti Ph.D. (IIT Kharagpur), Powder Metallurgy

Ghosh, Sudipto Ph.D. (IIT Kanpur), Modeling and simulation, solidification processing, Mechanical Metallurgy

Kundu, Tarun Kumar Ph.D. (Luleå University of Technology, Sweden), Hydrometallurgy and electrometallurgy, Atomistic simulation, Wet chemistry based material synthesis

Aich, Shampa Ph.D. (Nebraska-Lincoln, USA), Magnetic Materials, Electronic Materials, Biomaterials, Nano Materials, Rapid Solidification

Visiting Faculty :

Sen, Pradip Kumar Ph.D. (Jadavpur University), Metallurgical Process Design, Development and Scale-up

Gupta, Debabrata Ph.D. (University of Arizona, USA), Semiconductor material

Emeritus Professor :

Chatterjee, Uday Kumar Ph.D. (IIT Kharagpur), Corrosion and Surface Protection, Failure Analysis, Environmental Degradation of Materials

Chair Professor :

Basu Samar Ph.D., Electrochemistry, Extractive Metallurgy, Rechargeable Battery Technology

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Shampa Aich

Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The Research and Development Program of the Department encompasses various areas like Corrosion Science and Technology, Extractive Metallurgy, Mechanical Metallurgy, Melting, Casting and Solidification Processing, Modeling, Simulation and Multimedia in Metallurgical Engineering, Physical Metallurgy, Powder Metallurgy and Surface Engineering. Synthesis and characterization of nanometric materials both for structural and functional applications is now one of major activities. The research activities are carried out within the framework of either the institute academic curriculum (B. Tech, M. Tech, and PhD level projects) or as sponsored research, development assignments and collaborative studies with outside organizations like educational institutes, R and D laboratories and industries in India and abroad and also as industrial consultancy. The Department has produced 16 B. Techs, 7 Dual Degree M. Techs, 24 M. Techs, 22 PGDST and 13 PhDs, and initiated/continued 8 consultancy and 37 sponsored/collaborative projects during the academic year 2007-2008. The Department is proud to have published **100** research papers in national and international journals and presented **33** conference papers by faculties during 2007-08.

The group working in the field of **Extractive Metallurgy** has made significant contribution in the area of metal value extraction from sea nodules. Attempt is being made to develop eco-friendly and economically viable process routes to extract the metal values from the sea nodules. Injection metallurgy is predominantly used in the industry to decrease the impurity content of liquid steel/ferro-alloys in a more economical way. Detailed study on design and operating parameters for such high temperature processes is an important issue, and is being studied in the laboratory through physical modeling. Direct reduction of iron ore using mine generated ore and coal fines, is one of the major research areas where the work has been initiated with MHRD project. One of the present research interests also includes the mathematical modeling of fluid flow and heat transfer during welding. Optimization of various design and operating parameters during fusion welding, mathematical modeling of heat transfer during pulsed laser welding that results in low distortion and which has ability to weld heat sensitive components, are also present areas of research in the area of extractive metallurgy. The group has also aligned its activities towards new process development, process modeling & process analysis using state of the art techniques. In new process development, activities have been taken up in the development of eco-friendly processes utilizing low value inputs such as ore & coal fines, pet coke etc. The activities are being extended to waste off gas processing such as flue gas desulphurisation. The expertise of the department includes areas related to dewatering of fine mineral particulates which has an industry focus. Fundamental studies on solid-liquid separation are being carried out to examine the dewatering characteristics of different fine mineral particles like kaoline, calcite and quartz suspensions aided by flocculants and surfactants. Alternatives to conventional processing of mineral/ores are being explored such as single step processing of metallic ores.

In the domain of **Mechanical Metallurgy**, a pioneering achievement has been the design and development of fatigue testing using rotating bending machine to study short, long and non-propagating crack behavior in several steels. Synergistic characterization of ultrasonic and acoustic signals of in-situ deformation state of metallic materials and investigations related to structure-property relationship of various ceramic and metal-matrix composites, high temperature materials and advanced alloys are some continued thrust areas of activity. Development of metal toughened cutting tool, ceramic and intermetallic matrix composites with ceramic, inter-metallic and metallic reinforcements, newer grades of dual phase and micro alloyed steels through fracture based studies, correlation between fracture and wear

characteristics of materials, development of thin sheet steel components are some important fronts in this direction. Several types of failure analysis remain an attendant part of these activities. In addition, research is in progress in the area of mechanical behaviour of small volume materials.

The major areas in the field of **Melting, Casting and Solidification Processing** include i) development of cast microalloyed steels, ii) studies on the hot tearing of long freezing range Al alloys, iii) austempered ductile iron through non-conventional route, iv) grain refinement of Al alloys and v) development of cast metal matrix composites. The group involved in the grain refinement of Al alloys has been successful in improving the mechanical properties of some hypoeutectic and eutectic Al-Si alloys by combined grain refinement and modification treatment using indigenously developed Al-B and B rich Al-Ti-B master alloys and Sr, respectively. The department has transferred a technology of manufacturing Al-B, Al-Ti and Al-Ti-B master alloys to an industry for commercial production of the same. In the area of solidification processing, the main focus is on the understanding of the particle engulfment and pushing during solidification in continuous casting. Basically the issues of inclusions redistribution in the continuous cast ingots have been characterized. Heat transfers in the hot metal ladles have been modeled with a view to examine the feasibility of setting up of satellite foundries. The models have also been experimentally validated.

The major thrust in the area of **Physical Metallurgy**, and in particular, concerning phase transformation activities lies in synthesis and structural characterization of nanocrystalline materials prepared by planetary ball milling. High specific strength alloys are of immense interest to aviation, automobile, defense and several other strategic industries. A novel series of Al alloys ($\text{Al}_{65}\text{Cu}_{20}\text{TM}_{15}$ and $\text{Al}_{50}\text{TM}_{40}\text{Si}_{10}$, where TM = Ti/Nb/Zr) has been developed that possess extraordinarily high compressive strength (1500-1950 MPa), Young's modulus (130-160 GPa), fracture toughness ($3.4 \pm 0.8 \text{ MPa}\sqrt{\text{m}}$) and hardness (7.5-8.8 GPa) and measure up to 2-3 times greater strength than age hardenable (crystalline) Al-alloys (< 600 MPa) and compare well with maraging steel in strength but at a much lower density ($\sim 3.5 \text{ Mg/m}^3$). The novelty of these alloys lies in the unique microstructure and phase aggregate that evolve through precipitation of nano-metric intermetallic phases (Al_3Ti , Al_4Cu_9 , Al_2Cu and Al_5CuTi_2 , Ti_5Si_3 , etc.) in amorphous matrix by annealing after mechanical alloying (MA) under ambient condition using high energy planetary ball milling, or by partial amorphization during MA itself. Combination of transient heating and pressing strategies based on spark plasma or high pressure (2-8 GPa) sintering seems effective in consolidating mechanical alloyed powder mass in solid/bulk components without destroying the nanocrystalline + amorphous composite aggregate.

Some other notable achievements of this group include synthesis of nanocrystalline Ni-Si, Fe-Si, Nb-Al, Cu-Al, Ni-Al and several other ternary systems, identification of the sequence of phase formation during their synthesis by mechanical alloying and development of new kinetic models for mechanical alloying to evolve some relation of the alloying rate with the melting temperature of the corresponding system. Recently, it has been demonstrated that a number of early transition metals (Nb, Ti, Zr) undergo polymorphic changes following nanocrystallization. Thermodynamic analysis based on equation of state shows that the structural instability due to negative hydrostatic pressure consequent upon nanocrystallization (below a critical grain size) and/or high strain rate deformation is responsible for such change in crystal structure.

In addition to the above, the mechanism of recrystallization and texture development in

aluminium alloys for packaging purpose was studied in details. A low-Mn unalloyed austempered ductile alloy has been developed for structural components in excavator and earth moving equipments by appropriate experiment, characterization and modeling exercise to optimize the austenitization and austempering process window.

It was demonstrated that laser surface hardening, unlike alloying/melting, of austempered ductile iron could significantly enhance hardness and wear resistance due to residual compressive stress on the surface developed by martensitic transformation instead of liquid-solid ledeburitic transformation. In addition, the detailed crystallography of Cr-rich M₂₃C₆ precipitates in quenched and aged austenitic stainless steels has been determined and the importance of localized residual stress developed due to quenching on the nucleation and growth of these precipitates has also been established.

The present activities of **Powder Metallurgy** group include synthesis of particulate reinforced mullites and their property evaluation, production of Al₂O₃ reinforced Ni₃Al thorough reaction sintering route, reaction sintering of silicon carbide, recovery of copper from printed circuit etchant sludge and production of silicon carbide from fly ash silica. Work has also been initiated towards production and sintering behavior of nanocrystalline titanium powder, nanocrystalline ferritic and stainless steel powder. In addition, a method of consolidating elemental tungsten to bulk components for high temperature applications by sintering nanostructured powder at relatively low temperature of 1700° C has been developed.

Research on **Composite Materials** hold a very prominent position in the department, and involves processing by casting, conventional and advanced powder metallurgy routes, such as reactive milling and sintering. Fundamental research is in progress in the direction of understanding the microstructure-property relationships, characteristics of matrix-reinforcement interfaces and mechanical behaviour. Research involves the development of in-situ Al-Al₂O₃, Al-MgAl₂O₄, Al-TiC and Al-TiB₂ composites by casting route and studies of mechanical properties. In addition, SiCp reinforced Al-Li/ Mg-Li alloy based metal matrix composites have been developed by infiltration technique, where the understanding of the particle engulfment and pushing during solidification processing has been applied. Significant progress has been made in studies on interface reaction kinetics and tailoring of interfaces to control formation of detrimental reaction products. Research on metal matrix composite materials also includes systems having age-hardenable Al-alloys and Zn-Al alloys as matrices, and reinforcements of varying sizes.

Besides, the mechanical behavior of **ceramic and intermetallic matrix composites** is being studied, with emphasis on structure-property correlations and mechanisms of deformation and fracture. Dispersion of ductile phase in molybdenum and niobium silicides has resulted in improved damage tolerance, keeping the high temperature strength and oxidation resistance satisfactory. Ceramic matrix composites have been evaluated with focus on applications in cutting tools, as well as aerospace components including nose-cone tiles for hypersonic vehicles.

The research activities in the area of **Environmental Degradation** embraces fundamental studies relating to film/scale growth processes on different metal-oxygen and metal-halogen systems with emphasis on kinetics and growth mechanism, defect structures of compounds, transport properties of different species, adhesion and protective properties of the scales. Performance of different types of coatings as a protective device is also an area of

investigation. Studies on high temperature oxidation behavior of multi-phase refractory metal-silicides like Molybdenum and Niobium Silicides are in progress. **Surface Engineering** is one of the major thrust areas of research in the department. Among several activities related to surface engineering, laser assisted surface modification, ion implantation and plasma spray deposition are the primary areas of active research interest. It has been demonstrated that laser surface alloying of the near surface region of engineering components (of stainless steel, copper and titanium based alloys) can significantly improve the resistance to wear, corrosion, oxidation and similar surface dependent degradation. Plasma immersion ion implantation (PIII) and sputtering facilities have been installed (through a DST sponsored project) in this Department capable of implantation under negatively biased pulses with high frequency from a RF coupled plasma of gaseous species (nitrogen, oxygen, etc.) of metallic and semiconductor materials and metallic coating. This facility allows simultaneous implantation and diffusion at temperature up to 500°C. Currently, this facility is being utilized for enhancing hardness and wear-resistance of steel and selected non-ferrous alloys. **Surface engineering of bio-implants** using laser and plasma assisted surface engineering is of major focus, where Ti-6Al-4V and Mg- alloys are surface treated to improve wear and corrosion resistance properties.

Laser and electron beam assisted materials processing are advanced manufacturing technique where, high power laser beam and electron beam are used as a source of heat to manufacture finished/semi-finished components by cutting, welding, surface modification and rapid manufacturing. An extensive experimental research is carried out in the Dept. (in collaboration with Bhaba Atomic Research Centre, Centre for Advanced Technology, University of Manchester and University of Clausthal) on laser assisted welding, bending, surface modification and direct laser cladding of commercial metals/alloys and metal matrix composites. An electron beam facility would be soon developed in collaboration with the Dept. of mechanical engineering and BARC Bombay dedicated for the welding of 'difficult to weld' similar and dissimilar metals/alloys.

Nano-Science and Technology is one of the thrust areas where, the Department is taking leading role in expanding research in development of novel-nanostructured materials for gas sensor, hydrogen storage and solid oxide fuel cell applications. A recent innovation in this regard concerns '**nanofluid**' that comprises uniform and stable colloidal dispersion of insignificant amount (< 1 vol. %) of nanometric solids (metallic / ceramic) in common heat transfer fluids (water/ethylene glycol). Nanofluids offer a phenomenal increase in thermal conductivity (50-150 %) and heat transfer coefficient (15-25 %). Besides developing nano-Al₂Cu/AlAg₂ dispersed nanofluid for the first time, this group has identified the major parameters (composition/bonding, volume percent, size, and shape of nanoparticles) and mechanism that influences this extraordinary enhancement.

Development of **Lithium Ion Battery (LIB) Technology** for applications in Electric Vehicles in India has taken a prominent research area in the Department, as a part of multi-institution project from the Government of India. An important focus of the project is on the development of new, more efficient and cheaper materials for creating the next generation of LIBs, which would enable India to create a stake in this emerging area of energy storage. LIB Technology is considered as the third generation energy storage technology after the Lead-Acid and the Nickel-Cadmium battery technologies. Its superiority over the two other previous generation technologies has been demonstrated by higher volumetric & gravimetric energy densities, higher shelf life, and temperature range of operation. It is expected that within the next 10 years almost 50% of all portable power sources will be based on the LIB

Technology. The focus of research is on developing new, better, more efficient, and cheaper anode, cathode and electrolyte materials to create the next generation of products.

Thrust Areas :

In addition to the above, work has been initiated in the following thrust areas :

1. Biomaterials
2. Nanostructured Material
3. Virtual Alloys
4. Laser Materials Processing
5. Plasma Ion Implantation
6. Plasma Sprayed Coating
7. Functionally Graded Materials
8. Intermetallics
9. In-Situ Composites
10. Solidification under microgravity
11. Synthesis of fine ceramics
12. Process Modeling
13. Special grade steels
14. Aluminium Packaging Alloys
15. Lithium Ion Battery
16. Nano-intermetallic dispersed amorphous Al-matrix composites

New Acquisitions :

1. LECO LV700 Vickers Hardness Tester
2. RF & DC Magnetron Sputtering System KVS-T4065 (for Arun Sarin Lab)
3. UHV E-Beam Evaporator System KVE-T4065820 (for Arun Sarin Lab)
4. Dektak 150 Surface Profile Measuring System (for Arun Sarin Lab)
5. INSTRON ElectroPuls (TM) E1000 Electrodynamic Test Instrument (for Arun Sarin Lab)
6. Buehler Isomet Slow Speed Precision Saw
7. Struers Tenupol 3
8. Fretting wear tester (DUCOM, Bangalore)
9. PSM 1735 Impedance analyzer LCR meter (Newtons 4th, UK)
10. Vickers Hardness Tester (Model: LECO LV-700L) from LECO Corporation, St. Joseph, MI 49085, USA

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Evaluation of Manganese Nodules extraction processes for optimal performance : A new Approach.	Ministry of Earth Sciences, Govt. of India	Rs. 17.25 Lakhs
2.	Feasibility Study for extraction of	Maharashtra State	Rs. 7.294 Lakhs

	vanadium and titanium from titanomagnetite ore deposit of Maharashtra - Part 1	Mining Corporation, Nagpur	
3.	Synthesis and properties of electrodeposited Nickel / Ceria nano composites	Indian rare Earth Limited (IREL)	Rs. 27.90 Lakhs
4.	Mechanosynthesis and mechanical-thermal synthesis of in-situ aluminium based nanocomposites and their characterization	DST, New Delhi	Rs. 43.15 Lakhs
5.	Nanoscale Developments in a Co-based Heusler Type CoNiGa Ferromagnetic Shape Memory Alloy	IIT Kharagpur	Rs. 3.52 Lakhs
6.	Synthesis and Thermo-mechanical characterization of MoSi ₂ -SiC-ZrO ₂ nano-composites	IIT Kharagpur	Rs. 5.00 Lakhs
7.	Versatile nano Zirconia production facility at Indian Rare Earths Limited, OSCOM	IRELTDC, DAE	Rs. 44.856 Lakhs
8.	Effect of rare earth elements on isothermal and cyclic oxidation behavior of Niobium and Molybdenum silicide based alloys	DRDO, New Delhi	Rs. 14.31 Lakhs
9.	Development of Niobium Silicide based alloys and composites for elevated temperature applications	DRDO, New Delhi	Rs. 32.41 Lakhs
10.	Mathematical modeling of solidification behavior of weld pool and oxidation characteristics of the zones of weldment during laser welding of plain carbon steels	DST, New Delhi	Rs. 22.70 Lakhs
11.	Structure-Property Relations In Ceramic Composites For High Temperature Applications In Nose Cone Tiles In Hypersonic Vehicles	DRDL	Rs. 72.96 Lakhs
12.	Development of high temperature oxidation resistant tungsten based bulk refractory alloys through mechanical alloying route	DRDO	Rs. 27.30 Lakhs
13.	Synthesis and Characterization of Nanostructured Materials for Functional and Structural Applications	DST, New Delhi	Rs. 279.51 Lakhs
14.	Physico-Chemical Analysis of Metal Based Ayurvedic Bhasma Drugs by Sophisticated Modern Instrumental Methods	DST, New Delhi	Rs. 20.35 Lakhs
15.	Simulation and Fabrication of CVD/CVI set up for Ceramic Matrix in general and Reinforced Graphite matrix Composites in Particular	DRDO	Rs. 13.70 Lakhs

16.	Thermal stress modeling and design of twin roll caster to obtain thin alloy sheet with extremely fine / amorphous structures	DST, New Delhi	Rs. 37.53 Lakhs
17.	Semi-Solid Processing of Al and Mg Base Alloys Under Low Convection Conditions	CSIR, New Delhi	Rs. 10.70 Lakhs
18.	Synthesis and characterization of in-situ carbide reinforced austenitic manganese steel matrix composites	Naval Research Board, New Delhi	Rs. 27.92 Lakhs
19.	STEEL TECHNOLOGY CENTRE	Ministry of Steel, New Delhi & DST, New Delhi	Rs. 2025.864 Lakhs
20.	Development of nano-crystalline intermetallics and nanocomposites	DRDO	Rs. 36.09 Lakhs
21.	Nano Science and Technology	IIT Kharagpur	Rs. 5.00 Lakhs
22.	Development of high energy density lithium ion battery technology	RCI, Hyderabad	Rs. 780.35 Lakhs
23.	Analysis of oxide materials for rechargeable lithium ion batteries using genetic algorithm	RCI, Hyderabad	Rs. 20.88 Lakhs
24.	Estimation of mechanical properties of monolayered materials through molecular dynamic simulation and validation of the work using literature data	IIT Kharagpur	Rs. 3.00 Lakhs
25.	Development and characterization of novel nanocrystalline metallic / ceramic based hydrogen sensor materials	MHRD, New Delhi	Rs. 15.00 Lakhs
26.	Synthesis and characterization of Al-based amorphous and nanocrystalline composites	DST, New Delhi	Rs. 3.01 Lakhs
27.	Development of nanocrystalline coating by combined plasma assisted implantation and deposition	DST, New Delhi	Rs. 50.814 Lakhs
28.	Development and characterization of copper based Brazing alloy by rapid solidification and mechanical alloying	ISRO-IIT Cell	Rs. 2.20 Lakhs
29.	Development of multifunctional surface on Ti and its alloys for tailoring wear resistance and biocompatibility	CSIR, New Delhi	Rs. 9.46 Lakhs
30.	Steel Technology centre - a bridge project	IIT Kharagpur	Rs. 5.00 Lakhs
31.	Solvent extraction studies for high value metals by ionic liquids, in mixer-settler unit: Experimentation and molecular Modelling	IIT Kharagpur	Rs. 4.15 Lakhs
32.	Thermal performance of nanofluid bases cooling system	DELPHI, Autom. Sys. Pvt. Ltd.	Rs. 0.96 Lakhs

- June-July 2007 and December 2007
2. Dr. Gour Gopal Roy To present an invited lecture at EMRS Conference (Poland) September 2007
 3. Dr. Rahul Mitra Visiting Professor (Department of Chemical Engineering and Materials Science, University of Southern California) January 01 – May 15, 2008
 4. Prof. Kalyan Kumar Roy To deliver an invited lecture and to chair a technical session at the International Conference, AMME (Cairo, Egypt) (May 26 – June 02)
 5. Prof. Nirupam Chakraborti Keynote Lecture at IPDO 2007 (Miami, USA)
 6. Prof. Nirupam Chakraborti Invited Lecture at EMRS 2007 (Warsaw, Poland)
 7. Prof. Nirupam Chakraborti Guest Researcher (Ames Laboratory, USA)
 8. Prof. Madhusudan Chakraborti Collaboration between IIT Kharagpur and Georgia Tech in the area of Materials Design and Development (Woodruff School of Mechanical Engineering, Georgia Institute of Technology Atlanta USA) May–June 2007
 9. Prof. Madhusudan Chakraborti Collaboration in the area of biofuels and neglected diseases (University of California Berkeley) July 09
 10. Prof. Madhusudan Chakraborti To attend Global PANIIT Meet (San Francisco, California, USA) July 04–08
 11. Prof. Indranil Manna To initiate a tri-nation international collaboration among India-Brazil-South Africa (IBSA) initiative on ‘Nanotechnology’ as a part of Government of India (DST) delegation (South Africa) November 2007
 12. Prof. Indranil Manna Visiting Professor for independent research on deformation behavior of bulk metallic glass under Euro-Space agency project (University of Ulm, Germany) May–July 2007
 13. Prof. Indranil Manna To deliver an invited lecture and explore collaboration on Mg-alloy technology (Institute for Mater. Res., GKSS, Geesthacht, Germany) May–July 2007
 14. Prof. Indranil Manna To deliver invited lectures and initiate collaborative research on nanomaterials (Department of Mater. Engg., Monash University, Clayton, Australia and School of Engineering, University of Queensland, Australia) October 03–07, 2007
 15. Prof. Indranil Manna In connection with Indo-Polish (DST-KBN) collaborative project and to deliver invited lecture in EMRS conference (Warsaw, Poland) August 2007
 16. Dr. Jyotsna Dutta Majumdar As a visiting faculty (Department of Materials Science, University of Chile, Santiago)

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Pradip Kumar Sen “Sea Nodules Processing- status review for commercialization” (International Sea Bed Authority, United Nations, Chennai)
2. Prof. Uday Kumar Chatterjee Corrosion and corrosion protection (Tata Steel, Jamshedpur)
3. Prof. Sarat Chandra Panigrahi Invited Lecture : National Seminar on Advancement of IT - Its role for protection of environment (Bhubaneswar)
4. Prof. Sarat Chandra Panigrahi Invited Lecture : National Seminar on Impact Assessment of Alternate Energy Sources (Bhubaneswar)
5. Prof. Sarat Chandra Panigrahi Invited Lecture : International Workshop on mesoscopic, nanoscopic and microscopic materials (Bhubaneswar)
6. Prof. Sarat Chandra Panigrahi Invited Lecture : International Conference on Science and Spirituality for World Peace (Imphal)
7. Prof. Sarat Chandra Panigrahi Invited Lecture : National Seminar on Science and Engineering of Composite Materials (Jadavpur University, Kolkata)
8. Prof. Sarat Chandra Panigrahi Teaching and Learning Engineering (GIET, Gunupur)
9. Dr. Rahul Mitra Invited Lecture : Tough Molybdenum and Niobium Silicide Based Intermetallic Alloys with High Temperature Strength (Indian Institute of Metals, Mumbai)
10. Dr. Gour Gopal Roy Application of Genetic Algorithm (GA) to estimate the rate parameters for reduction of iron ore-graph (Warsaw University, Poland)
11. Prof. Kalyan Kumar Roy The vision of fracture toughness assessment of structural materials for quality control at the manuf (Cairo, Egypt)
12. Prof. Kalyan Kumar Roy Significance of micro and meso-scale physical phenomena on the reliable analysis of structural integ (Udaipur, India)
13. Prof. Kalyan Kumar Roy Microstructure, Mechanics and Mechanism in the Development of Advanced Structural Materials (Kalpakkam, India)
14. Prof. Brij Kumar Dhindaw Invited Lecture : IUMRS (IISc., Bangalore)
15. Prof. Brij Kumar Dhindaw Advanced Materials (Trivandrum)
16. Prof. Brij Kumar Dhindaw From primitive huts to Advanced Boeing A - 380 and Evolution of Metal Casting as Advanced Science & Technology (VIT University)
17. Prof. Nirupam Chakraborti Keynote Lecture at IPDO 2007 (Miami, USA)
18. Prof. Nirupam Chakraborti Invited Lecture at EMRS 2007 (Warsaw, Poland)
19. Prof. Nirupam Chakraborti Genetic Algorithms Lecture Series (Ames Laboratory, USA)

20. Prof. Nirupam Chakraborti Plenary Lecture, NGMS 2008 (Kolkata)
21. Prof. Madhusudan Chakraborti Development of aluminium alloy based in situ metal matrix composites (Georgia Institute of Technology, Atlanta, USA)
22. Prof. Madhusudan Chakraborti Scope for Collaboration with IIT Kharagpur (Georgia Institute of Technology, Savannah, USA)
23. Prof. Indranil Manna Evolution of microstructure and properties in austempering and laser surface hardening of bearing steel An invited talk in Microstructure and Texture in Steel (MATS 2008), an International Conference held in (Jamshedpur)
24. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited lecture delivered at the National Seminar on 'In search of advanced materials' under TEQIP programme (NIT Durgapur)
25. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited talk delivered at the National Conference on Nanomaterials and Nanotechnology (Lucknow University)
26. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited talk delivered at the National Conference 'Bangalore NANO 2007' (Bangalore)
27. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited talk delivered at the National Theme Meeting on Nanoceramics and Nanocomposites (IIT, Kanpur)
28. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited talk (Department of Materials Engineering, Monash University, Clayton, Australia)
29. Prof. Indranil Manna "Science and Technology of Nano-dispersed Solid Alloys and Thermal Fluids", An invited talk (in the School of Engineering, University of Queensland, Australia)
30. Prof. Indranil Manna "Thermal properties of nanometric-metal / ceramic dispersed water and ethylene glycol based nanofluid", An invited talk delivered at the National Conference 'Bangalore NANO 2007' (Bangalore)
31. Prof. Indranil Manna "Thermal properties of nanometric-metal / ceramic dispersed water and ethylene glycol based nanofluid", An invited talk delivered in the European Materials Research Society (E-MRS) Fall Meeting (Symposium K) (Warsaw, Poland)

32. Prof. Indranil Manna “Thermal properties of nanometric-metal / ceramic dispersed water and ethylene glycol based nanofluid”, An invited talk delivered at the National Workshop on Nanoscience and Biochips (Nano-Bio 2007) (Indian Statistical Institute, Kolkata)
33. Prof. Indranil Manna “Thermal properties of nanometric-metal / ceramic dispersed water and ethylene glycol based nanofluid”, An invited talk delivered at the International Conference on Advanced Materials and Composites (Mascot Hotel Convention Centre, Trivandrum)
34. Prof. Indranil Manna ‘Synthesis and Characterization of Nanostructured SnO₂ or BST Based Gas-Sensors’ delivered in South Africa, under the India-Brazil-South Africa (IBSA) tripartite collaboration.
35. Dr. Jyotsna Dutta Majumdar “Laser Surface Engineering of Ti-6Al-4V for Orthopedic Application” at the Workshop on Application of Lasers in Materials Processing’ (Kolkata)
36. Dr. Jyotsna Dutta Majumdar “Laser Assisted Surface Modification of Ti-6Al-4V for Bio-implant Application”, delivered at the 3rd US-African advanced Institute “Environmental and Biological Applications of Lasers, *EBAL 2008*” (Cairo, Egypt)
37. Dr. Jyotsna Dutta Majumdar “Laser Materials Processing Activities in India” delivered at the Workshop on ‘Areas of Common Interest between EU and Developing Countries in the field of Laser Technology’ (Cairo, Egypt)
38. Dr. Jyotsna Dutta Majumdar “Surface Engineering of Copper and its Alloys for Wear Resistance Application” (University of Chile, Santiago)
39. Dr. Jyotsna Dutta Majumdar “Studies on Copper Based Shape Memory Alloy for Seismic Application” (Department of Materials Science, University of Chile, Santiago)

LECTURE BY VISITING EXPERT

1. Dr Sujoy Kar
General Electric Global Research Center, Bangalore
Microstructure Evolution and Thermodynamic Modeling
2. Dr Arup Dasgupta
Physical Metallurgy Division
IGCAR, Kalpakkam
TEM Studies on SiC Thin Films and solar cells prepared by HWCVD technique
3. Dr. Sharmila M. Mukhopadhyay
Nanoscale modification of complex solids at

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|----|--|---|
| | Director, Center for Nanoscale Multifunctional Materials
Professor of Mechanical & Materials Engineering
Wright State University, Dayton, USA | the Center for Nano-Scale Multifunctional Materials |
| 4. | Prof. Dr. B L Mordike
Technical University of Clausthal
Germany | Laser Material Processing |
| 5. | Prof. Dr.-Ing. W. Bleck
Department of Ferrous Metallurgy
RWTH Aachen University, Germany | Benefits of the TRIP Effect for High Strength Sheet Steels |
| 6. | Dr. P. P. Bhattacharjee
Department of Adaptive Machine Systems
Graduate School of Engineering
Osaka, Japan | Development of Cube Texture in Nickel Base Substrate Tapes for Coated Superconductor Applications |
| 7. | Dr. Neil John Coville
DST/NRF Centre of Excellence in Strong Materials and School of Chemistry
University of the Witwatersrand
Johannesburg, South Africa | Shaping carbon |
| 8. | Prof. Govind Gupta
Department of Metallurgy
Indian Institute of Science, Bangalore | Study of the dropping zone of a blast furnace |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	R. N. Maiti	Hydrodynamics of Trickle Bed Reactors
2.	T. Gnanadurai	Synthesis and Characterization of Aluminium Matrix Micro and Nano Composites Reinforced by in-situ Alumina Particulates
3.	Golap Mohammad Chowdhury	Some Studies on reduction kinetics of iron ore-graphite composite pellets in a packed bed reactor
4.	Mervin A. Herbert	Some studies on the mushy state rolling of Al-4.5Cu alloy based in-situ composites reinforced with TiB ₂ or TiC particles.
5.	Kausik Chattopadhyay	Structure-Property Relationships in Nb-Si-Mg Alloys.
6.	Subhrangshu Moitra	Optimization of hot rolling using genetic algorithms
7.	Animesh Mandal	Studies on the synthesis and characterization of Al based in-situ composites reinforced with TiB ₂ particles.

- | | | |
|-----|-----------------------|---|
| 8. | Sashank Shekhar Nayak | Synthesis and characterization of nano-crystalline intermetallics and nano composites of Al-TM (TM=Ti, Zr, Fe) alloys prepared by nano-equilibrium processing routes. |
| 9. | Anindya Basu | Surface engineering of SAE 52100 steel. |
| 10. | Anil Kumar Verma | Kinetics of diffusional phase transformation and microstructure evolution during galvannealing. |
| 11. | K. G. Basav Kumar | Influence of melt treatments on mechanical properties, sliding wear and machinability of Al-Si alloys. |
| 12. | V. M. Sreekumar | On the formation of magnesium aluminate spinels in-situ in molten Aluminium-Magnesium alloys mixed with silica particles. |
| 13. | B. Ramesh Chandra | Studies on Laser Assisted Composite Surfacing of Commercial Metal and Alloys |
| 14. | K. Ram Mohan Rao | Surface modification of metallic materials by plasma immersion ion implantation for enhancement of hardness and corrosion resistance |

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. Pradip Kumar Sen	Management of Innovation, contributory chapters on : Chapter 4 : Strategic Role Innovation in Business Chapter 5 : The Process Sourcing Innovation Chapter 6 : Selecti Innovation Options Chapter 7 : Development of Innovation Strategy with reference to Industrial research	Department of Scientific and Industrial Research, Government of India	2008

PATENTS GRANTED

- | | | |
|----|-----------------|--|
| 1. | Dr. Rahul Mitra | Reaction hot pressing technique for processing of Ti ₅ Si ₃ based materials (Granted, Ref. : 197166) |
|----|-----------------|--|

LAURELS & DISTINCTIONS

- | | | |
|----|-----------------|---|
| 1. | Prof. P. K. Sen | Nominated to the Research Board of Indian |
|----|-----------------|---|

2. Prof. P. K. Sen
Rare Earths Limited, Mumbai, DAE
Nominated as Member, Standing Committee on non-living marine resources, Ministry of Earth Sciences, Government of India
3. Prof. Sanat Kumar Roy
Received the Best paper presentation award at the International seminar on Mineral Processing and Technology-2008, held at Thiruvanthapuram, Kerala
4. Prof. Mahadev Malhar Godkhindi
Awarded Prof. G. S. Tendolkar best paper award during annual conference of PMAI 2007, New Delhi
5. Prof. Sarat Chandra Panigrahi
Became Member, Academic Council NIFFT, Ranchi
6. Prof. Sarat Chandra Panigrahi
Syllabus Committee for Metallurgical and Materials Engineering, BPUT
7. Prof. Kalyan Kumar Roy
Became Advisory Member of the Editorial Board : Transactions of the Indian Institute of Metals, Published by Indian Institute of Metals (2007)
8. Prof. Nirupam Chakraborti
"Opponent" in Dr. Tech. Sc. Public Defense, Åbo Akademi University, Finland 2007
9. Dr. Karabi Das
Judged as Outstanding (Top 20%) Reviewer by the Metallurgical and Materials Transactions A, 2007
10. Prof. Madhusudan Chakraborty
Appointed as Member Board of Governor, NIT Rourkella (January 2008)
11. Prof. Indranil Manna
Fellow (FASc), Indian Academy of Sciences (IAS), Bangalore, elected in 2008
13. Prof. Indranil Manna
INAE-AICTE Distinguished Industry Professor (2007), awarded by the Indian National Academy of Engineering jointly with Tata Steel, Jamshedpur
14. Prof. Indranil Manna
Member, National Advisory Committee, MATS-2008 and ISCS-2008 (two international conferences organized by Tata Steel; ICAMT-2008, ICONSAT-2008 organized by IGCAR+INAE
15. Prof. Indranil Manna
Member, Research Council, NML, Jamshedpur (2007-2009)
16. Prof. Indranil Manna
Member, Editorial Board of STEEL TECH, a bi-monthly bulletin on Steel published by Tata Steel
17. Prof. Indranil Manna
Deputy Managing Director, Metal News, a bi-monthly bulletin of the Indian Institute of Metals, Kolkata – effective from August 2005.
18. Prof. Indranil Manna
Council Member, Indian Institute of Metals, for 2007-2008. Also, In-charge for IIM web site (www.iim-india.net)
19. Prof. Indranil Manna
Member, Board of Editors, Computers,

20. Dr. Jyotsna Dutta Majumdar

Materials and Continua – A Tech Science
Press international journal (ISSN 1546-2218),
California, USA

Member, National Academy of Science,
Allahabad, India

**SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM
COURSES ORGANIZED**

1. GAMS 2008, Warsaw, Poland September 17–20, 2007
2. NGMS 2008, Kolkata January 9–11, 2008
3. COMPOSIT (Congress of Metallurgical Professionals
invOlving Students, Industry and Teachers); a national meet
conducted by the Society of Metallurgical Engineers,
Department of Metallurgical and Materials Engineering,
Indian Institute of Technology Kharagpur March 29–31, 2008

DEPARTMENT OF MINING ENGINEERING

HEAD : Professor Jayanta Bhattacharya

FACULTY

Professor :

Bhattacharya, Jayanta	Ph.D.(IIT Kharagpur), Reliability and Quality Engineering
Bhattacharjee, Ashis	Ph.D.(Penn State), Operations Research, Occupational Health and Safety
Das, Samir Kumar	Ph.D.(ISM Dhanbad), Coal Mining, Mine Safety ,Ground Control, Powered Roof Support, Mining Environment, Rock Mechanics, Mining Legislation
Mukhopadhyay, Subir Kumar	Ph.D.(IIT Kharagpur), Subsurface Metalliferous Mining, Mine Planning and Design, Open Pit Mining, Mine and Mineral Economics, Small Scale Mining, Mine Safety
Pathak, Khanindra	Ph.D.(London University), Mining Machinery, Surface Mining, Mine Closure Planning, Environmental Management, Geoinformatics & Remote Sensing
Rao, Karanam Uma Maheshwar	Ph.D.(IIT Kharagpur), Rock Mechanics, Underground Metal Mining Methods
Sastry, Bhamidipati Suryanarayana	Ph.D.(Utah), Mine Environment

Associate Professor :

Deb, Debasis	Ph.D.(Alabama University, USA), Rock Mechanics, Numerical Methods, GIS, ,AI
Pal, Samir Kumar	Ph.D.(IIT Kharagpur), Mining Mechanization, Rock Mechanics & Ground Control Geomatics

Assistant Professor :

Chakravarty, Debashish	Ph.D. (IIT Kharagpur), Rockmechanics, Blasting & Ground Control, Applied DIP & DSP, Advanced Surveying, GIS & GPS, Numerical Analysis, AI and Virtual Reality, Geomatics & Geoinformations
Samanta, Biswajit	Ph.D.(IIT Kharagpur), Geostatistics, Quality Control, Artificial Intellegence

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Promotion :

Prof. Subir Kumar Mukhopadhyay

Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Environment and Safety – Application of LCA, GIS and remote sensing for soil and water analysis as a part of mine closure planning; Experimental and computational fluid dynamics studies for shock loss determination in mine air flow; Biological and passive treatment of mine waste water; Investigation of soil and water contamination vis-à-vis land use changes near mining fields. Study of human behaviour related accidents in mines; Epidemiological investigations to identify possible risk factor of occupational injuries in mines; The statistical methods for assessing risk factors included logistical regression, loglinear modeling and structural equation modeling.
2. Rock Mechanics / Ground Control – Finite element analysis for longwall strata control problems, and design of shield supports; Extended Finite Element Method (XFEM) for the analysis of rock joints and cracks. Rock Joints and their influence on the stability of underground openings; Rock Mass characterization, Land reclamation and soil mechanics; Assessment of Fly ash composites as a substitute fill material for underground mine voids; Risk analysis for the safety management of coalmines; On the mechanics of rock fragmentation by drilling and cutting- studies on the linear cutting machine (LCM).
3. Mine Planning / Modeling – Application of various grade estimation techniques namely kriging, cokriging, stochastic simulation and neural networks for estimation of mining blocks for quality control in mines; Investigation of different statistical quality control techniques including univariate and multivariate control charts for controlling the grade of mineral at various locations; Grade control aspects in limestone and bauxite operations. Fault Tree Analyses and algorithm development for a Coal Handling Plant.
4. Collaborative Research – Collaborative research is ongoing with the French National Institute of Health and Medical Research (INSERM) for conducting research on injury epidemiology. In this study, the public health prevention methods were applied to occupational injuries in mines. The Department has signed a MoU with the Geotechnical Division of the Korean Institute of Geosciences and Mineral Resources (KIGAM) for undertaking a joint collaborative research on the rock mass characterization based on the image processing techniques.
5. Advanced Surveying & Geoinformatics – Integration of GPS & I.SAR ground deformation data over mining areas. Use of lasers for assessment of stability of dumps. Vision based semi-automatic mine navigation system.

Thrust Areas :

1. Rock Mechanics and Ground Control
2. Surface and sub-surface Environment
3. Mine Safety and Systems Engineering

4. Advanced Surveying and Geo-informatics

New Acquisitions :

1. INSTRON - 3500kN. Microprocessor Controlled Universal Testing machine of 3500 kN capacity
2. Orion 5-Star, pH/ORP/ISE/DO/Conductivity Meter
3. Bio-Rad Glass Econo-Column Low Pressure Chromatography Column
4. Oscillating Disc Rheometer MVE Model with computer Control as per ASTM D2084-79 (Temperature Range – 1000–2500⁰C)
5. Computerized Tensile Testing Machine for Rubber with variable speed, drive and grip separation speed (double coloum type) with cutting press; capacity 500 kg.
6. Bull Gear V-Belt Drive Rubber Mixing Mill with Anti Friction Roller Bearings. Size – 14”x36”
7. Rubber Extruder Machine – twin taper screw type with sheet forming die head, internally hard crome plated and water jacketed.
8. Goodrich Flexometer. Model No. – S-1103 ASTM D-623-BS : 903
9. Fully automatic steam boiler having steam generation; capacity 250 kg/hr
10. DIN ABRASION Resistance Testing Machine. (as per ISO 4649).
11. Du-point Cryodon Abrasion Resistance Tester. Model No.: S-1106
12. 3D Terrestrial Laser Scanner from OPTECH

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Application of High Precision Satellite Imaging and DGPS Technology for online, Wide-area Subsidence Monitoring Study in Raniganj Area, Eastern Coalfields Limited	Coal India Limited	Rs. 240.00 Lakhs
2.	Investigation on Augmentation of Life of Dump- Truck Tyres through the Improvement of Tyre Retreading Compound and Development of an Optimum Road Maintenance Management System	Coal India Limited	Rs. 148.69 Lakhs
3.	An Epidemiological Study to assess the role of individual characteristics and working environment on coal miners injuries	MHRD, New Delhi	Rs. 10.00 Lakhs
4.	Quality Assurance and Supply Chain Management of ROM Limestone	Gujarat Ambuja Cements Limited	Rs. 1.50 Lakhs
5.	Development of a mixed-culture bio-reactor for mine drainage treatment	Korea Institute of Geosciences and Mineral Resources, South Korea	Rs. 9.00 Lakhs

6.	Risk based mine production scheduling using conditional simulation and genetic algorithms for ore grade control	DST, New Delhi	Rs. 9.10 Lakhs
7.	Optimal Selection of Radial Basis function network for ore body modeling using multi objective genetic algorithms	DST, New Delhi	Rs. 2.88 Lakhs
8.	Remote Sensing and GIS based data infrastructure for Base line Environment for New Uranium Mining Site	BNRS	Rs. 34.00 Lakhs
9.	Environmental Hotspot monitoring in Korba Area	Space Application Centre	Rs. 16.00 Lakhs
10.	Development and Implementation of Extended Finite Element Procedures (XFEM) for Cohesive Rock Joints	DST, New Delhi	Rs. 16.50 Lakhs
11.	Technical Study for Stability of Old and Active OB Dumps in WCL for the Dimensional Optimization	Coal India Limited	Rs. 300.00 Lakhs
12.	Integration of GPS and InSAR data for Accurate Ground Profile Determination	SHELL International and Exploration	Rs. 40.00 Lakhs
13.	Re-application of the S&T project “Model Studies on the Efficiency of Gravity Blind Backfilling Method and Evaluation of a Pre-Jamming Indication Parameter” in the field	Coal S&T, Ministry of Coal	Rs. 395.18 Lakhs
14.	Development of Roof Fall Prediction system for underground Mines using wireless network	Coal India Limited	Rs. 216.98 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Solid Rock Tests of Granite Samples used in Breakwater Construction at Ennore Port	Ennore Port Limited	Rs. 4.85 Lakhs
2.	Rock testing and numerical modeling for slope design at Bangur chromite mine	OMC	Rs. 2.00 Lakhs
3.	Development of image processing technique for Analysis of Rock Joint	KIGAM, Korea	Rs. 10.00 Lakhs
4.	Fundamental of GPS Technology along with its application	TISCO, Jamshedpur	-
5.	Scientific study of slope stability of Goutam Khari opencast mines, Kothamgudem area	Singreni Collieries Co. Ltd.	Rs. 3.47 Lakhs
6.	Development of a pit optimization software	KIGAM, Korea	Rs. 4.50 Lakhs
7.	Stability Analysis of crown pillars at Hutti Gold Mines	Hutti Gold Mine Limited	Rs. 10.97 Lakhs

8.	Design and Stability Analysis of Stopes in North, South and North extension Blocks at Bangur chromite Mine, OM	Orissa Mining Corporation	Rs. 3.20 Lakhs
9.	Testing and Characterization of Rock Parameters from a Proposed Uranium Mine in AP	UCIL	Rs. 1.96 Lakhs
10.	Study on Backfill Material Composed of Fly Ash / Bottom Ash and Mill Tailings of UCIL	Tata Power	Rs. 4.98 Lakhs
11.	Studies on the stability of Underground mine openings and subsidence investigations at Tummallapali project of UCIL	Uranium Corporatin of India Ltd.	Rs. 0.50 Lakhs
12.	Pressure-quantity Survey and Network Analysis at the GDK-8 & 8A Incline Integrated Circuit, RG-II, SCCL	Singareni Collieries Co Ltd.	Rs. 2.80 Lakhs
13.	Resource Evaluation at Srikurmam Beach Sand Project	Trimex Industries	Rs. 0.75 Lakhs
14.	Stope Design at Narwapahar Mine	UCIL	Rs. 3.85 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. A. Bhattacharjee	32 nd International Conference of Safety (Mines Research Institutes Beijing, China)
2.	Prof. J. Bhattacharya	Visiting Research stipendiary (Helmholtz Association, Germany)
3.	Dr. D. Chakravarty	Project related work on 3D TLS (OPTECH, Canada)
4.	Dr. D. Deb	Project related (KIGAM, South Korea)
5.	Dr. S. K. Pal	To attend 9 th Arab International Conference on Polymers Science and Technology (Cairo, Egypt)
6.	Prof. K. Pathak	For edulink proposal information meeting (University of South Pacific, Suba, Fiji)
7.	Prof. K. Pathak	PNG Chamber of Mines & Petroleum Conference (Port Mores, Papua New Guinea)

INVITED LECTURES BY FACULTY MEMBERS

1.	Prof. A. Bhattacharjee	Contribution of Physical Hazards and health related factors in occupational injuries (Beijing, China)
2.	Prof. J. Bhattacharya	Development of Chemo-bioreactor, for AMD treatment UFT (Magdeburg, Germany)
3.	Dr. D. Chakravarty	OB Dump vegetation towards into stability (WCL, Nagpur)
4.	Dr. D. Deb	Subsidence prediction and control (SNU, South Korea)
5.	Dr. D. Deb	PIT optimization (KIGAM, South Korea)

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| 6. | Prof. K. Pathak | Sustainable mining based development strategic needs Asia Pacific Partnership (APP) coal mining task force sustainable development workshop (Kolkata, India) |
| 7. | Prof. K. Pathak | Facility Planning for surface mining project : A qualitative decision making approach QDM, 19 th National Mining Conference on disaster Management in Mines (IE&ISM, Dhanbad) |

LECTURE BY VISITING EXPERT

- | | | |
|----|---|---|
| 1. | Prof. B. B. Mohanty
University of Toronto | “Dynamic Fracture Process in Rock and its Application to Mining and Excavation” |
| 2. | Mr. Dev Ramachandran
RioTinto | “The Art of Mine Economics” |
| 3. | Dr. Tapan Sarkar
University of Queensland, Australia | “Corporate Society Responsibilities in Mining” |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Snehamoy Chatterjee	Geostatistical Vision based quality control models for Indian mining industry
2.	Sanjay Kumar Palei	Development of Risk Analysis Model for Roof Fall Hazards in underground coal from Eastern South mine India

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. J. Bhattacharya	Coal Combustion Quality : Mine Steel and Limestone Plants Operating Guidebook	Wide Publishing	2008
2.	Prof. J. Bhattacharya	Corporate Social Responsibility : Ethical and Strategic Choice	Asian Books Pvt. Limited, New Delhi	2007
3.	Prof. S. K. Das	Opencast Mining Technology	Sagar Deep Prakashan	2007
4.	Prof. S. K. Das	A Hand Book on Surface Mining Technology	Sagar Deep Prakashan	2008

PATENTS GRANTED

1. Dr. D. Deb MAXPIT Software copyright in South Korea

LAURELS & DISTINCTIONS

1. Prof. J. Bhattacharya Fellow of Indian National Academy of Engineering (INAE)
2. Dr. D. Deb Editorial Board Member of JSIR
3. Prof. S. K. Mukhopadhyay Editorial Board Member of Journal of the Mining, Geological and Metallurgical Institute of India
4. Dr. D. Deb and Prof. S. K. Mukhopadhyay (jointly awarded) Institute's Gold Medal of MGMI, 2007

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. The Indo-Korean joint International Symposium on "Geo-Science & Technology: Utilization of Geo-space as a solution for Energy and Environment" February, 12-14, 2008

DEPARTMENT OF OCEAN ENGINEERING & NAVAL ARCHITECTURE

HEAD : Professor Nisith Ranjan Mandal

FACULTY

Professor :

Misra, S. C.	Ph.D., Ship Design, Ship Hydrodynamics
Mandal, N. R.	Ph.D., Marine Production, Welding Technology
Satsangi, S. K.	Ph.D., Ocean Structures, Ship Structures, Structural Engineering
Sen, D.	Ph.D., Marine and Ocean Hydrodynamics, Numerical Hydrodynamics
Sha, O. P.	Ph.D., CAD/CAM in Marine Design & Production, Marine Design & Production

Associate Professor :

Sahoo, T.	Ph.D., Coastal Hydrodynamics, Hydroelasticity, Marine and Ocean Hydrodynamics
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Assistant Professor :

Bhar, Ashoke	Ph.D., Ocean Engineering Structures
Warrior, Hari V.	Ph.D., Ocean circulation Modeling
Bhaskaran, Prasad Kumar	Ph.D., Physical & Dynamical Oceanography, Numerical Modeling of Ocean Waves, Coastal Processes, Tsunamis

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Wave effects on ships and offshore structures, hydro elasticity of large flexible structures, marine structural analysis using steel and composite materials, marine design and production, structural reliability, ocean circulation, ocean wave modeling, wave attenuation muddy bottoms, settling velocity marine sediments
2. Wave effects on Ships and Offshore Structures, Hydro elasticity of large flexible structures, Marine Structural Analysis using steel and composite materials, Marine Design and Production, Structural reliability
3. Ocean Circulation Modeling, Numerical Modeling of Ocean Waves, Parameterization of Air-Sea Fluxes, Development of Coastal Wave Run-up Model, soft computing tools in ocean parameter retrieval, mechanics of coastal sediment transport

Thrust Areas :

1. CFD
2. Coastal Marine Hazards
3. Marine and Ocean Hydrodynamics
4. Numerical Hydrodynamics
5. Ocean Structures
6. Marine structural analysis
7. Ocean Wave & Circulation Modeling
8. Marine Design
9. Coastal Processes
10. Storm Surge Prediction & Tsunamis

New Acquisitions :

- i) 2D – Wave Maker
- ii) Milling machine installed in Welding Laboratory

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	3D seakeeping computation for conventional and fast hulls	Naval Research Board (DRDO)	-
2.	A study on the interaction of surface waves with floating and flexible structures	Naval Research Board (DRDO)	-
3.	An Investigation into Geometric Modelling, Design and Analysis of Complex Surfaces	DRDO	-
4.	An Investigation into the Hydrodynamic characteristics of Foils with and without Flaps	Naval Research Board (DRDO)	-
5.	Development of a coastal wave prediction model utilizing Satellite Data	Space Applications Centre (ISRO)	-
6.	Development of a Comprehensive Atlas on Tsunami Travel time and propagation model for Indian Ocean	IIT Kharagpur	-
7.	Development of a ship routing code	Space Applications Centre (ISRO)	-
8.	Development of an Autonomous Underwater Vehicle	Ministry of Earth Sciences (MoES)	-
9.	Modernization of vibration laboratory	MHRD, New Delhi	-
10.	Ship Design for Efficiency and Economy	Ministry of Shipping	-
11.	Control of Ballast water problems in ships through design development	Dept. of Shipping	-
12.	Estimation of Suspended Sediment Concentrations from Ocean Color Monitor onboard OceanSat and algorithm development	Naval Research Board (DRDO)	-

	for settling velocity		
13.	Development of single side single pass submerged arc welding	CSIR, New Delhi	-
14.	To develop computer model to predict weld induced residual distortion of large plate panel	DST, New Delhi	-
15.	Development of FRP Roadside Barriers for National Highways	National Highway Authority of India	-
16.	Vulnerability Study of Kalpakkam Coast to Marine Hazards	IGCAR, Kalpakkam	-

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Com. of linear and 2nd order force on large stationary of floating structures	Indian Register of Shipping	-
2.	Design and Development of a Technology Demonstrator 10 metres FOILCAT	Naval Science & Technological Laboratory (NSTL), Visakhapatnam	-
3.	Design and Development of Advanced Propulsors for High speed Hybrid Marine Crafts	NSTL, Visakhapatnam	-
4.	Design and Development of Highspeed Highbreed marine Crafts	NSTL, Visakhapatnam	-
5.	Design and Development of Advanced Propulsors for High Speed Marine Crafts	NSTL, Visakhapatnam	-
6.	Development of a generic motion equation for a submerged Body	Macmet India Limited	-
7.	Development of Auto-algorithm for Submerged Body	Macmet India Limited	-
8.	Development of Ship-in-Campus laboratory	Various Marine Engineering Institute in India	-
9.	Software for trajectory simulation of marine vehicles	NSTL, Visakhapatnam	-
10.	Hydrodynamic design & design of control surfaces for AUV	NSTL, Visakhapatnam	-
11.	Preparation of design, specifications and drawing for vessels of IWAI	Inland Waterways Authority of India	-
12.	Development of Software for trajectory simulation of Marine vehicles	NSTL, Visakhapatnam	-
13.	Development of a comprehensive Ocean atlas for the Indian Ocean utilizing ARGO data	Indian National Centre for Ocean Information Services	-
14.	Operational marine modeling system for Persian Gulf using WAM model	King Fahd University of Petroleum &	-

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. Prasad K. Bhaskaran New Trends in Ocean Wave Modeling Activities (Space Physics Laboratory, Vikram Sarabhai Space Centre (ISRO), Thiruvananthapuram)

LECTURE BY VISITING EXPERT

1. Professor Avijit Gangopadhyay Delivered series of talk during March 2008

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Ranadev Datta	Development of a B-Spline based method for the 3D forward speed ship motion in Time domain

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Mr. B. Prasad Kumar, Prof. S. K. Dube, Mr. T. S. Murty, Mr. A. Gangopadhyay, Ayan Chaudhri and Mr. A. D. Rao	The Indian Ocean Tsunami	Taylor & Francis Group, London, U.K.	2007

PATENTS GRANTED

1. Tsunami Travel Time Prediction using Neural Networks
2. A New approach to derive Ocean parameters using Neural Networks
3. Development of comprehensive ocean atlas for Indian Ocean

DEPARTMENT OF PHYSICS & METEOROLOGY

HEAD : Professor Balbir Kumar Mathur

FACULTY

Professor :

Chandra, Naresh	Ph.D.(Queens University, UK), Atomic, Molecular and Optical Physics
Chandrasekar, A.	Ph.D.(IISc., Bangalore), Atmospheric Sciences
Choudhary, Ram Naresh Prasad	Ph.D.(Edinburgh, UK), Ferroelectricity, Crystal Structure, Liquid Crystals, Condensed Matter Physics (experimental), Nanomaterials and Nanotechnology
Ghatak, Sobhendu Kumar	Ph.D.(Calcutta University), Condensed Matter Physics, Biophysics
Kumar, Krishna	Ph.D.(IIT Kanpur), Hydrodynamic Instabilities and Chaos, Pattern-formation and Pattern dynamics
Mathur, Balbir Kumar	Ph.D.(IIT Kharagpur), Surface Science, Semiconductors, X-Ray, WEB design, Microprocessor
Raina, Prabhu Krishna	Ph.D.(IIT Kanpur), Nuclear and Particle Physics
Ray, Samit Kumar	Ph.D.(IIT Kharagpur), Semiconductor Physics & Devices, Thin Film Nanostructures
Samantaray, Biswas Kumar	Ph.D.(IIT Kharagpur), Experimental Physics, Structure of Matter, X-Rays
Sharma, Shivcharan Lal	Ph.D.(IIT Kanpur), Nuclear Physics, Semiconductor Physics, Radiation Detection and Measurements
Srinivas, Veeturi	Ph.D.(IIT Bombay), Electronic properties of solids, Magnetic, electrical transport properties, Nano-materials, Non-crystalline solids
Taraphder, Arghya	Ph.D.(IISc., Bangalore), Condensed Matter Physics

Associate Professor :

Bharadwaj, Somnath Datta, Prasanta Kumar	Ph.D.(IISc., Bangalore), Astrophysics, Cosmology Ph.D.(Burdwan University), Laser Physics, Nonlinear Optics, Ultrafast Nonlinear Optical Phenomena, Semiconductor Optical Amplifier
Kar, Sayan	Ph.D.(IIT Kanpur), Gravitation and Cosmology, Field Theory
Roy, Anushree	Ph.D.(IISc., Bangalore), Nanomaterials, Light scattering and spectroscopy

Assistant Professor :

Das, Amal Kumar	Ph.D.(IOP, Bhubaneswar), Experimental Condensed Matter Physics, Thin film growth and characterization, Magnetism including spintronics
Das, Baidya Nath	Ph.D.(IIT Kharagpur), Condensed Matter Physics

Dhar, Achintya	Ph.D.(Jadavpur University), Condensed Matter Physics (Experimental)
Khastgir, Sugata Pratik	Ph.D.(IOP, Bhubaneswar), Mathematical Physics, High Energy Physics
Majumder, Sonjoy	Ph.D.(IIA, Bangalore), Many-Body Formalism, Atomic And Molecular Physics, Astrophysics, Molecular Electronics, High Performance Computing
Murugesh, Subramaniam	Ph.D.(University of Madras), Nonlinear Dynamics
Nath, Tapan Kumar	Ph.D.(IIT Kanpur), Magnetism, Low Temperature Physics, Superconductivity, Semiconductors, Thin Films and Multilayers, Nanostructured Materials
Roy Chaudhuri, Partha	Ph.D.(IIT Delhi), Fiber / Integrated Optics, Optoelectronics, Experimental Biophotonics
Shukla, Pragya	Ph.D.(JNU, Delhi), Condensed Matter Physics, Nonlinear Physics
Singh, Ajay Kumar	Ph.D.(Calcutta University), Experimental Nuclear Physics
Srivastava, Sanjeev Kumar	Ph.D.(JNU, New Delhi), Materials Engineering using Ion Beams, Thin Films and Multilayers, Nuclear Condensed Matter Physics, Local Magnetism
Thakur, Awalendra Kumar	Ph.D.(NEHU, Shillong), Solis State Ionic Devices, Ferroelectrics / Dielectrics, Composite Nanostructures, Complex Impedance Spectroscopy Technique

Emeritus Professor :

Prof. H. N. Acharya Ph.D.(IIT Kharagpur), Condensed Matter Physics

Scientific Officer :

Chakraborty, Syamal Ph.D.(IIT Kharagpur), Glass and ceramics, Sol-gel science, Preparatory course physics, Writing popular science

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Sanjoy Majumdar
Dr. S. Murugesh

Assistant Professor
Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The Department is carrying out research and development utilizing in-house facilities and with collaboration with sister departments. Many of the facilities have been developed in the department and procured from sponsored projects. Faculty and scholars are carrying out

active research in the following areas : Atmospheric Sciences / mesoscale modeling for tropical weather for tropical weather, Astrophysics & Cosmology, Biophysics & Complex Systems, Chaos & Non-Linear Instabilities, Complexity, Condensed Matter Physics - Superconductive and CMR Materials, Solid State Device Materials, Semiconductor Physics & Nanostructures, Thin Film Growth and Characterization, Sol-gel science, Spintronic Materials, Structure of Matter, surfaces and Interfaces, Non-crystalline alloys, Monte Carlo Simulation, Ferroelectrics, Polymer Nanocomposites, Liquid Crystals, Thermoelectricity. Nuclear, High Energy and Particle Physics, Group Representations, Fiber and Integrated Optics, Optoelectronics, Laser Physics and Non-Linear Optics, Atomic and molecular Physics, UHV applications

Thrust Areas :

1. Condensed Matter Physics
2. Non-linear Dynamics and complexity
3. Astronomy and Astrophysics
4. Nuclear and Particle Physics

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	A study of the impacts of initialization of the cyclonic vortex in a high resolution mesoscale tropical cyclone model	DST, New Delhi	Rs. 14.98 Lakhs
2.	A Theoretical Study on Coherent Structures and Chaos in Nanoscale Ferromagnets	IIT Kharagpur	Rs. 3.00 Lakhs
3.	Analysis, Modelling and Design of Semiconductor Optical Amplifier (SOA) based Photonic Components for Lightwave Systems and Networks	Japan-Indo Collaboration Programme : Kyushu University	Rs. 20.00 Lakhs
4.	Angle- and spin-resolved photoelectron spectroscopy of atoms and molecules	DST, New Delhi	Rs. 1.60 Lakhs
5.	Assimilation of Oceansat -2 scatterometer winds in mesoscale model	Space Application Center, ISRO, Ahmedabad	Rs. 11.00 Lakhs
6.	Assimilation of satellite data in mesoscale models	Space Application Center, ISRO, Ahmedabad, India	Rs. 18.32 Lakhs
7.	Augmentation of the experimental infrastructure in condensed matter physics	DST, New Delhi	Rs. 65.00 Lakhs
8.	Ceramic Titania Foam	IIT Kharagpur	Rs. 3.00 Lakhs
9.	Cooperative Phenomenon and nanosize effects in some correlated systems	BRNS, DAE, Mumbai	Rs. 17.56 Lakhs
10.	CRP-Spintronic materials - Simulation	BRNS, DAE,	Rs. 107.30 Lakhs

	and Design of Spintronics Materials	Mumbai	
11.	Design and development of plasma spark sintering facility for nano material compaction	MHRD, New Delhi	Rs. 20.00 Lakhs
12.	Development & characterization of nanostructured thin films for SiGe quantum well infrared photodetector and ferroelectric based gas / chemical sensors	DRDO, Govt. of India	Rs. 201.80 Lakhs
13.	Development and Characterization of Nanostructured thin films for SiGe Quantum Well Infrared Photodetector and ferroelectric based gas / chemical	DRDO, Govt. of India	Rs. 201.80 Lakhs
14.	Development of all solid state high repetition rate pico- second laser source tunable in wavelength and in pulse duration for nonlinear optical study	DST, New Delhi	Rs. 55.58 Lakhs
15.	Development of Artificially Structured Nano Magnetic Materials for High Frequency Sensor Applications	DRDO, Govt. of India	Rs. 31.00 Lakhs
16.	Development of cantilever beam magnetometer for in-situ measurement of mechanical and magnetic properties of thin films for spintronic application	DRDO, Govt. of India	Rs. 68.99 Lakhs
17.	Development of efficient UV laser source for laser induced fluorescence study of malignant tissues	MHRD, New Delhi	Rs. 10.00 Lakhs
18.	Development of Ion Conducting Polymer-Nanoceramic Surfaces as Templates	CSIR, New Delhi	Rs. 12.00 Lakhs
19.	Development of microactuators based on shape memory alloy for micro fluidic applications	DRDO, Govt. of India	Rs. 14.71 Lakhs
20.	Development of novel magnetic materials for magneto-electronic applications	BRNS, DAE, Mumbai	Rs. 23.00 Lakhs
21.	Development of optical parametric oscillator tunable in the range of 0.35um to 16.0um for air-borne detection of chemical and biological warfare agent	DRDO, Govt. of India	Rs. 73.29 Lakhs
22.	Development of polymer nanocomposite based rechargeable solid-state lithium batteries for ambient and sub-ambient temperature applications	MHRD, New Delhi	Rs. 15.00 Lakhs
23.	Development of Preform for High Power Fiber Laser	BRNS, DAE, Mumbai	Rs. 24.69 Lakhs
24.	Development of quantum well infrared photodetectors in wavelength range 8-14 um using Si/SiGe nanotechnology	DIT, New Delhi	Rs. 92.24 Lakhs
25.	Development of terahertz sensors for biomedical imaging and remote detection of chemicals/ biological warfare agents	MHRD, New Delhi	Rs. 10.00 Lakhs
26.	Electronic properties of highly resistive	CSIR, New Delhi	Rs. 12.00 Lakhs

	Al-based quasicrystalline thin films		
27.	Experimental Investigations on electronic and thermal transport processes in maganite perovskites and development of various sensing devices	CSIR, New Delhi	Rs. 7.78 Lakhs
28.	Experimental quadratic cascading for their application in photonic devices	DRDO, Govt. of India	Rs. 23.02 Lakhs
29.	Fabrication of cost-effective AC-magnetic susceptibility measurement set up for use with a liquid nitrogen cryostat assembly down to 70 Kelvin	IIT Kharagpur	Rs. 3.00 Lakhs
30.	Fabrication of Doped Single-Mode Optical Fibers for Investigation of Bragg Grating Characteristics	DRDO, Govt. of India	Rs. 24.70 Lakhs
31.	Generation of coherent mid-infrared radiation at 16mm through nonlinear optical difference frequency process for application in molecular spectroscop	BRNS (DAE, Govt. of India)	Rs. 30.82 Lakhs
32.	Giant magneto-impedance in manganite system	CSIR, New Delhi	-
33.	Investigation of Electrical-transport, Magneto-transport, Extraordinary Hall resistivity, Specific heat and Magnetic studies in nanostructured CMR man	DST, New Delhi	Rs. 128.00 Lakhs
34.	Kinematics of flows in diverse contexts	DST, New Delhi	Rs. 8.52 Lakhs
35.	Low temperature Raman measurements on novel materials	DST, New Delhi	Rs. 36.00 Lakhs
36.	Measuring the HI power-spectrum with the GMRT	BRNS, DAE, Govt. of India	Rs. 7.73 Lakhs
37.	On some aspects of Nano-photonics	Italian Ministry of Education	Rs. 12.00 Lakhs
38.	Optical Properties of Fluorescent Nanocrystalline Phosphates and Gallates Co-Doped with transition and rare-earth element	CSIR, New Delhi	Rs. 7.16 Lakhs
39.	Positron Double-Beta-Decay Processes and Study of Some Fundamental Problems in Neutrino Physics	DST, Govt. of India and Italian Ministry of Foreign Affairs	Rs. 5.00 Lakhs
40.	Preparation & Evaluation of Polymer Nanocomposite Films for Low Temperature Battery Applications	IIT Kharagpur	Rs. 3.00 Lakhs
41.	Preparation & Evaluation of Thermally Stable Ceramic Materials for Solid Oxide Fuel Cell Applications	MHRD, New Delhi	Rs. 12.00 Lakhs
42.	R&D in Photonic Crystal Fibers: Design, Fabrication and Experimental Characterization for Applications in Optical Communications and Sensors	DST, Govt. of India	Rs. 35.28 Lakhs
43.	Realization of packet switched node with optoelectronic and photonic technologies	Ministry of Education, Italy	-

	for ultra broadband communication systems and networks		
44.	Second order cascaded nonlinear optical processes for all-optical photonic devices	DST, Govt. of India	Rs. 7.62 Lakhs
45.	Spectroscopy of nuclei close to beta-stability line by using complete- and incomplete-fusion and deep-inelastic reactions	DST, New Delhi	Rs. 13.00 Lakhs
46.	Studies in Photon-Atom and Photon-Molecule Interactions	DST, New Delhi	Rs. 5.50 Lakhs
47.	Studies in Quantum Information and Spectroscopy Involving Photons, Electrons, Atoms, and Molecules	CSIR, New Delhi	Rs. 5.50 Lakhs
48.	Studies of Atoms and Molecules in the Presence of External Fields	CSIR, New Delhi	Rs. 8.00 Lakhs
49.	Studies of Transport Properties and Localisation of Waves in Random Media	DST, New Delhi	Rs. 14.00 Lakhs
50.	Studies on Laser-Optical Fiber-Based Micro-Imaging Techniques in the Analysis of Tissue Structure and Detection of Abnormalities	IIT Kharagpur	Rs. 5.00 Lakhs
51.	Studies on the impact of satellite data assimilation in mesoscale models'	CSIR, New Delhi	Rs. 10.00 Lakhs
52.	Study of Giant magneto-impedance(GMI) in soft ferromagnet for sensor application	CSIR, New Delhi	Rs. 11.75 Lakhs
53.	Study of magnetic properties of thin films on semiconductor substrates using cantilever beam magnetometer	CSIR, New Delhi and IIT Kharagpur	Rs. 3.00 Lakhs
54.	Study of single particle and collective degrees of freedom in nuclei at high spin through heavy-ion fusion evaporation reaction mechanism	IIT Kharagpur	Rs. 2.52 Lakhs
55.	Technology Development and Research with Photonic Crystal Fibers and Components for Advanced Photonic Sensor System	DRDO, Govt. of India	Rs. 62.84 Lakhs
56.	To study the effect of interfaces for efficient transport of carriers in organic light emitting materials	CSIR, New Delhi	Rs. 9.91 Lakhs
57.	Transport properties in organic light emitting materials and role of interfaces for efficient conduction	IIT Kharagpur	Rs. 3.00 Lakhs
58.	Upgrading Raman spectrometer to microRaman spectrometer to study biomaterials	DRDO, New Delhi	Rs. 49.80 Lakhs
59.	Z-scan determination of third order optical nonlinearity	IIT Kharagpur	Rs. 2.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Development of Admission Modules for IISER	IISER Mohali	Rs. 3.00 Lakhs
2.	High resolution X-ray diffraction	Various agencies	Rs. 2.00 Lakhs
3.	UV Opacity Evaluation in the samples of cold and anti sun burn cream	DARL, DRDO, Govt. of India	Rs. 0.50 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Dr. Pragya Shukla
Scientific Collaboration with Prof. A. Leggett (Noble Prize Winner, year 2003) (University of Illinois at Urbana-Champaign, Illinois, USA) Four Months; during August 01 – November 30, 2007
2. Prof. Samit Kumar Ray
Collaborative research (University of Newcastle, UK)
3. Dr. Tapan Kumar Nath
To present a research paper in Magnetism and Magnetic Materials (Tampa, Florida, USA) 7 days; during November 04–11, 2007
4. Dr. Amal Kumar Das
Scientific collaboration (Linz University, Austria) Two months
5. Dr. Awalendra Kumar Thakur
To chair Technical Session at “16th International Materials Research Congress (IMRC)” (Cancun, Mexico)
6. Dr. Awalendra Kumar Thakur
To attend International Conference on “Materials for Advanced Technologies (ICMAT-2007)” (The National University of Singapore, Singapore)

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. A. Chandrasekar
Weather Prediction Through Modeling (Jadavpur University, Kolkata)
2. Prof. A. Chandrasekar
Principles of weather prediction through modeling (Institute of Minerals and Materials Technology, Bhubaneshwar)
3. Prof. A. Chandrasekar
Chaos in the atmosphere (Institute of Minerals and Materials Technology, Bhubaneshwar)
4. Prof. A. Chandrasekar
Atmospheric Chaos (Jadavpur University, Kolkata)
5. Prof. A. Chandrasekar
3-D var data assimilation of MODIS temperature and humidity profiles for improved simulaton of mon depress (Ministry of Earth Sciences, New Delhi)
6. Prof. Samit Kumar Ray
Electrical and Optical Characteristics of Ge Nanocrystals Embedded in Oxide Matrices (IISC, Bangalore)
7. Prof. Samit Kumar Ray
Silicon Germanium Nanostructures for

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|---------------------------------------|---|
| | Electronic and Photonic Devices (AIT, Gurgaon) |
| 8. Prof. Samit Kumar Ray | Silicon-Germanium Nanostructures for Optoelectronic Devices (BHU, Varanasi) |
| 9. Prof. Samit Kumar Ray | High resolution X-ray diffraction (ITC Sonar Bangla, Kolkata) |
| 10. Prof. Samit Kumar Ray | Semiconductor Nanostructures : Growth and Properties (University of Newcastle, UK) |
| 11. Prof. Samit Kumar Ray | Growth and Device Application of Silicon-Germanium Nanostructures (Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum) |
| 12. Prof. Samit Kumar Ray | Growth of Silicon-Germanium Nanostructures for Optoelectronic Devices (IIT Kharagpur) |
| 13. Dr. Tapan Kumar Nath | Nanostructured CMR oxides (Mysore University, Karnataka) |
| 14. Dr. Tapan Kumar Nath | Investigation of electrical-transport, Magneto-transport, etc. studies in nano CMR manganites (Nuclear Science Center, New Delhi) |
| 15. Dr. Partha Roy Chaudhuri | Photonic Crystal Fibers : analysing index-guiding realistic structures – a general designing and modeling (IIT Guwahati) |
| 16. Dr. Partha Roy Chaudhuri | Fused Fiber Coupler Components for Optical Communication : Physics and Technology (IIT Guwahati) |
| 17. Dr. Partha Roy Chaudhuri | Optical Fiber Sensors and Devices : Physics and Technology (Benaras Hindu University) |
| 18. Dr. Partha Roy Chaudhuri | All-fiber Devices with Fused Fiber Coupler and Hollow Optical Fiber for Optical Communication (?????????????) |
| 19. Dr. Sayan Kar | Unusual bound states in quantum mechanics (IUCAA, Pune) |
| 20. Prof. Ram Naresh Prasad Choudhary | Multiferroics : Design, development and application (ISM University, Dhanbad, India) |
| 21. Prof. Ram Naresh Prasad Choudhary | Nanoferroelectrics : Synthesis and Characterization (BS College, Danapur, Bihar) |
| 22. Dr. Somnath Bharadwaj | Cosmology (PXE (DRDO) Chandipur) |
| 23. Dr. Sanjeev Kumar Srivastava | Exploring quantum criticality via local magnetism (Inter University Accelerator Centre, New Delhi) |
| 24. Dr. Achintya Dhar | MEMS to Nanotechnology (IIT Kharagpur) |
| 25. Dr. Achintya Dhar | Organic Optoelectronics – a future promise (IIT Kharagpur) |
| 26. Dr. Awalendra Kumar Thakur | Impedance Spectroscopy : A Tool for Electrical Analysis of Nanostructured Semiconducting (Cancun, Mexico) |
| 27. Dr. Awalendra Kumar Thakur | Solid Oxide Fuel Cells : Problems and Prospects (GVM College, Sonapat, India) |

28. Dr. Awalendra Kumar Thakur Microstructure – Electrical Property Correlation in Nanostructured Ferroic Ceramics (IIT Kharagpur)

LECTURE BY VISITING EXPERT

- | | |
|--|---|
| 1. Dr. T. Souradeep
IUCAA, Pune | Cosmology with the cosmic microwave background |
| 2. Prof. Sougato Bose
University College, London | Quantum indistinguishability and quantum information |
| 3. Dr. S. Bandyopadhyay
Max Planck Institute for Complex System, Dresden, Germany | Renormalisation of dephasing by zero-point fluctuations |
| 4. Prof. R. Banerjee
SN Bose Centre, Kolkata | Introduction to Hawking Radiation and Anomalies |
| 5. Professor Govind Swarup
GMRT, Pune | Detecting neutrinos with GMRT |
| 6. Prof. S.K. Dash
IIT Delhi | Climate Change - The Indian Perspective |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	G. Anil Kumar	Some Studies on Important Aspects of Charged particle Spectroscopy with Ionization Detectors and Some Aspects of Alpha Induced Fusion Reactions with ^{27}Al / ^{13}Al
2.	Tarun Kumar Jha	Relativistic Nuclear Equation of State and ITS Application to Neutron Star in the Mean field approach
3.	Piyush Ranjan Das	Investigation of structural, Dielectric and Electrical Properties of some Tungsten Bronze Ferroelectric Vanadates
4.	Xavier V. F.	The effect of Assimilation of satellite and conventional meteorological data on the prediction of tropical meteorological systems over Indian using a mesoscale model
5.	Aparna Roy	Structure and Magnetic properties of Ni Nanoparticles prepared by borohydride reduction method

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. R. N. P. Chaudhary	Dielectrics &	Anamaya	2008

- | | | | |
|---|---|---|------|
| and Dr. A. K. Thakur
(Editors)
2. J. N. Reddy, B. R. S.
Babu, R. Singh, R.
Nathaiah and Prof. S. L.
Sharma | Ferroelectrics : Modern
Perspectives
Experiments With G-M
Counter (Pages 59) | Publishers Pvt.
Ltd., New Delhi
Comany
Publication | 2008 |
|---|---|---|------|

LAURELS & DISTINCTIONS

- | | | |
|----|------------------------------|--|
| 1. | Dr. Pragya Shukla | "TGAP" award for visiting scientists by American Physical Society (2007) |
| 2. | Prof. Samit Kumar Ray | MRSI Medal Lecture Award (2008) |
| 3. | Prof. Samit Kumar Ray | Fellow - Indian National Academy of Engineering (2008) |
| 4. | Dr. Awalendra Kumar Thakur | Received Invitation for Editorial Board Membership in the International Journal - "The Open Energy and Fuels", Bentham Science Publishers (2008) |
| 5. | Dr. Syamal Chakraborty | Sahitya Akademi prize for Literary Translation (2007) |
| 6. | Dr. Sayan Kar | Distinguished Lecturer Programme - S N. Bose National Centre for Basic Sciences (2008) |
| 7. | Dr. Sanjeev Kumar Srivastava | Inclusion of Bibliography - Marqui's Who's Who (2007) |

ADDITIONAL INFORMATION

Major Design Works

1. Design of a quantum well based far infrared detector in 8-14 micron wavelength range

CENTRE FOR EDUCATIONAL TECHNOLOGY

CHAIRMAN : **Professor Tapan Kumar Basu**

FACULTY

Professor :

Basu, T. K. Ph.D., Speech Processing; Image processing

Assistant Professor :

Bhattacharya, Bani Ph.D., Instructional Design, Evaluation
Mohanty, Atasi Ph.D., Educational Psychology, Counselling

Visiting Faculty :

Ray, A. K. Ph.D., Educational Technology, Video Systems Engineering

Officer :

Vasisth, Jyothi Ph.D., Teaching Evaluation

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

CET, IIT Kharagpur is offering an M.Tech Programme on “Media and Sound Engineering”. The second batch of students have already joined the programme.

CET has also initiated Ph.D programmes in both, areas related to educational pedagogy and in engineering. Research scholars are already working in these areas. Two research scholars have joined in the area of Educational Technology and two, in the area of Speech processing have joined the department.

Thrust Areas :

The Center has produced nearly 4200 hours of video courses in various engineering subjects. These are in use in more than 250 engineering colleges, universities and R&D laboratories. These courses are primarily used for self-learning by faculty, staff and students. Significant demand for them exists in overseas markets also. CD & DVD versions of these courses are available. CET is now also making the courses available on HDDs – to be used in the Video-on-Demand (VOD) mode by institutions within their internal LAN. This allows access to any course on the LAN to a large number of users at any point of time along with the ability to control all normal play functions at will.

More than 3500 users access these courses on any single day within the LAN of IIT

Kharagpur.

New Acquisitions :

Establishment of Video Systems Laboratory at CET : A state-of-the-art video systems laboratory has been set up with purchase of audio / video equipment worth Rs. 50.0 lakhs.

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Resource Material Development using Educational Technology	IIT Kharagpur	-
2.	National Mission Challenges Project	MHRD, New Delhi	Rs. 1,500.00 Lakhs
3.	Pedagogical Research for the best way of learning for different groups	IIT Kharagpur	-
4.	Standardization and Quality Assurance of E-learning Content	IIT Kharagpur	-
5.	Learning Resource Design & Development (LRDD) project	IIT Kharagpur	-
6.	LCMS & Virtual Group Learning Tool	IIT Kharagpur	-

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	National Programme on Technology Enhanced Learning (NPTEL)	MHRD, New Delhi	Rs. 36.00 Lakhs

INVITED LECTURES BY FACULTY MEMBERS

1.	Dr. B. Bhattacharya	PAN-IIT Forum I for Action Planning at Mysore, India - Infosys Global Education Center, June 3-5, 2007
2.	Dr. B. Bhattacharya	“Educational Pedagogy” – TEQUIP programme, BIT, Mesra, Ranchi
3.	Prof. T. K. Basu	“Inclusive Education” - Jadavpur University
4.	Prof. T. K. Basu	“New Assessment methods in student evaluation”, NSCB College, Calcutta

LECTURE BY VISITING EXPERT

1.	Prof. K. Srivathsan, Director, IIITM, IIIT, Kerala	“Digital Grid and Education”
2.	Prof. K. Dutta, Jadavpur University	“Multimedia uses in Elearning”

3. Prof. S. Bhattacharya, Jadavpur University “Quality Assurance in Elearning”
4. Prof. Yagnanarayana, IIT, Hyderabad “Speech Processing in Educational Technology”

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Mr. Hemant A. Patil and Prof. T. K. Basu	A novel approach to language identification using modified polynomial networks <i>in</i> Speech, Audio, Image and Biomedical Signal Processing	Springer	2008

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. MHRD / AICTE sponsored workshop – “Summer School in 15 days Educational Technology”
2. MHRD / AICTE sponsored workshop – “Introduction to Digital 15 days Speech Processing”

CENTRE FOR OCEANS, RIVERS, ATMOSPHERE AND LAND SCIENCES

HEAD : Professor Subir Kumar Satsangi

FACULTY

Assistant Professor :

Chakraborty, A.	Ph.D. (IIT Delhi), Atmospheric and Ocean Modeling
Dash, M. K.	Ph.D. (Gujarat University), Remote Sensing
Mandal, M.	Ph.D. (IIT Delhi), Mesoscale Atmospheric Modeling, Tropical Cyclone and Data Assimilation
Satyanarayana, A. N. V.	Ph.D. (BHU), Atmospheric Boundary Layer Observations and Modeling
Shaji, C.	Ph.D. (IIT Delhi), Ocean Modeling and Coastal Processes

Professor (Joint Faculty) :

Chandrasekar, A.	Ph.D. (IISc., Bangalore), Atmospheric Physics
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Associate Professor (Joint Faculty) :

Sen, D. J.	Ph.D. (IIT Delhi), Water Resource Engineering
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Assistant Professor (Joint Faculty) :

Bhaskaran, P. K.	Ph.D. (Kurukshetra), Ocean Wave Modeling
Warrior, H. V.	Ph.D. (South Florida), Ocean Circulation

Emeritus / Distinguished Professor :

Gangopadhyay, A.	Ph.D. (University of Rhode Island), Coastal operational ocean modeling, basin-scale circulation modeling, feature based modeling of Bay of Bengal
Pandey, P. C.	Ph.D. (Allahabad), Space Based Ocean, Atmosphere and Polar Research
Robinson, A. R.	Dynamics of rotating and stratified fluids, Dynamics & modeling of Ocean currents and biological dynamics in the ocean

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. C. Shaji

Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The centre is involved in frontier areas of research in Earth System Science observation and modeling. CORAL is actively participating in utilizing the satellite (Megha-Tropiques and OceanSat-II) to study the flux dynamics over the tropical ocean; data assimilation in numerical models for ocean state prediction; delineating the sea ice pixels; retrieval of wind vector including implementing advance modeling system to simulate the ocean circulation and the features over Bay of Bengal. Efforts are on in developing an operational model for ocean state forecasting of Bay of Bengal.

CORAL is playing key role in the multi-institutional coordinated national programme “Severe Thunderstorm – Observations and Regional Modeling (STORM)” supported by Department of Science and Technology, Government of India, to study various observational and modeling aspects for enhancing our understanding and prediction of severe thunderstorms associated with Nor’wester (Kaal-baishaki). In this connection, a 50 meter micro-meteorological tower with various atmospheric measurement sensors is established, as a national facility, in the Agriculture Farm of the institute to obtain special observations during pre-monsoon thunderstorms. In addition, the centre is also involved in mesoscale modeling of extreme weather events viz., tropical cyclone, heavy rainfall, severe thunderstorms, micro-physical processes and mesoscale data assimilation.

Thrust Areas :

1. Thunderstorms : Observations and Modeling
2. Climate Change
3. Ocean Observations and Modeling

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Study of Boundary Layer Characteristics at Kharagpur during occurrence of severe thunderstorms	DST, New Delhi	Rs. 47.00 Lakhs
2.	Monitoring thermo-dynamical structure of atmospheric boundary layer during pre-monsoon convective activity over Kharagpur	DST, New Delhi	Rs. 157.00 Lakhs
3.	Study of variability in the air-sea interaction over the tropical Indian Ocean using the observations from Megha – Tropiques	SAC (ISRO)	Rs. 12.24 Lakhs
4.	Monitoring of sea ice using Oceansat-II scatterometer data for determination of	SAC (ISRO)	Rs. 22.80 Lakhs

- climate trend
5. Development of Operational Physical INCOIS Rs. 54.00 Lakhs
Ocean Model for Bay-of-Bengal
 6. Simulation of Bay-of-Bengal Circulation SAC (ISRO) Rs. 17.40 Lakhs
features using OCEANSAT-II
Scatterometer Wind and OCM

VISITS ABROAD BY FACULTY MEMBER

1. Dr. A. N. V. Satyanarayana Participated in the 'International Training School on Atmospheric Brown Clouds (ABC) at organized by UNEP at Asian Institute of Technology, Thailand (Bangkok and Maldives), (December 4-8 and 10-14, 2007 respectively)

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. A. Chakraborty The 2004 Indian Ocean Tsunami and Plate motions on (Raja N. L. Khan Women's College, Midnapore) (April 17, 2007)
2. Prof. P. C. Pandey Satellite for Weather and Climate Research (Kurukshetra University (November 22, 2007)

LECTURE BY VISITING EXPERT

1. Prof. Avijit Gangopadhyay, Operational Ocean Modeling for the Western
University of Massachusetts, North Atlantic in support of building an
Dartmouth, USA Integrated Ocean Observation System
2. Prof. Avijit Gangopadhyay, Research topics and opportunities in the Global
University of Massachusetts, Ocean : From Physics to Fish finding and
Dartmouth, USA making some money

PATENTS GRANTED

1. Sri Rahul Barman, Sri B. Prasad A New approach to derive Ocean parameters
Kumar, Prof. P. C. Pandey and Prof. using Neural Networks – Granted Copyright
S. K. Dube No. : SW-3529/2007, Registrar of Copyrights,
Government of India

LAURELS & DISTINCTIONS

1. Prof. P. C. Pandey Obtained Khosla National Award, Gold
Medal and Citation, by IIT Roorkee,
November 15, 2007, for his lifetime

2. Prof. P. C. Pandey

Achievement in Engineering

Awarded Prof. K. R. Ramanathan Memorial
Gold Medal and Citation by Indian
Geophysical Union, November 22, 2007

CRYOGENIC ENGINEERING CENTRE

HEAD : Professor Vutukuru Vasudeva Rao

FACULTY

Professor :

Kalvey, V. R.	M.Sc., Ph.D. (Georgetown, USA), Superconductivity and Low Temperature Physics
Saranghi, S. K.	M.S., Ph.D. (SUNY, Stony Brook), Cryogenic Processes and Equipment
Bandyopadhyay, S. S.	M.Tech., Ph.D. (IIT Kharagpur), Natural Gas and Hydrogen energy, Carbon dioxide capture and sequestration, air breathing propulsion
Dey, T. K.	M.Sc., Ph.D. (Delhi University), Experimental Condensed matter Physics, Cryo-instrumentation
Chowdhury, K.	B.Tech., Ph.D. (IIT Kharagpur), Cryogenic Air Separation, Process Simulation, Refrigeration, Oxygen Safety
Rao, V. V.	M.Sc., Ph.D. (IIT Madras), Vacuum Technology, Applied Superconductivity, Cryo-Physics

Assistant Professor :

Sandilya, P.	M.Tech., Ph.D. (IIT Kanpur), Hydrogen and Carbon dioxide storage, Nonconventional Energy, Process Intensification
Nandi, T. K.	Ph.D. (IIT Kharagpur), Low Temperature Refrigeration, Turbomachinery, Thermal Engineering
Ghosh, Indranil	M.Tech., Ph.D. (IIT Kharagpur), Heat Exchanger, Sorption Cooling
Ghosh, Parthasarathi	M.Tech., Ph.D. (IIT Kharagpur), Cryogenic Process Simulation, Cryogenic Expander and Equipment
Venimadhav, Adyam	M.Sc., Ph.D. (IISc., Bangalore), Functional Materials, Epitaxial thin films, Magnetic Oxides

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Design of super conducting magnets from electrical and fusion applications
2. Thermophysical investigations on Nanofluids and Nanocomposites
3. Development of Functional Materials for thermoelectric and spintronic applications
4. Computational works on heat exchanger & heat transfer
5. Natural gas processing
6. Studies on vortex tube in flight air separator for air breathing propulsion
7. Carbon dioxide capture and sequestration
8. Gas hydrates for energy generation and environmental protection

9. Design of Vacuum systems for food processing applications
10. Refurbishing of DC/RF systems
11. Characterization of Cryogenic regenerator
12. Studies on Gas bearing for cryogenic expander
13. Sorption cooler
14. Design of systems for safe handling of Oxygen
15. Simulation of helium liquefier

Thrust Areas :

1. Multiferroics, Spintronics, Environment friendly thermoelectrics
2. Natural Gas Processing and non conventional energy
3. Carbon Dioxide Capture & Sequestration
4. Air Breathing Propulsion
5. Cryogenic Refrigeration
6. Novel magnetic materials
7. Nanofluids and Nanocomposites
8. Superconducting magnets – Design issues and applications
9. Vacuum Technology
10. Oxygen safety
11. Simulation of cryogenic plants

New Acquisitions :

1. Freeze Drying equipment
2. Ferroelectric test system for multiferroic characterization

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Investigation on the giant magneto-impedance (GMI) of bulk and thin films of Lanthanum Manganites and development of magnetic position Sensors	CSIR, New Delhi	Rs. 15.00 Lakhs
2.	Natural Gas Processing: Removal of CO ₂ from Sour Gas Streams	MHRD, New Delhi	Rs. 12.00 Lakhs
3.	Analysis & development of conceptual design methodologies for air collection and enrichment system of air breathing propulsion	ISRO	Rs. 15.00 Lakhs
4.	Safe design of oxygen systems	ISRO – STC	Rs. 18.40 Lakhs
5.	Development of infrastructural facilities at Cryogenic Engg. Centre (FIST)	DST, New Delhi	Rs. 100.00 Lakhs
6.	Studies on gas bearing for cryogenic turboexpander	IIT Kharagpur	Rs. 4.30 Lakhs

7.	Development of a test rig for characterization of cryogenic regenerators	IIT Kharagpur	Rs. 3.00 Lakhs
8.	Refurbishing a DC/RF sputtering and development of ferromagnetic / Semiconductor hybrid structures for spintronics	IIT Kharagpur	Rs. 4.60 Lakhs
9.	Studies on desorption cooling from activated carbon	IIT Kharagpur	Rs. 3.00 Lakhs
10.	Development of thermophysical measurement system for liquids and investigations on the thermal conductivity and pool boiling characteristics of various nanofluids	DST, New Delhi	Rs. 29.00 Lakhs
11.	Development of an experimental test facility for process intensification of an integrated fuel system for marine energy generation and storage	NMRL (DRDO)	Rs. 194.447 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	R & D Study on Aluminium coating of composite Airframe of PJ-10	DRDL	Rs. 3.5 Lakhs
2.	Wetting of the Design of Vacuum Drying System	Mariental India Pvt. Ltd., New Delhi	Rs. 1.00 Lakh
3.	Development of software and detailed calculation for Explosive Decompression Chamber	KASCO Industries, Pune	Rs. 0.50 Lakh

VISITS ABROAD BY FACULTY MEMBER

1. Prof. Kanchan Chowdhury Visit to Queensland University of Technology, Brisbane, Australia to do research on Oxygen Safety
2. Dr. Venimadhav Adyam Visit to Pennsylvania State University (2 months) towards research collaboration

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Tapas Kumar Dey Thermo-physical properties of Nanofluids – the next generation coolants (NCTP-07, Kolam) – Invited Talk
2. Prof. Kanchan Chowdhury & Mr. Parthasarathi Ghosh Major Issues involved in Helium and Nitrogen Cryogenics for National Fusion Technology Programme (PSSI-IPR Workshop on National Fusion Programme – ITER & IPR –

- | | | |
|----|---------------------------|---|
| 3. | Prof. S. S. Bandyopadhyay | Gandhinagar)
CFD Analysis of Energy and Phase Separation in a Cryogenic Vortex Tube. Invited lecture at International Conference on High Speed Trans atmospheric Air and Space Transportation (Hyderabad) June 29-30, 2007 |
| 4. | Dr. Venimadhav Adyam | Miss fit layered cobaltate oxides for high temperature thermoelectric applications (Pennsylvania State University, USA) |
| 5. | Venimadhav Adyam | AICTE sponsored Winter School (IIT Kharagpur) |

LECTURE BY VISITING EXPERT

- | | | |
|----|--|---|
| 1. | Dr. Biswanath Sarkar, Institute for Plasma Research, Gandhinagar | “Involvement of Cryogenics in Nuclear Fusion Technology & ITER Project” |
|----|--|---|

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Soma Das	Electrical Transport and Magneto-calories Properties in Potassium doped Lanthanum Manganites

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. S. S. Bandyopadhyay, Mr. A. K. Biswas, Mr. D. Bhattacharyya, Mr. A. K. Ray, Ed.	Advances in Separation Processes	Allied Publishers, New Delhi	2007

LAURELS & DISTINCTIONS

- | | | |
|----|---------------------------|---|
| 1. | Prof. S. S. Bandyopadhyay | Acted as a panelist in the International panel discussion on ‘Approach towards an international joint venture for safe, affordable, high speed air and space transportation’ during the International Conference on high Speed Transatmospheric Air and Space Transportation, Hyderabad, June 29-30, 2007 |
| 2. | Prof. S. S. Bandyopadhyay | Editor: Indian Chemical Engineer (ICE), Published by the Indian Institute of Chemical |

3. Prof. Kanchan Chowdhury Engineers (IChE), since January, 2008
Awarded the fellowship “Endeavor India Executive Award” for 4 months (June 2007-September 2007) to do research on Oxygen Safety at Queensland University of Technology, Brisbane, Australia
4. Prof. Kanchan Chowdhury Best Technical paper award to Aditi Oza, Sudipto Ghosh and Kanchan Chowdhury, for the paper titled, “Electrostatics: A Possible Cause of Fire in Contaminated Oxygen Systems”, 30th NSIG, AIIGMA, Bhubaneswar, India, February 23-24, 2008
5. Dr. P. Sandilya V A Altekar Award, November 2007, from National Metallurgical Laboratory, Jamshedpur (CSIR)

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

- | | | |
|---|---------------|--------|
| 1. “Vacuum Technology and Process Applications” (IIT Kharagpur) | November 2007 | 17-27, |
| 2. “Cryogenic Air Separation”, (BOC India Ltd., Kolkata) | December 2007 | 12-20, |

MATERIALS SCIENCE CENTRE

HEAD : Professor Chapal Kumar Das

FACULTY

Professor :

Adhikari, Basudam	Ph.D., Polymer materials science and technology
Banthia, Ajit Kumar	Ph.D., Polymeric Materials
Bhattacharya, Debasis	Ph.D., Synthesis and processing of thin film and bulk ceramics, Nanoceramics and Nano composites, Ceramics for thermal barrier applications, Ceramics for biomedical applications
Das, Chapal Kumar	Ph.D., Blends and nanocomposites of elastomers and plastics, gas phase polymerization
Ram, Shanker	Ph.D., Nanoceramics, Condensed matter physics, Applied thermodynamics of materials, Magnetic materials & applications

Associate Professor :

Banerjee, Sushanta	Ph.D., Polymer synthesis and Characterization, Membranes for separation of gas mixtures, High temperature low-K polymers
Banerji, Pallab	Ph.D., Electronic Materials and Devices
Jacob, Chacko	Ph.D., Wide bandgap semiconductors

Assistant Professor :

Basu Majumder, Subhasish	Ph.D., Electroceramics and Ceramic composites
Khatua, B. B.	Ph.D., Polymer blends, Nanocomposites, Conducting polymer composites

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. B. B. Khatua Assistant Professor

Faculty Promotion :

Dr. Sushanta Banerjee Associate Professor
Dr. Pallab Banerji Associate Professor
Dr. Chacko Jacob Associate Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Development of novel chemical methods and their applications in synthesizing nanomaterials and composites of magnetic, optical, and electronic applications;
2. Polymer and Ceramic Gas Sensors;
3. Lithium ion rechargeable batteries, multiferroics, ceramic composites Nanofluids;
4. Wide bandgap Materials, SiC thin films for high temperature electronics;
5. Oxide semiconductors;
6. LPE growth of semiconductors;
7. MOCVD growth of III-V semiconductors and quantum dots, Semiconductor crystal growth;
8. High performance polymeric composites and advanced polymer blends and alloys;
9. LCP-polyolefin blends and nanocomposites with nanoclay as well as carbon nanotubes;
10. High performance polymer synthesis and characterization;
11. Polymer membranes for gas separation;
12. Direct Fluorination of polymers;
13. Polymeric Nano composites;
14. Development of jute based fully biodegradable green composites, jute-cement composites, geotextiles, sound proofing panels, rubber coated jute etc.;
15. Biocompatible polymers for drug delivery, Hydrogels, Packaging Materials.

Thrust Areas :

1. Organic and inorganic semiconducting materials
2. Polymers and ceramic matrix nanocomposites
3. Biomaterials.

New Acquisitions :

1. SEM
2. XRD – EDAX
3. GPC
4. High temperature GPC
5. Gas permeation apparatus
6. Contact angle measuring instrument
7. Capillary rheometer
8. CHNSO analyzer
9. Tape casting unit
10. Thermal conductivity measuring instrument

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Development of Novel Polyphosphazene based High Performance Polymeric Composites For Wide Temperature Range Application	DRDO, New Delhi	Rs. 48.08 Lakhs
2.	Development of High Performance Advanced Polymer Blends and Alloys for Aerospace Applications	DMSRDE, Kanpur	Rs. 9.00 Lakhs
3.	Investigation on Augmentation of Life of Dump-Truck through the Improvement of Tyre Retreading Compound and development of an Optimum Road Maintenance Management System	Coal India Limited, Kolkata	Rs. 148.69 Lakhs
4.	Development of Cr ³⁺ /Cr ⁴⁺ co-doped stabilized c-ZrO ₂ nanoparticles as a new series of high temperature solid electrolytes and their other applications	CSIR, New Delhi	Rs. 2.32 Lakhs
5.	“Phase stability and intergranular giant-magnetoresistance properties in (La _{1-x} Eu _x) _{0.67} Ca _{0.33} MnO ₃ in a hybrid nanocomposite structure”	UGC, CSR, Indore	Rs. 0.90 Lakhs
6.	High coercivity magnetic AFe12019 (A:Ba and/or Sr) nanofibrils of controlled shape anisotropy for radar and other high frequency application	CSIR, New Delhi	Rs. 15.00 Lakhs
7.	New chemical methods in synthesis of noble-metal nano-powders & porous metlloceramic composites for hydrogen energy storage, combustion and other	Department of Atomic Energy, Mumbai	Rs. 20.00 Lakhs
8.	Synthesis and characterization of processable novel co(polyetherimide)s as low dielectric constant material for microelectronic packaging	IIT Kharagpur	Rs. 3.00 Lakhs
9.	Preparation of novel polymeric materials for chemical sensor application: Synthesis and tailoring of properties in molecular level	DRDE / DRDO, Gwalior	Rs. 7.54 Lakhs
10.	Molecularly engineered novel membrane precursors and preparation of novel polymer nano-composite membranes for selective separation of gas mixture	DST, New Delhi	Rs. 50.95 Lakhs
11.	Synthesis and characterization of novel light emitting poly(arylene)s and poly(arylene ether)s and derivative thereof	CSIR, New Delhi	Rs. 9.06 Lakhs
12.	Equipment donation grant received from Alexander von Humboldt Foundation, Germany	Humboldt Foundation, Germany	Rs. 9.02 Lakhs
13.	Wet chemical synthesis of novel cathode materials for lithium ion rechargeable batteries	CSIR, New Delhi	Rs. 10.46 Lakhs

14.	Novel Nano-structured Ceramics for Gas Sensing Applications	DIT, New Delhi	Rs. 30.77 Lakhs
15.	Infrastructure Development for the Wet Chemical Synthesis of Advanced Ceramics	IIT Kharagpur	Rs. 3.00 Lakhs
16.	Synthesis by Suspension Polymerization and Characterization of PMMA / Clay and PS / Clay Nanocomposites	IIT Kharagpur	Rs. 3.40 Lakhs
17.	Development of SiC thin films for high temperature and high power devices	DRDO, New Delhi	Rs. 49.76 Lakhs
18.	Development of polymer based biomimetic sensors	DST, New Delhi	Rs. 10.00 Lakhs
19.	Development of Suitable Production System for Natural Rubber Coated Jute Fabrics for Novel End Uses	JMDC, Kolkata	Rs. 30.00 Lakhs
20.	Development of eco-friendly / biodegradable rigid jute-based composites	JMDC, Kolkata	Rs. 66.00 Lakhs
21.	Development of durable water-repellent jute geotextiles with natural ecofriendly additive for application in erosion control in river banks and other appropriate end uses composites	JMDC, Kolkata	Rs. 180.00 Lakhs
22.	Development of Jute Fiber Reinforced Cement Concrete Composites	JMDC, Kolkata	Rs. 75.60 Lakhs
23.	Development of jute based sound proofing composites	JMDC, Kolkata	Rs. 32.00 Lakhs
24.	MOCVD growth of InGaP / GaAs epilayers and quantum dot for solar cell	DST, New Delhi	Rs. 49.00 Lakhs
25.	MOCVD growth of GaAs for photovoltaic application	IIT Kharagpur	Rs. 3.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Development of composites	KE Technical Textiles Pvt. Ltd., Kharagpur	Rs. 0.40 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Chapal K. Das	To participate in Conference (Beijing, China) May 2007
2.	Prof. Chapal K. Das	To participate in Conference (Cairo, Egypt) November 2007
3.	Prof. S. Ram	Research (University of Ulm, Ulm Germany) May-July 2007
4.	Dr. Sushanta Banerjee	Follow-up sponsorship program from Humboldt Foundation (IPF-Dresden, Germany) May 14 – July 13, 2007

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|----|-----------------------------|--|
| 5. | Dr. Subhasish Basu Majumder | Research under Alexander von Humboldt Fellowship (RWTH, IWE-II, Aachen, Germany) May 08 – August 10) |
| 6. | Dr. Subhasish Basu Majumder | Visiting Faculty; University of Puerto Rico (June 09 – July 04) |
| 7. | Dr. Chacko Jacob | To attend a conference (Germany) Diamond 2007 |

INVITED LECTURES BY FACULTY MEMBERS

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|----|-----------------------------|---|
| 1. | Prof. S. Ram | Optical properties in ceramic composites; Indian Institute of Technology Kanpur (December 13-15, 2007) |
| 2. | Dr. Subhasish Basu Majumdar | International Workshop on Mesoscopic Nanoscopic and Microscopic Materials (IWMNMM-2008); Bhubaneswar |
| 3. | Dr. Subhasish Basu Majumdar | National Conference on Recent Advances in Innovative Materials (RAIM-08), NIT |
| 4. | Dr. Pallab Banerji | Discussion Meeting on “Role of Surface & Interfaces in Nanomaterials”, Saha Institute of Nuclear Physics, Kolkata |
| 5. | Dr. Pallab Banerji | DST Expert Advisory Committee Meeting on “Molecular electronics, conducting polymer electronics & Non-invasive and other bio-sensors”, BARC, Mumbai |
| 6. | Dr. Pallab Banerji | Chairing a Session in Workshop on Physics & Technology of All-optical Communication, Components & Devices”, IIT Kharagpur |

LECTURE BY VISITING EXPERT

- | | | |
|----|---------------------------|---|
| 1. | Dr. Arup Bhattacharya | Carbon nanotubes based polymer composites |
| 2. | Mr. R. O. Dusane | New process technology to develop silicon thin films for MEMS & opto-electronic applications |
| 3. | Dr. Pranaba Kishor Muduli | Ferromagnetic & semiconductor hybrid structure for spintronics application |
| 4. | Mr. S. K. Mishra | Direct observation of the dual behavior of the Mn uncompensated AF Spins in exchanged biased IrMn / NiFe bilayers |
| 5. | Dr. Amit Das | Polymer Nanocomposite |
| 6. | Dr. R. Bhattacharya | CMOS compatible nano photonics & related materials issues |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
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1. Swatilekha Das Pervaporation separation of organic compound-water mixtures by polymer membranes
2. Suparna Sarkar Lactic acid and polyethylene glycol based biodegradable polyurethanes
3. Aparna Gupta Studied on CVD growth and characterization of 3C-SiC thin films, nanopowders and other nanostructures
4. Somnath Biswas Development of Novel Series of GMR materials of half-metallic ferromagnetic CrO₂ nanoceramics
5. Kunal Pal Design development and evaluation of hydrogels for biomedical applications
6. Partha Pratim Sengupta Polyamine : Synthesis, characterization and ammonia sensing behavior
7. Samik Pal Growth and characterization of HFCVD grown tungsten oxide thin films and nanostructures
8. Hiranmayee Satapathy Synthesis, characterization and properties of modified methacrylate / acrylamide monomers and polymers containing pendant phenyl group

RELIABILITY ENGINEERING CENTRE

HEAD : Professor Ravindra Babu Misra

FACULTY

Professor :

Misra, R. B. Ph.D., Reliability and Safety of Electronic, Electrical & Software Systems

Associate Professor :

Naikan, V. N. A. Ph.D., Reliability Engineering, Machinery Fault Diagnosis

Assistant Professor :

Chaturvedi, S. K. Ph.D., Network Reliability Analysis & Prediction, Reliability Testing and Data Analysis

Senior Lecturer :

Goyal, Neeraj Ph.D., Network Reliability, Probabilistic Risk Assessment, Software Reliability

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The Centre is not only active in its regular academic activities but also regularly undertaking consultancy projects of national importance, organizing conference on reliability and safety engineering and short term courses on latest topics of Reliability Engineering for officers and engineers of the Industry, Defense Organizations and R&D Establishments. The following are the areas in which the current R&D activities are on :

1. Reliability Analysis of One-Shot Devices
2. Software Reliability and Soft-Computing Tools
3. Reliability and Maintenance Engineering
4. Probabilistic Safety Analysis of Atomic Power Plants

Thrust Areas :

Applications and Implementations of Reliability Theory such as Reliability Analysis and Predictions, Software Reliability, Design for Reliability, System Safety and Risk Highly Accelerated Life Testing on some Real Systems

New Acquisitions :

Environment Testing Chambers, viz., Burn-in and Thermal Shock Chambers from ESPEC, Japan under DST-FIST Program are installed

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Duration
1.	Sponsored Project for Ph.D. to Pursue Research in Software Reliability	DNV, Norway	2005 – 2009

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Reliability Work Package for Garuda (A Missile Aft Section) Missile System	DRDL, Hyderabad	Rs. 8.00 Lakhs
2.	RAMS for ASTRA Missile System	DRDL, Hyderabad	Rs. 11.00 Lakhs
3.	Shutdown PSA of Kakrapara Atomic Power Station	NPCIL, Mumbai	Rs. 10.22 Lakhs
4.	Reliability Prediction of Data Link Systems	DEAL, Dehradun	Rs. 8.63 Lakhs
5.	Reliability Improvement of Metering Products	Secure Meters Ltd., Udaipur	Rs. 12.00 Lakhs

INVITED LECTURES BY FACULTY MEMBERS

1.	Prof. R. B. Misra	Delhi University
2.	Prof. R. B. Misra	IGCAR, Kalpakkam
3.	Dr. V. N. A. Naikan	IGCAR, Kalpakkam

LAURELS & DISTINCTIONS

1.	Prof. R. B. Misra	Senior Member, IEEE
2.	Dr. S. K. Chaturvedi	Member IEEE
3.	Dr. S. K. Chaturvedi	Assistant Editor to International Journal of Performability Engineering

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1.	Early Software Reliability Prediction	April 18-20, 2007
2.	Highly Accelerated Life Testing	November 27-28, 2007
3.	International Conference on Reliability and Safety Engineering 2007 (INCREASE 2007)	December 17-19, 2007

RUBBER TECHNOLOGY CENTRE

HEAD : Professor Tapan Kumar Chaki

FACULTY

Professor :

Bhowmick, Anil Kumar	Ph.D.(IIT Kharagpur), Rubber Technology, Thermoplastic Elastomers and TPVs, Composites, Polymer Blends and Alloys, Nanocomposites, Electron Beam Processing, Adhesion, Polymer Modification
Chaki, Tapan Kumar	Ph.D.(IIT Kharagpur), Rubber Technology, Polymer Nanocomposites, Electron Beam Processing of Polymers, Conductive Rubber Composites, Adhesives for Space Application
Khastgir, Dipak	Ph.D.(IIT Kharagpur), Rubber Technology, Polymer Characterization, Polymer Composites, Conductive Polymer and Composites, Rubber Product Development Technology, Piezo Composites and Piezo Rubber
Nando, Golok Behari	Ph.D.(IIT Kharagpur), Polymer Blends and Alloys, Rubber Composites including nano composites, Polymer Modifications and Synthesis, Polymer Recycling, Thermoplastic Elastomers, Latex Technology
Tripathy, Deba Kumar	Ph.D.(IIT Kharagpur), Production Engineering, Rubber Technology, Metal Forming, Rubber Engineering

Assistant Professor :

Bandyopadhyay, Abhijit	Ph.D.(IIT Kharagpur), Nanocomposites, Polymer Blends and Composites, Radiation Processing of Polymers, Waste Management
Chakraborty, Kalyan Kumar	Ph.D.(Calcutta University), Polymer Science and Technology
Chattopadhyay, Santanu	Ph.D.(IIT Kharagpur), Specialty nano-composites, Modification of polymers and blends, Radiation processing of polymers, Combinatorial polymer research, Living polymerization and branched polymer, Conducting polymeric films and dewetting
Naskar, Kinsuk	Ph.D.(University Twente), Polymer blends and composites, Thermoplastic elastomers and TPVs, Rubber compounding and vulcanization
Singha, Nikhil Kumar	Ph.D. (IIT Bombay), Polymer and Rubber Chemistry, New Methods of Polymerization, Polymer Modification, Characterization of Polymers

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

The Centre works in close collaboration with other departments and centers of this Institute and other R&D organizations in India and abroad. Several research projects sponsored by different agencies are in operation. The faculty members are engaged in different research areas :

- (1) Polymer nanocomposites
- (2) Chemical modification of rubbers
- (3) Thermoplastic elastomers based on novel blends and alloys
- (4) Recycling of rubber waste
- (5) Ionomers
- (6) Conductive rubber composites for electrical and electronics application
- (7) Electron beam modification of polymers
- (8) Rheology and processability of rubber compounds and polymer blends
- (9) Microcellular rubber composite for various industrial application
- (10) Development of rubber blends and composites for different industrial application like cable, oil seal, tank track pad, vibration isolators
- (11) Adhesion
- (12) Biodegradable polymers
- (13) Controlled radical polymerization
- (14) Polymers for biomedical applications

Thrust Areas :

1. Nanocomposites
2. Polymer composites for electronic applications
3. Controlled polymerization for synthesis of new tailor-made and bio-active polymers
4. Rubber in medical and health care applications
5. Recycling of waste polymers and rubbers
6. Electron beam treatment and processing of polymer composites

New Acquisitions :

1. HAAKE PolyLab OS
2. RPA 2000
3. High performance fatigue resistance rubber compound
4. Piezo composites

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	An approach for recycling of polymeric wastes	IIT Kharagpur	Rs. 1.00 Lakhs
2.	Controlled Radical Polymerization using	IIT Kharagpur	Rs. 3.00 Lakhs

Transition Metal Catalyst			
3.	Development of Castor oil based nanocomposite for Biomedical Application	CSIR, New Delhi	Rs. 7.00 Lakhs
4.	Development and properties of polymer based nanocomposites	DST, New Delhi	Rs. 34.00 Lakhs
5.	Development of Advanced Electromagnetic Interference Shielding Materials from Carbon Nanotube filled Polymer Composites	IIT Kharagpur	Rs. 0.50 Lakhs
6.	Development of Electron Beam Irradiated Composites based on Multi-Walled Carbon Nanotubes in Polymer Matrices	DAE, Mumbai	Rs. 14.60 Lakhs
7.	Development of Jute based coated Textile	AICTE, New Delhi	Rs. 15.05 Lakhs
8.	Development of Modified Bituminous Binder using Waste Plastics	DST, Govt. of West Bengal	Rs. 4.00 Lakhs
9.	Development of novel applications using electron beam irradiation : (i) improved extrudability of raw and waste polymers, (ii) adhesion improvement	DAE, Mumbai	Rs. 17.67 Lakhs
10.	Development of polymer based nanocomposites	MHRD, New Delhi	Rs. 15.00 Lakhs
11.	Development of special purpose heat resistant cable insulating compounds based on polyolefins and polydimethylsiloxane rubber blends using EB	DAE, BARC, Mumbai	Rs. 13.11 Lakhs
12.	Dynamically vulcanized blends (TPVs) based on polyolefin elastomer (POE) via peroxide crosslinking (BPE)	CSIR, New Delhi	Rs. 9.56 Lakhs
13.	Electron beam curing of functional elastomers : A novel approach	DAE, BARC, Mumbai	Rs. 14.00 Lakhs
14.	Fundamental Studies on Improvement of ageing and degradation resistance of the hydrogenated Nitrile Rubber	Lanxess, Germany	Rs. 35.00 Lakhs
15.	Fundamental Studies on Structure and Properties of Nanocomposite Rubbers for Tire Applications	Goodyear Tire and Rubber Company, Akron, Ohio, USA	Rs. 24.00 Lakhs
16.	Nanotechnology and radiation processing of organic-inorganic hybrid materials based on thermoplastic elastomer	DST, New Delhi	Rs. 9.00 Lakhs
17.	Novel Microporous Polymeric Membranes for Medical Applications	DBT, New Delhi	Rs. 14.15 Lakhs
18.	Novel rubber based nanocomposites using nanofibers and nanographites : Development, structure and properties	DRDO	Rs. 20.80 Lakhs
19.	Novel thermoplastic elastomers based on Epoxidized Natural Rubber and PP by dynamic crosslinking	DST, New Delhi	Rs. 10.32 Lakhs
20.	Novel thermoplastic elastomers based on silicone rubber by dynamic vulcanization	IIT Kharagpur	Rs. 3.00 Lakhs
21.	Polyurethane Foam for Radioactive Material Transportation Packages	DAE, Mumbai	Rs. 29.00 Lakhs

22.	Preparation of Equivalent standards for Rubber mix and Products	DRDL, Hyderabad	Rs. 4.00 Lakhs
23.	Segmented polyurethane (SPU) based nano composites from functionalized nanoclays with special reference to fire and flammability	ISRO, Bangalore	Rs. 6.00 Lakhs
24.	Study on modification and properties of thiol terminated liquid polymers by chemical reaction with nanostructured functional materials	ISRO, Thiruvanthapuram	Rs. 18.00 Lakhs
25.	Tack and cured adhesion of brominated isobutylene para methyl styrene with other rubbers	Exxon Mobil, Baytown, Texas, USA	Rs. 24.00 Lakhs
26.	Transition Metal Catalyzed Radical Polymerization of the Specialty Monomers	DST, New Delhi	Rs. 13.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Advise on development of value added natural rubber and polymer blends	Packwell, New Delhi	Rs. 0.50 Lakhs
2.	Ageing, failure analysis and life estimation of rubber seals for military aircraft	-	Rs. 9.00 Lakhs
3.	Development of Conductive Compounds	ApolloTyre	Rs. 0.56 Lakhs
4.	Development of Dough Moulding Compound	NAC Group of Industries, Aurangabad	Rs. 2.00 Lakhs
5.	Development of Elastomeric Bearings	HAL, Bangalore, India	Rs. 2.25 Lakhs
6.	Development of Fire Resistant Conveyor Belt Compound as per AS-S Grade	Phoenix Yule, Kalyani	Rs. 3.20 Lakhs
7.	Development of fire resistant energy optimized belt	Phoenix Yule	Rs. 2.00 Lakhs
8.	Development of Flame resistant Cable compound	Servel Udyog Ltd., New Delhi	Rs. 2.50 Lakhs
9.	Development of Heat and Flame resistant conveyor belts as per AS-S specifications	PYL, Kalyani, West Bengal	Rs. 3.57 Lakhs
10.	Development of polymer blends, Phase-1	Sethia Finance & Trading Co., New Delhi	Rs. 2.00 Lakhs
11.	Development of rubber and polymer clad rolls at cold rolling mill complex of Tata Steel	Tata Steel	Rs. 20.08 Lakhs
12.	Development of rubber clad rolls used in the PLTCM and the ECL sections of the cold rolling mill complex	Tata Steel, Jamshedpur	Rs. 7.30 Lakhs
13.	Development of rubber compound for sheathing of cables	Servel Udyog Pvt. Ltd., Delhi	Rs. 2.50 Lakhs
14.	Development of Steel Cord Conveyor Belt Cover Compound With High Tensile	Phoenix Yule Ltd., Kalyani	Rs. 2.77 Lakhs

	Strength		
15.	Development of test procedure for specific heat for different fibres through DSC and Study of variation of specific heat with temperature	Apollo Tyre, Limda, Vadodara	Rs. 0.10 Lakhs
16.	Development of test procedure for specific heat for different rubber compounds through DSC and Study of variation of specific heat with temperature	Apollo Tyre, Limda, Vadodara	Rs. 0.30 Lakhs
17.	Development of value added natural rubber	Packwell, New Delhi	Rs. 0.60 Lakhs
18.	Elimination of Pit Mark on Platen during Vulcanisation of FR Conveyor Belt	Phoenix Yule	Rs. 2.69 Lakhs
19.	Identification of rubber as prime materials	Customs, New Delhi	Rs. 0.75 Lakhs
20.	Removal of grain mark from belt surface	Phoneix Yule	Rs. 1.82 Lakhs
21.	Rubber compound analysis	Fenner	Rs. 0.15 Lakhs
22.	Studies of the technical requirements of elastomeric inflatable seals	IGCAR, Kalpakkam	Rs. 22.00 Lakhs
23.	Studies on the technical requirements of elastomeric inflatable seals	IGCAR, Kalpakkam	Rs. 18.00 Lakhs
24.	Thermoplastic Elastomer Development	GE, Bangalore	Rs. 1.50 Lakhs
25.	Utilization of waste rubber	Packwell Ind., New Delhi	Rs. 1.60 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Deba Kumar Tripathy	Paper presentation (China) 12 days
2.	Prof. Deba Kumar Tripathy	Chief Guest, (Nepal Engineering College, Nepal) 7days
3.	Prof. Golok Behari Nando	Key Note Speaker and Chairing a Technical Session, in PPS-2007, Asia-Australia Meeting (Sanghai, China) July 11-16, 2007
4.	Prof. Golok Behari Nando	Guest Speaker and Chairing one day session in Thai Rubber Conference-2007 (Bangkok, Thailand) July 5-6, 2007
5.	Prof. Golok Behari Nando	Visit M/S Revertex Ltd. in Malayasia on invitation (Kluang, Malayasia) July17-18, 2007
6.	Dr. Nikhil Kumar Singha	Invited lecture (Durham University)
7.	Dr. Nikhil Kumar Singha	Invited seminar (Department of Biosciences, Kent University)
8.	Prof. Anil Kumar Bhowmick	To deliver an invited talk (China) May 10-13, 2007
9.	Prof. Anil Kumar Bhowmick	To deliver an invited talk (Thailand) June 24-29, 2007
10.	Prof. Tapan Kumar Chaki	To attend Swiss Bonding-07 (Zurich, Switzerland) May 9-18, 2007

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Dipak Khastgir Polymer in Cable Applications by Khastgir, Dipak (High Voltage Laboratory, Department of Electrical Engineering, Indian Institute of Science, Bangalore)
2. Prof. Dipak Khastgir Science and Technology of Metal-Rubber Bonding (Indian Rubber Institute, Mysore & SJCE College of Engineering, Mysore)
3. Prof. Deba Kumar Tripathy Relaxation behaviour of Chlorobutyl vulcanizates – Effect of fillers (Beijing University)
4. Prof. Deba Kumar Tripathy Effect of Carbon black on relaxation behaviour of Chlorobutyl rubber (Indian Rubber Expo 2007)
5. Prof. Deba Kumar Tripathy Dielectric relaxation characteristics of microcellular EPDM rubber vulcanizates (International Polymer Forum, Honzhou, China)
6. Dr. Nikhil Kumar Singha Controlled Ring Opening Polymerization of a Vinyl Cyclopropane (National Chemical Laboratory, Pune)
7. Dr. Nikhil Kumar Singha Microencapsulation of a specific drug via Suspension polymerization (Department of Chemistry & Polymeric Biomaterials, University of Sheffield, UK)
8. Dr. Nikhil Kumar Singha A Thermally Amendable Polymethacrylate by Atom Transfer Radical Polymerization (Durham University)
9. Dr. Nikhil Kumar Singha Polymers as Drug Delivery Vehicle (Department of Biosciences, Kent University)
10. Prof. Anil Kumar Bhowmick Rubber Nanocomposites (Qingdao, China)
11. Prof. Anil Kumar Bhowmick Rubber Nanocomposites (Bangkok, Thailand)
12. Prof. Anil Kumar Bhowmick Rubber Education and Research in the World (Cochin, India)
13. Prof. Anil Kumar Bhowmick Nanocomposites (Goodyear Tire and Rubber Company)
14. Prof. Anil Kumar Bhowmick Thermoplastic Elastomers (GLS Corporation)

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. Anil K. Bhowmick	Current Topics of Elastomer Research	Taylor and Francis, USA	2007
2.	Dr. Abhijit Bandyopadhyay and Prof. A. K. Bhowmick	Rubber-Silica hybrid Nanocomposites in Recent Researches on	Merzel Decker, USA	2008

- | | | | | |
|----|--|--|-------------------------|------|
| | | Rubbers (Reference) | | |
| 3. | Mr. A. Ganguly, Mr. J. J. Georje, Mr. S. Kar, Dr. A. Bandyopadhyaya and Prof. A. K. Bhowmick | Rubber Nanocomposites based on Miscellaneous nanofillers in Recent Researches on Rubbers (Reference) | Merzel Decker, USA | 2008 |
| 4. | Prof. D. K. Tripathy | Finite Element analysis in Elastomer in Polymer Processing Technology (Text) | Asian Book Pvt. Ltd. | 2008 |
| 5. | Dr. S. Dey Sadhu, Mr. M. Maiti and Prof. A. K. Bhowmick | Elastomer-Clay Nanocomposites in Current Topics in Elastomer Research (Reference) | Taylor and Francis, USA | 2008 |
| 6. | Mr. Anandhan Srinivasan, Dr. A. M. Shanmugharaj and Prof. Anil K. Bhowmick | Waste Rubber Recycling in Current Topics in Elastomer Research (Reference) | Taylor and Francis, USA | 2008 |
| 7. | Mr. R. Sengupta, Mr. I. Banik, Dr. P. Sen Majumder, Dr. V. Vijayabaskar and Prof. A. K. Bhowmick | Electron Beam Processing of Rubber in Current Topics in Elastomer Research (Reference) | Taylor and Francis, USA | 2008 |
| 8. | Mr. S. Mitra, Dr. K. Naskar and Prof. A. K. Bhowmick | Dynamic Mechanical Analysis of Polymers in Thermal Analysis (Reference) | RAPRA, UK | 2008 |

PATENTS GRANTED

- | | | |
|----|---|---|
| 1. | Prof. G. B. Nando and Mr. T. Vikram | Novel multifunctional additive grafted Rubber and process for the preparation thereof |
| 2. | Prof. Anil K. Bhowmick; Mr. Amit Biswas; Mr. Raja Krishnamurthy; Ms. Nisha Preschilla and Mr. Samik Gupta | Thermoplastic Elastomer Composition, Method of Making and Articles Thereof |
| 3. | Prof. Anil K. Bhowmick and Mr. Debojyoti Banerjee | Improved rubber-covered conveyor belt consuming reduced energy for driving the same |
| 4. | Mr. Sandip Kumar Bhattacharya; Mr. Indranil Chakraborty; Prof. Anil K. Bhowmick and Mr. Biswanath Dutta | A rubber formulation for rubber covering rolls used in steel industry |

LAURELS & DISTINCTIONS

- | | | |
|----|-------------------|---|
| 1. | Prof. T. K. Chaki | Vice President, Indo-Swiss Bonding (2007) |
|----|-------------------|---|

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. A Half-day Seminar on “Safety in Laboratory”
2. International Short Term Course on "Recent Advances in Polymeric & Rubbery Materials (RAPRM)"

RURAL DEVELOPMENT CENTRE

HEAD : Professor Pratap Bhanu Singh Bhadoria

FACULTY

Associate Professor :

Lahiri, Debabrata	Ph.D., Agricultural Economics & Appropriate Technology
Mahapatra, Subhash Chandra	Ph.D., Agronomy & Transfer of Technology
Bhowmick, Pradip Kumar	MA, Ph.D., D.Litt., Rural & Tribal Development

Assistant Professor :

Behera, Mukunda Deb	Ph.D., Ecology, Environment & Geoinformation
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Lecturer :

Das, Bela	Ph.D., Cartography, Human ecology & Environment
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FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Mukunda Behera	Assistant Professor
Dr. Bela Das	Lecturer (Senior Scale)

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Earth Observation System Applications for Forest Studies Vis -a-Vis Rural Interface

Thrust Areas :

Transfer of Technology

New Acquisitions :

Spatial Modelling Laboratory

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Rural Technology Action Group (RuTAG)-Eastern India	PSA to the GOI, New Delhi	Rs. 29.00 Lakhs
2.	Biodiversity Characterization in Part of UP State	Department of Space, Hyderabad	Rs. 20.00 Lakhs
3.	Biodiversity Characterization in Part of UP State	Department of Space, Hyderabad	Rs. 5.00 Lakhs
4.	Carbon Pool Assessment in Part of Orissa & West Bengal State	Department of Space, Dehradun	Rs. 5.00 Lakhs
5.	Demonstration of Technology for Green House Production of Roses and Extraction of Rose Oil	DST, New Delhi	Rs. 1.70 Lakhs

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Mr. A. K. Halder and Dr. P. K. Bhowmik	Societies & Culture in India (Vol. III)	R.N. Bhattacharjee, Kolkata.	2008

COPYRIGHTS GRANTED

1.	Prof. P. B. S. Bhadoria, Mr. M. Basu and Dr. S. C. Mahapatra	Soil Liming Software 1.0 (SLS 1.0)
2.	Prof. P. B. S. Bhadoria, Mr. M. Basu and Dr. S. C. Mahapatra	Economic Analysis Software 1.0 (EAS 1.0)
3.	Prof. P. B. S. Bhadoria, Mr. M. Basu and Dr. S. C. Mahapatra	Nutrient Management Software 1.0 (NMS 1.0)
4.	Prof. P. B. S. Bhadoria, Mr. M. Basu and Dr. S. C. Mahapatra	Intercropping Software 1.0 (ICS 1.0)

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1.	Rural Technology Action Group (RuTAG)	One day
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G. S. SANYAL SCHOOL OF TELECOMMUNICATIONS

HEAD : Professor Saswat Chakrabarti

FACULTY

Professor :

Chakrabarti, Saswat Ph.D., Error Control Coding Wireless Communication

Assistant Professor :

Kundu, Sumit Ph.D., Wireless Communication

Emeritus Professor :

Gangopadhyay, Ranjan Ph.D., Optical Communication Wireless Communication

Officer :

Ratnam, Jayashree M.Tech., Optical Communication Networks

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Promotion :

Prof. Saswat Chakrabarti Professor

Faculty Resignation :

Dr. Sumit Kundu Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Wireless Communication and Networks : Channel Estimation and Equalization Methods for OFDM; Multi-Symbol Encapsulated OFDM Systems; Turbo Equalization for Channels with ISI and Fading; Multi-user Detection; Multi-band OFDM-based Ultra Wide Band Systems; Development of OFDM-based Acoustic Link; QoS-enabled Routing in Mobile Adhoc Networks; Wireless Sensor Networks, Software Radio.

Optical Networks : PHY and MAC Layer Issues in WDM-based Optical Access Networks including Active and Passive Architectures; Code Design for Multidimensional Optical CDMA; Radio over fiber-based wireless access networks.

Signal Processing for Communications : Distributed Video Coding for Noisy Channels; Biomedical Signal Processing and Telemetry; Detection Systems for Radar Signals with non-Gaussian disturbances; Integrated Schemes for Error Correction and Message Authentication; Neuro-fuzzy Equalization of Wide-band Non-linear Fading Channel

Thrust Areas :

1. Wireless Communications and Networks
2. Software Radio

New Acquisitions :

Software: Design toolset ‘System Studio Z-2006.12’ from “Synopsys”, India

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Design and Development of a Telecom Convergence Switch	Santech Communication Pvt. Ltd.	Rs. 100.00 Lakhs
2.	Development of Autonomous Underwater Vehicle	Department of Ocean Development, New Delhi	Rs. 96.00 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Techno-economic Feasibility Study of Hindustan Cables Limited	Ministry of Heavy Industries, New Delhi	Rs. 39.00 Lakhs

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Ranjan Gangopadhyay
Nonlinear Polarization Self Switch based on Semiconductor Optical Amplifier (Department of Electronics and Information Engineering, Osaka University, Japan) July 3, 2007

LECTURE BY VISITING EXPERT

1. Prof. R. E. Blahut,
University of Michigan, USA
Error Control Coding

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Debasish Bera	“Design and Development of Turbo Convolutional Code using Soft Output Viterbi Algorithm (SOVA) for DVB-RCS Standard”
2.	Mohammad Safiullah	“Design and FPGA Implementation of a Burst QPSK Modem for Satellite Application”

PATENTS GRANTED

1. Prof. R. V. Raja Kumar and Mr. Jinesh P. Nair “Optimal training sequence and channel estimation method and system for superimposed training based OFDM systems” Indian patent filed under No. 333/KOL/2008 dated 25.02.08 at the Patent Office, Kolkata

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Short Term Course on “Wireless Communication & Networks” IIT Kharagpur May 14-19, 2007
2. Short Term Course on “DSP Tools & Practice”, IIT Kharagpur June 4-9, 2007
3. Short Term Course on “Embedded Systems & Technology”, IIT Kharagpur June 25-30, 2007
4. Short Term Course on “Optical & Wireless Networks”, V.R. Siddhartha Engineering College, Vijayawada – 520 007 December 17-22, 2007

RAJIV GANDHI SCHOOL OF INTELLECTUAL PROPERTY LAW

HEAD : Professor Subhasish Tripathy

FACULTY

Assistant Professor :

Bandhyopadhyay, Tapas	ME, Ph.D., Composite Materials
Chugh, Archana	M.Sc., Ph.D., Biotechnology and IPRs
Dube, Dipa	LLM, Ph.D., Criminal Laws
Dube, Indrajit	LLM, Ph.D., Corporate Laws
Padmavati, M.	M.Sc., Ph.D., Plant Molecular Biology
Raju, K. D.	LLM, M.Phil., Ph.D., International Law

Lecturer :

Dutta, Ashirbani	LLM, Human Rights
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Visiting Faculty :

Nandy, Sujit Kumar	LLB, Procedural Laws
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Adjunct Faculty :

Ganguli, Prabuddha	Ph.D., Intellectual Property Laws
Mitra, S. K.	Ph. D., Intellectual Property Laws
Chakraborty, Nirmal Kumar	Ph.D., Criminal Procedural Laws
Chatterjee, B. K.	LLB, Property Laws
Hon'ble Justice Banerjee, Umesh C.	LLB, Labour Laws
Pangrle, Brian	Ph.D., Patent Laws

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Archana Chugh	Assistant Professor
Dr. Dipa Dube	Assistant Professor
Dr. Indrajit Dube	Assistant Professor
Dr. K. D. Raju	Assistant Professor
Ms. Ashirbani Dutta	Lecturer
Mr. Sujit Kumar Nandy	Visiting Faculty

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Research Projects in diverse areas of Law
2. Organization of Workshops/Training Programmes in IP
3. Preparation for Upcoming International Corporate Law Conference

Thrust Areas :

1. Intellectual Property – Law and Practice
2. Corporate Legal System
3. Justice System
4. International Law

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Role of phenylpropanoids and flavonoids in defense response in maize	DST, New Delhi	Rs. 15.00 Lakhs
2.	Intellectual Property Law and Competition Law and Practice	World Bank	Rs. 6.30 Lakhs
3.	Women in BPO Sector	IIT Kharagpur	Rs. 1.01 Lakhs
4.	Status Report of Service Conditions, Benefits and Hazards of Working Women in Karnataka & West Bengal	Ministry of Labour & Employment, New Delhi	Rs. 3.03 Lakhs
5.	Agricultural Biotech Invention resource	IIT Kharagpur	Rs. 3.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Dr. Indrajit Dube
CLTA Conference, Sydney, Australia, February 2008

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. Manchikanti Padmavati
Impact of WTO Ministerial meeting : The Agreement on Agriculture and its impact – WTO and IPR workshop, IICM, Ranchi
2. Dr. Manchikanti Padmavati
Online class lectures - 'Principles of IP' and IP in open innovation engineering – Georgia Tech University, US
3. Dr. K. D. Raju
Alternate Dispute Resolution, US Embassy Programme, Dhenkanal Law College, Orissa
4. Dr. K. D. Raju
Law on Venture Capital Investments,

- | | | |
|----|---------------------|--|
| 5. | Dr. Ashirbani Dutta | Government of West Bengal, Kolkata
Development Induced Displacement, Asiatic Society, Kolkata |
| 6. | Dr. Indrajit Dube | The challenges of formulating legal remedies against emerging growth of Cyber Crime, Kolkata |
| 7. | Dr. Dipa Dube | Pragmatic Approaches towards Application of Criminal Law in Intellectual Property Crimes, Haldia |

LECTURE BY VISITING EXPERT

- | | | |
|----|--|--|
| 1. | Mr. Jim Patterson, Patent Associate, Lee & Hayes LLP, Spokane, Washington, USA | Lectures on Patent Drafting |
| 2. | Prof. Mark Perry, University of Western Ontario, Canada | Is Reformation of Copyright Legislation for WIPO Copyright Treaty Compliance “a Good Idea”? |
| 3. | Prof. Imtiaz Omar, University of New England, Australia | Contribution of the Privy Council’s Judicial Committee during Colonial Rule in India and Australia |
| 4. | Prof. Ananda Mohan Chakraborty, University of Illinois, USA | Creating Intellectual Property from Academic Research : A Personal Journey |

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Pareta Deepesh	Quantitative Patent Analysis of Nanotechnology & its Patentability Issues
2.	Gucchait Shantanu	Registration of Non-Traditional Trademarks in India
3.	Hait Ajit Kumar	Harmonization of Fair Use Principles in Copyright
4.	Yenigalla Anshuman	Cyberstalking
5.	Bhola Deepa	Microfluidic devices for nucleic acid amplification: An analysis of patents on PCR
6.	George P.	Patent analysis of Western ghat plants: Knowledge and material piracy issues
7.	Basu Suddha Sattwa	Analysis of trade dress in the fore of Indian Trade Mark law
8.	Adhikari Satyajit	TRIPs and Human Rights
9.	Ghosh Sudipto	Data Exclusivity
10.	Khasnis Yogesh	Patent Valuation
11.	Dixit Vikas	Patenting Issues in E commerce

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Dr. Indrajit Dube	Environmental Jurisprudence	Lexis Nexis Butterworths	2007
2.	Dr. K. D. Raju	GMO-Emerging Law and Policy in India	Teri	2007
3.	Dr. Ashirbani Dutta	Development Induced Displacement and Human Rights	Deep & Deep	2007
4.	Dr. Dipa Dube	Rape Laws in India	Lexis Nexis Butterworths	2008
5.	Dr. M. Padmavati	Photosynthetic plants as renewable energy sources in Biofuels Refining and Performance (Chapter)	McGrawHill	2008
6.	Dr. Dipa Dube	Shaking the Foundations of Criminal Justice – The Jessica Disaster in Criminal Justice : Philosophy & Perceptions (Chapter)	Amicus Books, ICFAI	2008
7.	Dr. Dipa Dube	Humanizing the Criminal Justice System: The Victim Perspective in Issues in Human Rights (Chapter)	Atlantic Publishers	2008

LAURELS & DISTINCTIONS

1. Dr. M. Padmavati
Reviewer for Pharma and Biotech - Journal
of Intellectual Property Rights
2. Dr. K. D. Raju
External Examiner, NALSAR, Hyderabad

SCHOOL OF INFORMATION TECHNOLOGY

HEAD : Professor Indranil Sen Gupta

FACULTY

Professor :

Sen Gupta, Indranil Ph.D., VLSI Design and Testing, Cryptography and Network Security, Mobile Computing

Associate Professor :

Gupta, Arobindo Ph.D. (Iowa), Distributed Systems
Mandal, Chitta Ranjan Ph.D., Digital System Synthesis, Internet Technologies, VLSI, System Verification
Sural, Shamik Ph.D. (Jadavpur University), Information and System Security, Image & Video Processing

Assistant Professor :

Ghosh, Soumya Kanti Ph.D. (IIT Kharagpur), Geo-spatial Database, GIS, Computer & Network Security, Image & Video Processing
Samanta, Debasis Ph.D. (IIT Kharagpur), Human Computer Interaction, Software Testing, Low Power VLSI Circuit Synthesis
Sreenivasa Rao, Krothapalli Ph.D.(IIT Madras), Speech Processing, Neural Networks
Misra, Sudip Ph.D.(Carleton University, Canada), Computer Networks, Software Engineering

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Sudip Misra Assistant Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Geographical Information System : Enterprise wise GIS database development and its policies and protocols to make it accessible as platform independent and support for decision making are under research and development.

Human Computer Interaction : Researches are going on to develop adaptive user interface

design and automatic usability evaluations with simulated human user. Interface in Indian languages are under development to support physically disabled people.

Network Security : Various areas of network security are being explored, like penetrating testing, development of new algorithms for cryptography, their efficient and attack-resistant hardware implementation etc.

Systems Security : Survivable information system architecture to tolerant with potential information warfare attacks is under development. Such systems are typically characterized by the presence of a large repository of sensitive data in a distributed environment. The architecture takes into account the presence of multiple operating systems and database platforms, their known and potential vulnerabilities as well as possibilities of simultaneous attacks from adversaries. It will be developed as a generic model which can be used to build specific information systems in a number of application domains like e-governance, finance and insurance, education, etc.

Thrust Areas :

- i) Distributed systems
- ii) E-Learning and E-Commerce
- iii) Mobile computing
- iv) Ubiquitous computing
- v) Data mining
- vi) Systems security
- vii) Adhoc sensor networks
- viii) Network security
- ix) Human computer interaction
- x) Geographical information system
- xi) Computer vision
- xii) Information and database systems
- xiii) VLSI design

New Acquisitions :

Under initial funding from Headquarters Integrated Defense Staff, Ministry of Defense, New Delhi, a Centre of Excellence in Information Assurance has been set up in the SIT premises. Four research staff are working under the Centre in various areas of cryptography and network security. Under the proposal, an Industry Consortium will be set up where industry partners will be providing a common pool of fund to further promote R&D activities in this area and also to make the Centre self-reliant in the long run. Prof. Indranil Sen Gupta is the overall in-charge of the centre

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	A web-based distributed multimedia	IIT Kharagpur	Rs. 3.00 Lakhs

	GIS for analysis and visualization of Geo-databases		
2.	An Integrated Framework for Testing Object-Oriented Programs	DST, New Delhi	Rs. 10.00 Lakhs
3.	Content-Based Information Retrieval from Multimedia Databases	IIT Kharagpur	Rs. 2.88 Lakhs
4.	Development of an Enterprise GIS based on open GIS standards	DST, New Delhi	Rs. 40.50 Lakhs
5.	DSM-Aware Synthesis of Low Power Circuits	Intel, USA	Rs.10.00 Lakhs
6.	Microsoft Lab Setup	Microsoft Corporation, USA	Rs. 35.00 Lakhs
7.	Middleware for Building Mobile Agent Based Distributed Applications	MHRD, New Delhi	Rs. 6.00 Lakhs
8.	Modeling and Management of Dynamic Multimedia Objects	DST, New Delhi	Rs. 18.00 Lakhs
9.	Online Authentication Checking System with IRIS Biometric Scheme	IIT Kharagpur	Rs. 3.00 Lakhs
10.	Properties of High Dimensional Euclidean Space and their Applications in Approximate Nearest Neighbor Search on Multimedia Databases	DST, New Delhi	Rs. 3.30 Lakhs
11.	Survivable Information systems Architecture with Intrusion tolerance, Containment and Recovery in Distributed Environment	DIT, New Delhi	Rs. 55.00 Lakhs
12.	Development of Multimodal User Interface to Internet for Common People in India	DIT, New Delhi	Rs. 58.00 Lakhs
13.	DSM/UDSM-Aware Synthesis for Low-Power High-Performance CMOS VLSI Circuits	CSIR, New Delhi	Rs. 14.00 Lakhs
14.	Efficient Index-supported Multimedia Search on the Internet	DST, New Delhi	Rs. 6.38 Lakhs
15.	Enhanced SANYOG: A Portable Communication Tool for the Speech and Neuro Motor Impaired People	Media Lab Asia, USA	Rs. 71.00 Lakhs
16.	Design & Development of Models & Tools for Vulnerability Assessment of Embedded Systems	Min. of Defense, GOI	Rs. 49.20 Lakhs
17.	Characterization and incorporation of emotions in speech	IIT Kharagpur	Rs. 3.00 Lakhs
18.	Development of Spatio-temporal Access Control Models	DST, New Delhi	Rs. 16.18 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Placement and Routing of Analog Test	National	Rs. 22.00 Lakhs

Structures	Semiconductor Corporation, USA	
2. Development of parameterized templates and R-extraction tools	National Semiconductor Corporation, USA	Rs. 153.00 Lakhs
3. Design and Development of a Penetration Testing and Security Assessment Tool	Min. of Defense, GOI	Rs. 49.00 Lakhs
4. GM-CRL, IIT Kharagpur-VANET Communication and Security Group	General Motors	Rs. 500.00 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1. Dr. Shamik Sural Research related discussions (Michigan State University, USA) November 2-11, 2007
2. Dr. Soumya Kanti Ghosh Presenting paper / Session Chair in IMECS-2008 Conference (Hong Kong) March 19-21, 2008
3. Dr. Arobindo Gupta Attending Microsoft Research Faculty Summit (Microsoft Research, USA) 3 days

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. Shamik Sural Damage Assessment and Recovery of a Database after Attack (Department of CSE, Michigan State University, USA)
2. Dr. Sudip Misra Invited Keynote Lecture : "Inspirations from Multiple Race Track Athletics for Traffic Engineering, International Conference on Communication Systems and Technologies (ICCST'07) World Congress on Engineering and Computer Science (WCECS'07) (San Francisco, California, USA)
3. Dr. Sudip Misra Invited Keynote Lecture : "Inspirations from Multiple Race Track Athletics for Multimedia Communication, The Second International Conference on Digital Telecommunications (ICDT 2007) (Silicon Valley, California, USA) July 1-6, 2007
4. Dr. Sudip Misra Invited Plenary Lecture : "Message Security in Mobile Ad Hoc Networks, WSEAS International Conference on Applied Computer Science (ACS 2007) (Venice, Italy)
5. Dr. Sudip Misra Invited Keynote Lecture, Second International Conference on Resource Utilization and Intelligent Systems (INCRUIS 2008) (Erode, Tamil Nadu, India)
6. Dr. Sudip Misra Invited Keynote Speech, International Conference on Systemic, Cybernetics, and

7. Dr. Sudip Misra Informatics (ICSCI 2008) (Hyderabad, India)
Invited Keynote Lecture, International
Conference on Sensors and Related Networks
(SENNET 2007) (Vellore, Tamil Nadu, India)
8. Dr. Sudip Misra Invited Keynote Address, International
Conference on Advances in Information and
Communication Technologies (ICICOT07)
(Manipal, Karnataka, India)
9. Dr. Sudip Misra Invited Keynote Speech : “Message Security
in Mobile Ad Hoc Networks : Using Trust-
Based Multi-Path, International Conference on
Computer Engineering and Systems
(ICCES’07) (Cairo, Egypt)
10. Dr. Sreenivasa Rao Krothapalli Speech and audio applications on Internet
(Andaman and Nicobar Islands, India)
11. Dr. Arobinda Gupta An introduction to distributed algorithms
(ISM Dhanbad)

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Manoj Paul	A Framework for Information Integration of Heterogeneous Geospatial Repositories
2.	Debasish Kundu	Model-Driven Testing for Object-Oriented systems with Test Case Prioritization
3.	Somnath Dey	An Efficient Approach to Iris Biometric Processing for Biometric Authentication System

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Dr. S. Misra, Mr. I. Woungang and Prof. S. C. Misra (Eds.)	Handbook of Wireless Ad-hoc and Sensor Networks	Springer	2008
2.	Dr. S. Misra, Prof. S. C. Misra and Mr. I. Woungang (Eds.):	Handbook of Wireless Mesh Networks	Springer	2008

LAURELS & DISTINCTIONS

1. Dr. Debasis Samanta Microsoft Valued Professional Award,
Microsoft Inc., USA

SCHOOL OF MEDICAL SCIENCE & TECHNOLOGY

HEAD : Professor Ajoy Kumar Ray

FACULTY

Assistant Professor :

Chaudhury, Koel	Ph.D., Reproductive Health
Mahitosh Mandal	Ph.D., Cancer Biology
Bhattacharya, Sangeeta D.	Ph.D., Pediatric HIV
Mitra, Analava	Ph.D., Nutraceuticals and Herbal medicine
Chatterjee, Jyotirmoy	Ph.D., Medical Imaging & Analysis, Radiation Biology, Eco-friendly medicine, Wound research
Manjunatha, M.	Ph.D., Bio-Medical Instrumentation
Soumen Das	Ph.D., Bio-MEMS & Medical Electronics
Santanu Dhara	Ph.D., Biomaterials

Senior Lecturer :

Chakraborty, Chandan	Ph.D., Medical Statistics & Statistical Pattern Recognition
-----------------------------	---

Visiting Faculty :

Chakravarty, B. N.	Reproductive Health
Banerjee, Pravas	Wound Research
Bhattacharya, Parthasarathi	MD, DNB, DM, Pulmonary Medicine
Bhattacharya, Pinak Pani	MD, Radiodiagnosis

Emeritus Professor :

Guha, Sujoy K.	Ph.D., MBBS, Rehabilitation Engineering, Medical Instrumentation, Application of Biomedical Engineering to Reproductive Medicine, Patient Care Systems
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RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

1. Medical Imaging and Automated Diagnostic Tool Development.
2. Medical Instrumentation & Telemedicine
3. Biomaterials, wound research
4. Herbal medicine & Cancer drug development
5. Technology in Reproductive Health

6. New Cancer Drug Development
7. Oxidative Stress in infertility
8. Proteomics in Reproductive Health
9. Contraceptive Development

Thrust Areas :

1. Medical imaging and automated diagnostic tool development.
2. Biomaterials and Wound Research.
3. Medical Imaging & Image Processing
4. Medical Instrumentation
5. Bio-MEMS
6. Medical Statistics & Pattern Recognition
7. Medical Expert System
8. Telemedicine
9. Cognitive & Neuro Science
10. Tissue Engineering
11. Bio-Mechanics
12. Health Care Management
13. Herbal medicine & Bio-Engg.
14. Cancer Bio-maker and Drug Development
15. Technology in Reproductive Health

New Acquisitions :

1. Picture Archival Communication System
2. Fluorescence Microscope
3. 4D Colour Doppler
4. Atomic Force Microscope
5. Semi-Auto analyzer for biochemistry

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Expression of collagen types during pathological manifestation of OSF – A precancerous condition	DST, New Delhi	Rs. 20.00 Lakhs
2.	Non-linear dynamics & time series analysis of respiratory rhythms	DST, New Delhi	Rs. 20.00 Lakhs
3.	Role of Disabilities and Individual Characteristics of Workers on Occupational Injuries in Mines	DST, Government of West Bengal	Rs. 12.26 Lakhs
4.	Development of MEMS vaporising liquid microthruster for applications at ISRO	ISRO-KCSTC Cell	Rs. 22.00 lakhs
5.	Evaluation of S100A7 (Psoriasin) as an	IIT Kharagpur	Rs. 3.00 Lakhs

	Early Detection Bio-Marker of Squamous cell Carcinoma		
6.	Impact of Follicular Fluid and IVF Media-Generated Oxidative Stress on Oocyte Maturation, Fertilization and Subsequent Embryo Development	DBT, New Delhi	Rs. 9.27 Lakhs
7.	Immunological abnormalities in patients with cervical cancer : analysis of peripheral blood lymphocytes	DST, New Delhi	Rs. 6.72 Lakhs
8.	Assessment of membrane characteristics and oxidative stress-induced DNA damage in human sperm for Intra Cytoplasmic Sperm Injection	DBT, New Delhi	Rs. 15.38 Lakhs
9.	National Centre for the Technological Evaluation of IUD and Tubal Rings	Ministry of Health & Family Welfare, New Delhi	Rs. 150.00 Lakhs
10.	Artificial Heart Development Programme	DST, New Delhi	Rs. 8.16 Lakhs
11.	Development of "Palposcope" for Medical Diagnostic Kit and Telemedicine	DST, New Delhi	Rs. 11.37 Lakhs
12.	Surgical Injection Device with Imaging and Force Feedback Active Guidance	DST, New Delhi	Rs. 8.00 Lakhs
13.	Early detection of Oral & Breast Cancer through multi-modal imaging & analysis and MEMS based flow sensor	Texas Instruments, USA	Rs. 92.00 Lakhs
14.	Development of Medical Expert System for Screening & Diagnosis of Coronary Artery Diseases	VECC, DAE, Govt. of India	Rs. 43.20 Lakhs
15.	Impact of Follicular Fluid and IVF Media-Generated Oxidative Stress on Oocyte Maturation, Fertilization and Subsequent Embryo Development	DBT, New Delhi	Rs. 9.27 Lakhs
16.	Web enabled medical information access using handheld devices in a wireless environment for telemedicine application	MCIT, New Delhi	Rs. 62.10 Lakhs
17.	Understanding the impact of pediatric HIV-1 infection on childhood immunization coverage in WB	IIT Kharagpur	Rs. 3.00 Lakhs
18.	Laser Speckle Imaging of Bloodflow in Microcirculation	IIT Kharagpur	Rs. 5.00 Lakhs
19.	Development of Embedded System Based on DSP and FPGA for X-ray Cone-beam Computed Tomography	VECC, Kolkata	Rs. 40.00 Lakhs
20.	Development of Scaffold for Tissue Engineering	IIT Kharagpur	Rs. 5.00 Lakhs
21.	Synthesis, Development and Invitro characterization of bio-inert Yttria/Ceria coated/Stabilized ZrO ₂ toughened	DBT, New Delhi	Rs. 32.60 Lakhs

	Alumina composite for biomedical application		
22.	Feasibility study of MEMS based biochip platform for characterization of biospecies	IIT Kharagpur	Rs. 5.00 Lakhs
23.	Development of novel nano-bio-composite osteogenic matrices for cell based bone tissue engineering	-	Rs. 21.60 Lakhs
24.	Characterization of Indian Honey & its Integration with Wound Dressing System	IIT Kharagpur	Rs. 3.00 Lakhs
25.	A Computer-Aided Diagnostic System for Bronchial Asthma using a Clinico-Epidemiological Knowledgebase	IIT Kharagpur	Rs. 1.00 Lakh

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Assistance for RISUG Making	-	Rs. 11.33 Lakhs

INVITED LECTURES BY FACULTY MEMBERS

1.	Prof. Ajoy K Ray	‘Sir Ronald Ross Memorial lecture’ at IPGMER, Kolkata (2007).
2.	Mahitosh Mandal	“Engineering tumours with 3D silk protein based matrices” in the workshop on ‘Cell based tissue engineering using natural polymers’ at Gwangju Institute of Science and Technology (GIST), Republic of Korea (Nov 29, 2007).
3.	Mahitosh Mandal	“S100A7 (Psoriasin) Identified as an Anoikis Resistant Gene and Early Detection Marker of Squamous Cell” ., Bhubaneshwar, India.
4.	Analava Mitra	‘Effects of Bioactive herbal ingredients in type-II diabetes’, in the annual conf. of Association of Food Scientists & Technologists (2007).
5.	Dr. Santanu Dhara	‘Rheology of Alumina ceramics & their use in gelation forming of dense & porous ceramics’ at CGCRI, Kolkata (2007)
6.	Dr. Jyotirmoy Chatterjee	“Molecular Imaging” in the seminar – workshop on Diagnosis & Management of Genetic Disorders at School of Biotechnology, West Bengal University of Technology, Kolkata (Dec 27, 2007)
7.	Dr. Koel Chaudhury	‘Role of reactive oxygen species in human infertility’ in the 95th Indian Science Congress held at Andhra University,

- | | | |
|-----|-------------------------------|---|
| 8. | Dr. Koel Chaudhury | Visakhapatnam during Jan 03 – Jan 07, 2008.
'Optimal level of ROS as a predictive marker of sperm quality and fertilization outcome in ICSI' in the National Workshop on Recent Advancements in Infertility Treatment Strategies held at A.H. IVF & Infertility Research Centre (P) Ltd. Ranchi. |
| 9. | Dr. Sangeeta Das Bhattacharya | US NIH Grant Writing Workshop on HIV., Hyderabad. |
| 10. | Dr. Soumen Das | Quartz Micromachining, IIT, Kharagpur. (28 th May – 2 nd June, 2007). |
| 11. | Dr. Soumen Das | Development of "MEMS and Microsystems", IIT, Kharagpur. (28 th May – 2 nd June, 2007). |
| 12. | Dr. Chandan Chakraborty | 'Statistics for Bioinformatics' in the workshop on 'Bioinformatics in Genomics and Proteomics', Dept. of Biotechnology, IIT Kharagpur (2007). |

LECTURE BY VISITING EXPERT

- | | | |
|----|--|---|
| 1. | Prof. (Dr.) S. P. Mukhopadhyay, Strategic Management of Health Care Services, IISWBM | Hospital finance Health Insurance (April 13, 2007) and
Concept Issues & Economics of Health Care Management (April 14, 2007) |
| 2. | Prof. Sandip Ghosh, Strategic Management of Health Care Services, IISWBM | Strategic Management of Health Care Services (April 14, 2007) |
| 3. | Dr. Neeraj Magotra, General Manager, Medical Technology Development, Texas Instruments, Dallas, USA | Energy efficient solution to medical instrumentation design (September 27, 2007) |
| 4. | Dr. Kripamoy Aguan, Sr. Research Scientist, Brain Science Institute, RIKEN Japan | Astroglial basis of epilepsy : a new paradigm (October 12, 2007) |
| 5. | Dr. Madhurjya Gogoi, All India Institute of Medical Sciences, New Delhi | Ophthalmology (November 08, 2007) |
| 6. | Dr. Sandeep Chatterjee, Neuro Surgeon | Initiating Neuroscience and Technology Research (November 11, 2007) |
| 7. | Dr. Monotosh Panja, Head, AMRI Hospital and
Dr. Sushan Mukherjee, MS, MCH, Chief Cardio Thoracic Surgeon, AMRI Hospital and Director, Indian Medical Promotion Unit | Preventive cardiology (March 26, 2008) |
| 8. | Dr. B. N. Chakraborty, Institute of Reproductive Medicine, Salt Lake, Kolkata | Embryonic stem cell research in India (April 26, 2008) |
| 9. | Dr. B. Mitra, Managing Director, TI | Impacting lives through technology |

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| <p>India Pvt. Ltd.</p> <p>10. Dr. C. S. Bal, AIMS, New Delhi</p> <p>11. Dr. S. Kuppig, Germany</p> <p>12. Dr. M. K. Dewanjee, Scientist,
Department of Health & Human
Services, NIH Campus, USA</p> | <p>innovation : A once in a generation
opportunity</p> <p>PET – An advanced imaging technique</p> <p>Thyroid cancer detection & treatment</p> <p>Basic principle and scope of application of
confocal laser scanning microscope</p> <p>Cardiovascular diseases, prevention, diagnosis
and therapy</p> |
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THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Sunil Kumar	Micro-structural and biochemical changes in human Spermatozoa associated with RISUG®

LAURELS & DISTINCTIONS

1.	Dr. Koel Chaudhury	Reviewer of Journal of Assisted Reproduction and Genetics
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VINOD GUPTA SCHOOL OF MANAGEMENT

HEAD : Professor Probir Kumar Gupta

FACULTY

Professor :

Gupta, Probir K.	B.Tech. (Hons.) (IIT Kharagpur), Organisational Development, Business Strategies
Sinha, Gautam	Ph.D.(IIT Kharagpur), Production and Industrial Engineering and Management
Guin, Kalyan K.	B.Tech. (BHU), Fellow (IIM, Bangalore), Marketing, Operations Management, Entrepreneurship, Quantitative Techniques
Srinivasan, S.	Ph.D.(IIT Kharagpur), Finance and Production Management
Sadhu, Amar N.	M.A. (London), FCA (Eng & Wales), FIMC (London), MISP (London), Economics and Finance

Associate Professor :

De, Sadhan K.	Ph.D. (Manchester), Information Systems, ERP, E-Business/E-Commerce, Business Intelligence, Technology Management Strategic Management
Rajib, Prabina	Ph.D. (IIT Kharagpur), Finance, Risk Management
Roy, Santanu	Ph.D. (IIT Kharagpur), Technology and Innovation Management, Quantitative Methods, Organisational Behaviour

Assistant Professor :

Datta, Biplab	Ph.D. (IIT Delhi), Marketing
Mishra, Chandra Sekhar	Ph.D.(Utkal University), Finance, Accounting
Pradhan, Rudra	Ph.D. (IIT Kharagpur), Econometric Modelling
Prakash	
Sahney, Sangeeta	Ph.D. (IIT Delhi), Marketing Management, Human Resource Management, Quality Management in Services
Mukhopadhyay, Susmita	Ph.D. (Calcutta University), Organizational Behaviour, Human Resource Management, Business Ethics and Human Values
Misra, Arun K.	Ph.D. (IIT Bombay), Financial Marketing, Banking

Visiting / Adjunct Faculty :

Chakravarti, Kalyan	B.Tech.(Hons.) (IIT Kharagpur), FIE (India), CE, PMD (Harvard Business School), Human Behaviour, Human Resource Management, Corporate Strategy & Leadership
Sarbadhikary, Sanjay K.	B.Com. (Hons.), M.Com., LLB/BL (Calcutta University),

Singh, J.	Managerial Accounting Ph.D. (Wharton), Organisation Behaviour, Human Resource Management
Das, Purnendu Sekhar	Ph.D. (IIT Kharagpur), Personnel Management, Industrial Relations, Legal Aspects
Datta, Saroj Kumar	Ph.D. (University of Burdwan), Strategic Management and Marketing
Mukherjee, Prithwish	Ph.D. (IIT Kharagpur), M.S. (University of Texas), Information System, Information Technology

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointment :

Dr. Susmita Mukhopadhyay	Assistant Professor
Dr. Rudra Prakash Pradhan	Assistant Professor
Dr. Chandra Sekhar Mishra	Assistant Professor
Dr. Arun Kumar Misra	Assistant Professor
Dr. Saroj Datta	Visiting Faculty

Faculty Promotion :

Dr. Prabina Rajib	Associate Professor
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RESEARCH AND DEVELOPMENT

Thrust Areas :

1. Foreign Direct Investment and Financial Markets,
2. Manufacturing in Small and Medium Enterprises

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Implementation of a Quality Management System for all Programmes of IIT Kharagpur	IIT Kharagpur	Rs. 3.00 Lakhs
2.	Impact of Select Issues in Consumer Demographics and Psychographics on Online Buying Behaviour	IIT Kharagpur	Rs. 3.00 Lakhs
3.	Socio Economic Development	IIT Kharagpur	Rs. 1.65 Lakhs

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Amount
1.	Corporate Governance and Social Responsibility Roadmap	Jindal Bengal Steel – A Ltd.	Rs. 0.43 Lakhs

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. Gautam Sinha	Design and Delivery of Training Program (Qatar Steel, Doha, Qatar)
2.	Dr. Sangeeta Sahney	2008 International Conference on E-Commerce (Bangkok) March 27-29, 2008

INVITED LECTURES BY FACULTY MEMBERS

1.	Dr. Sangeeta Sahney	Globalisation : Challenges Before Indian Marketers – Rourkela Institute of Management Studies, Rourkela
2.	Dr. Susmita Mukhopadhyay	Career Planning and Psychological Satisfaction in Retired Life and Orienting Family Members for a Positive Approach – Indian oil Corporation Limited
3.	Dr. Susmita Mukhopadhyay	Goal Setting and Motivating Self-Indian Ethos – Indian Oil Corporation Limited
4.	Dr. Susmita Mukhopadhyay	Schedule Design for Psychological and Educational Survey Research – Psychology Research Unit, Indian Statistical Institute, Kolkata (As Resource Person for the Seminar)
5.	Dr. Susmita Mukhopadhyay	Academic Career Excellence in Management - Pailan College of Management and Technology
6.	Dr. Susmita Mukhopadhyay	Self Development – Air Force Station Salua
7.	Dr. Susmita Mukhopadhyay	Interpersonal Skills – UAL Bengal
8.	Dr. Biplab Datta	4Ps of Marketing in Small Industries Management Programme (SIMAP) – IIT Kharagpur
9.	Dr. Sadhan K. De	‘ERP and SCM’, ‘World Class Supply Chain Management’ – AICTE sponsored Faculty Development Program at MIM, Ujjain, MP
10.	Dr. Sadhan K. De	‘Understanding and Managing Innovation’ – Invited talk for the senior executives of Tata Refractories Ltd., Belpahar, Orissa
11.	Dr. Sadhan K. De	Taught a course “Information Security and Risk Management” in XLRI, Jamshedpur
12.	Dr. Sadhan K. De	Taught a course on “MIS and ES” at IIM Lucknow
13.	Dr. Sadhan K. De	Taught a course on ERP at XLRI, Jamshedpur

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| 14. | Dr. Sadhan K. De | Understanding and Managing Innovation at NSHM |
| 15. | Dr. Sadhan K. De | General Management Program for Defense Officers (GMDP) on invitation from XLRI, Jamshedpur |
| 16. | Dr. Prabina Rajib | Emerging Trends in Capital Market, Bhubaneswar Stock Exchange |

LECTURE BY VISITING EXPERT

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|-----|---|--|
| 1. | Mr. Arnab Bose, Senior Vice President – International Business, SREI | Asset Reconstruction in India |
| 2. | Mr. Anand Chatterjee, SCM Consultant, SAP | Supply Chain Management |
| 3. | Mr. Samar Singh Sheikawat, Vice President – Marketing, RPG Retail Pvt. Ltd. | Retail Marketing |
| 4. | Prof. P. K. Banerjea, ICFAI Business School, Pune | Technology Management |
| 5. | Prof. B. B. Chakravarti, Professor of Finance & Accounts, IIM Calcutta | Futures and Options : An Introduction to Derivatives |
| 6. | Dr. Tuli Roy, General Manager, RBI | Basel I and Basel II |
| 7. | Dr. M. P. Sunder, Group Manager – Brands & Communication, WIPRO | Art and Science of Brand Management |
| 8. | Mr. Shouvik Bhattacharya, Adea International Pvt. Ltd. | Strategic Planning |
| 9. | Mr. Roopen Roy, Managing Director, PWC | Service Sector in India |
| 10. | Mr. Biswadeep Gupta, Managing Director, Indian Unit of Vesuvius Ltd. | Manufacturing and Entrepreneurship |
| 11. | Mr. Partho S. Datta, Independent Consultant | Regaining Agricultural Dynamism |
| 12. | Mr. Alok Mookherjea, Chairman, WBEIDCL | (1) Indian Brand Equity
(2) Leadership |
| 13. | Prof. Pitabas Mohanty, Professor, XLRI, Jamshedpur | Financial Modelling using MS Excel |

THESES (Doctoral and MS)

- | # | Name of Scholar | Title of Thesis |
|----|-----------------|---|
| 1. | B. Rajesh Kumar | An Analytical Study on Mergers in India |

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	V. Raghunathan and Dr. Prabina Rajib	Stock Exchanges, Investments & Derivatives	Tata McGraw Hill India	2007
2.	Prof. S. Srinivasan	Book Chapter as Joint Author on “Software and Other Project Management Practices in India” in Applied Project Management Handbook	McGraw Hill Limited	2007
3.	Bill Taylor, Prof. Gautam Sinha and T. Ghoshal	Research Methodology : A Guide for Researchers in Management & Social Sciences	Prentice Hall of India	2006
4.	Dr. Sadhan K. De	Book Chapter on “Competitiveness and Technology Innovation; Strategic Innovation and Customer Power” for developing Master of Technology Management Course in DSIR		
5.	Dr. Prabina Rajib	Stock Exchanges, Investments And Derivatives: Straight Answers to 250 Nagging Questions (3 rd Edition) jointly with Dr. V. Raghunathan	Tata McGraw Hill India	June 2007

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1.	Customer Satisfaction, Communications and Outreach	5 days
2.	Indian Share Market	1 day
3.	Share Trading : Nuts & Bolts	2 days
4.	OCCASIO : VGSOM's Management Fest	2 days
5.	PURVODAYA : The Ascent of East	2 days

PART - II

**CENTRALIZED UNITS AND SERVICES &
ALUMNI AFFAIRS & INTERNATIONAL
RELATIONS**

ALUMNI AFFAIRS & INTERNATIONAL RELATIONS

DEAN : **Professor Ajay Chakrabarty (Upto September 30, 2007)**
 Professor Amit Patra (From October 01, 2007)

Alumni Affairs & IR Committee :

Professor-in-Charge, Information Cell

Prof. B. K. Mathur

Department of Physics & Meteorology

Professor-in-Charge of News Letters / Publications

Prof. Jayanta Bhattacharyya

Department of Mining Engineering

Prof. Joy Sen

Department of Architecture & Regional
Planning

Technology Alumni Association Secretariat

Prof. Goutam Bandyopadhyay

President

Department of Aerospace Engineering

Dr. Dilip. K. Nanda

Secretary

Computer & Informatics Centre

Prof. Kajal Biswas

Joint Secretary

Department of Mechanical Engineering

Prof. Joy Sen

Treasurer

Department of Architecture & Regional
Planning

The various activities of the office of the Dean of Alumni Affairs & International Relations over the past one year are as follows :

1. The alumni affairs website with a link to the institute website facilitates alumni all over the globe to register online at www.alumni.iitkgp.ernet.in. A new website will get operational soon, which will provide social networking opportunities among the Alumni, students and faculty.
2. An extremely popular Alumni newsletter “KGPian” is being published regularly every three months. Presently it is running in its 5th year.
3. For the first time Mr. Ranbir “Ron” Singh Gupta, an alumnus pledged \$1 Million to IIT Kharagpur for development of a School of Infrastructure which will be called Ranbir & Chitra Gupta School of Infrastructure Design and Management (RCG INFRA TECH). The MOU for this was signed during the inaugural ceremony of the Alumni Meet.

4. PAN IIT 2007 was held at Santa Clara in the San Francisco Bay Area, USA during 6-8 July 2007. Prof. M. Chakraborty, Dy. Director, Prof. Ajay Chakraborty, Dean (AA&IR) and Prof. Dhruvish Biswas attended the event.
5. We have had a number of renowned universities coming forward with exchange programmes and the Institute has seen an influx in successful Memoranda of Understanding (MoU) and Memoranda of Agreement (MoA) lately.

NINA SAXENA EXCELLENCE IN TECHNOLOGY AWARD

The 57th Foundation Day of the Institute was celebrated on 18th August, 2007. For the first time The Nina Saxena Excellence in Technology Award, a first of its kind India -wide Technical Innovation Award instituted by IIT Kharagpur in 2006 was presented to Dr. S. P. S. Khanuja , Director, Central Institute of Medicinal & Aromatic Plants, Lucknow by the Chief Guest Prof. K. L. Chopra, former Director, IIT Kharagpur. The award consists of a cash prize of Rs. 51,000/- and a gold plated plaque. Commemorating the spirit of Dr. Nina Saxena, B.Tech. (Hons.), ECE 1992, who passed away tragically in 2005, the award is an attempt to encourage and promote technical innovation with a social development focus. The award is the result of a lot of hard work on Nina's husband, Dr. Akhil Sahai's part; also our alumnus.

DISTINGUISHED ALUMNUS AWARD

Distinguished Alumnus Award was conferred on alumni of IIT Kharagpur who have distinguished themselves in their own domain of work and made their Alma Mater proud during the 53rd Annual Convocation. Prof. Surendra Prasad, Dr. Kirit. S. Parikh, Prof. Punjab Singh, Prof. Prithviraj Banerjee and Prof. Supriyo Datta were awarded the Distinguished Alumnus Awards. Dr. Kirit. S. Parikh received the award in person whereas Prof. Surendra Prasad and Prof Supriyo Datta received the awards subsequently during the 5th Annual Alumni Meet.

ANNUAL ALUMNI MEET 2008

The New Year brought together the alumni of the Institute again for the fifth time to IIT in the form of 5th Annual Alumni Meet 2008 held during 5th - 6th January 2008. The Meet was, dedicated to those who graduated in the years 1958 and 1983. Many alumni came with their spouses and some with children and even grand children. To commemorate the occasion a Souvenir, "Yearnings of Yore – Volume V" was published. The programme consisted of Inauguration & Award Ceremony, Panel Discussion, Alumni General Meeting, Departmental Reunion, Hall Reunion, Sight Seeing Programme and Sports Events.

VISIT OF THE ALUMNI

1. Shri K. N. Rao Visited during June 28-29, 2007 to explore the possibility of joint research programme in the area of EMI, EMC and ESD (June 28–29, 2007)

2. Shri Arjun Malhotra To formulate a well-charted plan for R&D activities that will ensure visibility of G. S. Sanyal School of Telecommunication internationally and also to identify thrust areas for the next five years. He also discussed about setting up a Telecom Centre of Excellence at IIT Kharagpur (May 10–11, 2007)
3. Shri C. J. Reddy To deliver a talk on electromagnetic simulation tool FEKO. Various antenna design applications using FEKO was examined (November 14, 2007)
4. Shri Asis Nasipuri To deliver guest lectures and Discussed for a possible MOU between IIT Kgp and University of North Carolina at Charlotte (October 09–10, 2007)
5. Prof. Avijit Gangopadhyay Delivered a lecture to the M.Tech students (CORAL & others) on “Operational ocean modeling for the western north Atlantic in support of building an Integrated Ocean Observation System”. He also met the Director and other faculty members (March 24–26, 2008)

MEMORANDA OF UNDERSTANDING SIGNED

1. Universita degli Studi di Roma “La Sapienza”, Italy
2. University of Massachusetts School of Marine Sciences (UMSMS)
3. University of Padova, Italy
4. Ryukoku University, Japan
5. Friedrich-Alexander University Erlangen-Nuremberg
6. L.C. Smith College of Engineering and Computer Science, Syracuse, USA
7. Gwangju Institute of Science & Technology, Republic of Korea
8. Graduate Institute of Ferrous Technology (GIFT) University of Science and Technology, Pohang, South Korea
9. Chosun University, Republic of Korea

INTERNATIONAL VISITORS

1. Delegation of Royal University of Bhutan September 27, 2007
2. Delegation from TOTAL, Institute of Petroleum, France and Spenta Consultants Pvt. Ltd., Indian agent of TOTAL October 04–05, 2007
3. French delegation from Nplusi Engineering Institute Paris, France November 15, 2007
4. Prof. Kazuhiko Hasegawa, Dept. of OE&NA, Osaka University, Japan November 22, 2007
5. Prof. Jerry Y. S. Lin, Professor & Interim chair, Dept. of Chemical Engineering, Arizona State University, USA December 18, 2007
6. Delegation from Leibniz University, Hannover, Germany February 05, 2008
7. Delegation from Lulea University of Technology, Sweden February 07–09, 2008

8. Delegation from University of Saskatchewan, Canada February 12–14, 2008
9. Delegation from National University of Singapore February 21–22, 2008
10. Delegation from Sterling Group of Academic Institution, United Kingdom February 22, 2008
11. Prof. Ms. Merget Blank-Bewersdoff, University of Applied Sciences Hof., Germany February 26–28, 2008
12. Delegation from National Institute for Material Science (NIMS), Japan March 17, 2008
13. Prof. Cauligi S. Raghavendra, Associate Dean, accompanied by Prof. Priya Vashishta and Prof. Rajiv Kalia, University of Southern California March 18–19, 2008
14. Prof. Rosalyn S. Hobson, Associate Dean, Virginia Commonwealth University March 19–20, 2008
15. Delegation from European Union, led by the alumnus Mr. Sharad Tripathi, President, IIT EU Alumni Association, with representatives from EADS, IOSIS, AREVA, FLUIDYN March 31, 2008

ADVANCED TECHNOLOGY DEVELOPMENT CENTRE

CHAIRMAN : **Professor Santiram Kal (Upto December 31, 2007)**
 Professor Partha Pratim Chakrabarti (From January 01, 2007)

FACULTY ASSOCIATED

Professor :

Chakrabarti, P. P. Computer Sci. & Engg.	Ph.D., Artificial Intelligence, CAD for VLSI Design of Algorithms, Formal Verification
Lahiri, S. K. Advisor, SRIC	Ph.D., Microelectronics, VLSI, MEMS, Integrated optics
Sengupta, S. Electronics & ECE	Ph.D., Computer vision, Multimedia
Patra, A. Electrical Engineering	Ph.D., VLSI Design of Power Converters, Industrial Information Technology
Basu, A. Computer Sci. & Engg.	Ph.D., Embedded Systems, Artificial Intelligence application
Banerjee, S. Electrical Engineering	Ph.D., Bifurcation Theory, Chaos, Nonlinear Dynamics
Roy, S. K. Physics & Meteorology	Ph.D., Solid State Physics, thin film, nanotechnology
Pal, S. P. Computer Sci. & Engg.	Ph.D., Computational geometry, Design and analysis of algorithms
Manna, I. Metallurgical & Materials Engg.	Ph.D., Corrosion and Surface Protection, Phase Transformation, Nano-cermet, Physical Metallurgy, Surface Engineering, Wear of Metals
Bhattacharya, S. Civil Engineering	Ph.D., Structural Engineering
Ghosh, A. Biotechnology	Ph.D., Virology and Molecular Biology
Basak, A. Chemistry	Ph.D., Bioorganic Chemistry
Dey, S. Biotechnology	Ph.D., Microbial and Plant Biotechnology

Assistant Professor :

Bhattacharyya, T. K. Electronics & ECE	Ph.D., Microelectronics, VLSI, MEMS.
Dhar, A. Physics & Meteorology	Ph.D., Condensed matter Physics, nanotechnology
Das, S. Medical Science & Technology	Ph.D., MEMS and Microsystems including Bio-MEMS and Bio-Transducers, Microelectronic devices, Medical Instrumentation and Medical chip design.

Senior Scientific Officer :

**Gangopadhyay,
Pranabendu**

Ph.D., Photonics, Optical Metrology, Optical Materials,
MOEMS, Microelectronics.

LABORATORIES INVOLVED IN ATDC

- i) Microelectronics Laboratory
- ii) MEMS Design Centre
- iii) Integrated Optics Laboratory
- iv) Kalpana Chawla Space Technology Cell
- v) Microscience Laboratory
- vi) Advanced VLSI Laboratory
- vii) Advanced Laboratory for Plant and Genetic Engineering
- viii) Communication Empowerment Laboratory
- ix) Optel-IIT Fiber-Optic Center

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Micromachining and MEMS are one of the major areas of research at Advanced Technology Development Centre. In addition to that, the fabrication of silicon and non silicon based microelectronic devices and ICs are also focused area of research at different laboratories under ATDC. Several government departments including NPSM/ADA, ISRO, DRDO, DST and BARC have funded projects to develop microsensors for special applications. During the last one year the MEMS devices developed in the laboratory include silicon piezoresistive accelerometer and microthruster and flow sensors. The technology for fabrication of silicon accelerometer has been transferred to Semiconductor Complex Limited, Chandigarh. Activities have been started on development of high sensitive MEMS accelerometer based on quantum tunneling phenomena and silicon MEMS pressure sensor. The MEMS design laboratory, a national facility created under NPSM programme is actively involved with design work on MEMS including microfluidic devices. A number of students from various departments like ATDC, E&ECE, Electrical, Mechanical, Biotechnology, Material Science Department / Centre are involved in the Design Centre to do their project / thesis works. Other academic Institutions like Jadavpur University and CMERI, Durgapur, are also involved in the Design Centre. Research and development is also undertaken in the field of Integrated Optics. An integrated-optic design software have been developed and copyrighted. Fabrication and characterization of titanium indiffused lithium niobate waveguides, directional couplers, power splitters, switches for fiber-optic communication networks have been performed.

Research is being carried out on thin film nanostructures, semiconductor, ferroelectric and magneto-resistive films for microelectronics and sensor applications under various government sponsored projects at MicroScience Laboratory of Dept. of Physics & Meteorology. A number of thrust areas have now emerged based on core competency available in the Advanced VLSI Laboratory. These include analog and RF circuits, wireless communication and Baseband processing, direct conversion receivers, power management circuits, processors and IP cores for embedded applications and design for testability. More

than 30 different chips have been fabricated and tested. Collaborative research is going on with many industries like National Semiconductors, Sun, Synopsys and Intel. The laboratory also offers regular intensive training to students of IIT Kharagpur. Buoyed by these initial successes, the laboratory is striving to attain still higher levels of excellence. Research directions are diversifying to new areas of mixed-signal SOCs, IP cores for embedded applications and analog DFT. Existing expertise on formal verification and optimization methods is being applied to design verification, synthesis and CAD Tool development for the deep sub-micron processes. More than fifty Doctoral and Masters students are working on various emerging areas. The Centre for Theoretical Studies (CTS) is primarily engaged to generate and nucleate theoretical research on fundamental aspects of basic and engineering sciences.

The Advanced Laboratory for Plant Genetic Engineering is dedicated to develop technologies suitable to enhance the productivity potential of some of our major crop plants through biotechnological approach. The laboratory has met with some success in identifying specific genetic elements associated with fiber development in jute stem through functional genomic approach. Additionally, attempts to map the individual seven linkage groups of jute are underway. Discovery of certain plant genes and regulatory elements involved in the metabolic pathway of fatty acid synthesis and modification of their functional role in case of synthesis of seed oil of Indian mustard (*Brassica juncea*), are in active state of pursuit. Additionally, attempts have been initiated to genetically tamper the lignin biosynthetic pathway in vegetative parts of jute and sorghum plants by anti-sense approach. Major attempts have also been made in strategy development for generation of genetically modified crop plants resistant against insect pests belonging to lepidoptera, coleoptera and homoptera. Some success could be attained in case of cotton, Brassica and rice. Discovery of novel insecticidal genes from plants and bacteria and generation of transgenic crop plants expressing these insecticidal genes have been accomplished. Attention has also been directed towards development of efficient transformation methods for certain recalcitrant crop plants that have not yet been accessible to gene transfer methodologies. Further, development of marker free transgenic plant generation and site-specific integration of transferred DNA have figured as major targets of activities in order to enhance the efficacies of gene transfer techniques to a great height. The laboratory has also developed a microbial bioprocess technology using the state of the art of bio-film technology for high through-put production of superior quality of jute fibers. The technique reduces production time by ~70% and results significantly low effluents and green house gases. The process thus developed is safe for human handling and offers excellent quality control ensuing at least 2-3 grades better fiber quality against methods that are in use by the jute growers. Further, attempts to explore the possibilities for generation of jute fiber based bio-composites have also been initiated. The laboratory is further working on microbial bio-film based technology for high through-put production of specific carbohydrate macerating enzymes that carries industrial significance.

Thrust Areas :

- i) Inertial MEMS
- ii) Micro Sensors and actuators for automobile, space, and defense applications
- iii) Bio-MEMS
- iv) Semiconductor devices
- v) Nanotechnology
- vi) Lithium niobate integrated optics
- vii) Astrophysics

- viii) Cosmology
- ix) Nonlinear Sciences
- x) Theoretical condensed matter physics
- xi) Wireless communication and Baseband processing
- xii) Analog and RF circuits
- xiii) Plant biotechnology

New Acquisitions :

- i) MEMS vaporising liquid microthruster
- ii) MEMS flow sensors
- iii) Integrated-optic switch
- iv) MEMS accelerometer for aircraft motion sensing
- v) Wafer aligner and substrate bonding machine for MEMS packaging
- vi) LPCVD Furnace
- vii) Tempress Systems
- viii) Infrared Camera for Integrated-Optic applications

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Duration
1.	Indo-US Joint Centre on Advanced and Futuristic Manufacturing	Indo-US Science & Technology Forum	Ongoing
2.	Development of Silicon Microsensors for Flow Measurement	MHRD, New Delhi	Ongoing
3.	Design, analysis and optimization of navigation grade silicon based MEMS accelerometer	ISRO-KCSTC Cell	Ongoing
4.	MEMS technology for micromechined silicon microsensor.	DRDO	2002 – 2007
5.	Nanoscience and Technology – Mission oriented project	IIT Kharagpur	2003 – 2007
6.	Complex engineering – Mission project	IIT Kharagpur	2003 – 2007
7.	Indo-US joint centre on advanced and futuristic manufacturing	Indo-US Science & Technology Forum	2006 – 2008
8.	MEMS based micro-propulsion devices for micro-satellite programme	ISRO	2007 – 2010
9.	Multi-scale modeling to study the role of atomic scale defects in CNT-based nanocomposites	DST, New Delhi	2007 – 2009
10.	Effects of non-linearity and viscoelasticity of blood and wall tissues and magnetohydrodynamic effects on the flow field in arteries in normal and	CSIR, New Delhi	2006 – 2009

	pathological states		
11.	Kinematics of flows in diverse contexts	DST, New Delhi	2006 – 2009
12.	Measuring the HI power spectrum with the GMRT	BRNS, DAE, Mumbai	2007 – 2010
13.	Targeted gene integration in rice and cotton	ICAR, New Delhi	On-going
14.	Establishment of independence of Linkage Groups of jute through trisomic analysis in order to construct the genetical and physical map of jute genome.	DBT, New Delhi	On-going
15.	Application of technology for tomato hybrid seed industry involving rural women for employment and income generation	DST, New Delhi	On-going
16.	Recombinant DNA for development of a male-sterility system in jute.	DBT, New Delhi	On-going
17.	Generation and cataloguing of bast fibre developmental stage specific EST library from jute	DBT, New Delhi	On-going
18.	Design and fabrication of high sensitivity micro machined silicon tunneling accelerometer with micro-g resolution	ISRO, Bangalore	On-going

Consultancy Projects :

#	Title of the Project	Sponsor(s)	Duration
1.	Development of Fast Bipolar ASIC Chips	BARC, Mumbai	On-going
2.	Development and realization of high Q-factor quartz double ended tuning forks using micromachining technology	ISRO-IISU	On-going
3.	Development of ADC and Receiver for wireless applications	Si2 Microsystems	On-going
4.	Design of RFIC modules	National Semiconductor Corporation, USA	On-going

VISITS ABROAD BY FACULTY MEMBER

1.	Prof. S. Kal	ITC-irst, Trento, Italy, May 2007
2.	Prof. S. Kal	University of Illinois at Urbana-Champaign, USA, June-July 2007
3.	Prof. S. K. Ray	Visiting Professor (Tokyo Institute of Technology) May-June 2007
3.	Prof. S. K. Ray	Visiting Professor (National University of Singapore) July 03, 2007

4. Dr. T. K. Bhattacharyya DST / JSPS Project work (University of Tokyo, Japan) 4 days

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. S. Kal MEMS inertial sensors for Avonics and Space Applications, Workshop on MEMS and MICROSYSTEMS (May 28 – June 02, 2007) (IIT Kharagpur)
2. Prof. S. K. Ray Semiconductor Nanostructures (May 10, 2007) (Tokyo Institute of Technology)
3. Prof. S. K. Ray Ge nanostructures for electronic & optical devices (April 30, 2007) (CAT, Indore)
4. Prof. S. K. Ray Nanostructured Semiconductors, Recent Trends in Nanotechnology (April 29, 2007) (SGITS, Indore)
5. Prof. S. Das Quartz micromachining for MEMS applications, and Development of silicon microthruster for micro-satellite application, Workshop on MEMS and MICROSYSTEMS (May 28 – June 02, 2007) (IIT Kharagpur)
6. Dr. P. Gangopadhyay Lithium niobate integrated optics : modeling and experiments, Workshop on MEMS and MICROSYSTEMS (May 28 – June 02, 2007) (IIT Kharagpur)
7. Dr. P. Gangopadhyay and Prof. S. K. Lahiri LiNbO₃ integrated optics : modeling, simulation, and experiments, Workshop on Physics & Technology of All-Optical Communication Components and Devices, (October 11–16, 2007) (IIT Kharagpur)
8. Prof. S. K. Lahiri IOSIMM : A simulator for integrated-optic waveguides and components in OICs”, National Workshop on Advanced Optoelectronic Materials and Devices AOMD-2007 (BHU, Baranasi)

LECTURE BY VISITING EXPERT

1. Prof. Y. B. Gianchandani University of Michigan, Ann Arbor USA
Microsystem research at Michigan University

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Prof. Sudebkumar P. Pal	Quantum Information,	Allied Publishers	2007

and Prof. Somesh
Kumar

Computation and
Communication

Private Ltd.

PATENTS GRANTED

1. A patent application on “The technology which leads to improved production of bast fibers using bacterial biofilm” is presently placed on the “Technologies Developed” Web-portal of IIT Kharagpur

LAURELS & DISTINCTIONS

1. Dr. P. Gangopadhyay Royal Society Incoming Fellowship to UK

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. QIP Workshop on MEMS and MICROSYSTEMS held at IIT Kharagpur campus May 28 – June 02, 2007

ADDITIONAL INFORMATION

Collaborative Efforts :

1. A joint collaboration research project on "Development of micromechanical inertial and flow sensors for environmental / biomedical application", sponsored by Department of Science & Technology, Government of India in going on under an Indo-Italian research programme (ITPAR). Collaborating Institute - ITC - irst. Trento, Italy
2. A Proposal on "Indo-US centre for advanced and futuristic manufacturing" has been submitted by IIT Kharagpur to Indo-US Science and Technology forum. Under this proposal Advanced Technology Development Centre, IIT Kharagpur will be a partner institution

Submitted Chips from Advanced VLSI Laboratory :

KGPIFS1	Debashis Mandal and Prof. T. K. Bhattacharyya	Integer N Frequency Synthesizer (Phase-II)
KGPIFS2	Debashis Mandal and Prof. T. K. Bhattacharyya	Integer N Frequency Synthesizer (Phase-III)
KGPHFOPAMP	Amal Kundu, Debashis Mandal and Prof. T. K. Bhattacharyya	UWB OPAMP (Phase-II), High capacitive load drive OPAMP
KGPLPRX	Ashudeb Dutta, Prabir Saha, Debashis Mandal and Prof. T. K. Bhattacharyya	1 Volt Radio receiver system
KG PQVCO	Prabir Saha and Prof. T. K. Bhattacharyya	1V Quadrature VCO
KGPHFSA	Ashis Maity and Prof. Amit Patra	High frequency Buck Converter

KGPHFSB	Ashis Maity and Prof. Amit Patra	High frequency Buck Converter
KGPHFSC	Ashis Maity and Prof. Amit Patra	High frequency Buck Converter
KGPEMC	Rupam Mukherjee and Prof. Soumitra Banerjee	Choas Modulated Clock Generator, DC DC Converter
KGPADC07	Sounak Roy, Sanjay Kr. Dey, Santunu Sarkar, and Prof. Swapna Banerjee	Blocks of pipeline ADC
KGPLLQVI	Sourav Bannerjee and Prof. Pradip Mandal	Transimpedance amplifier & Equalizer for opt. Fiber
ICPO15	Sougata Kr. Kar, S. Pandit and Prof. S. Sen	ASIC for capacitive acceteroneter
ICPO16	Sougata Kr. Kar, S.Pandit and Prof. S. Sen	ASIC for capacitive acceteroneter
KGPMEMS01	Sougata Kr. Kar and Prof. S. Sen	ASIC for capacitive acceteroneter
IPC020	Pradipta Patra and Prof. Amit Patra	Quad OPAMP
IPC023	Pradipta Patra and Prof. Amit Patra	Quad Comparator
KGPSIMO	Pradipta Patra and Prof. Amit Patra	Single inductor triple output buck converter
KGPIIND1	Sharmistha Dey, Sushanta Mandal and Prof. T. K. Bhattacharyya	For measurement of inductor Characteristics
KGPOPAMP	Amal Kundu and Prof. T. K. Bhattacharyya	Test chip for differential OPAMP
UTKARSH2	Pawan Gupta and Prof. Amit Patra	Energy Based Boost Converter

COMPUTER & INFORMATICS CENTRE

HEAD : Professor Prabir Kumar Biswas

Officer :

Nanda, Dilip Kumar	M.Sc., DIIT, Ph.D. (IIT Kharagpur), Numerical Techniques, System Software
Goswami, Partha	B.Tech., M.Tech. (IIT Kharagpur), Networking
Singh, Pramod Kumar (on lien)	B.Tech., M.Tech. (IIT Kharagpur), Networking
Roy, Devshri	B.Tech., M.Tech., Ph.D. (IIT Kharagpur), Artificial Intelligence, DBMS
Dutta, Bimal Kanti	M.Sc., PGDCS (Roorkee University), DBMS, Operating System, Design and Analysis of Algorithms, Computer Networks, Distributed DBMS & Graphics Programming.
Das, Surid Kumar	B.Tech., M.Tech. (Rajasthan Vidyapith Deemed University), Hardware specialist, Networking
Chattopadhyay, A.	M.Sc. (Sagar University), Networking
Das, Sudipto	B.Tech., M.Tech. (Rajasthan Vidyapith Deemed University), Networking

FACILITIES

(i) Internet Facility

For Internet access and email access Internet Bandwidth (Terrestrial) services of 16 Mbps dedicated and 32 Mbps (1:4) shared terrestrial as well as 8 Mbps dedicated satellite link are available for the users to serve the heavy bandwidth demand at IIT Kharagpur. Two STM1 links with high bandwidth is being planned by the Institute which will be operational shortly. The Institute has two registered domains iitkgp.ernet.in and iitkgp.ac.in for Internet service redundancy. The Institute has its own public IP address blocks obtained from APNIC.

(ii) Network Facility

The Computer and Informatics center continues to perform as the centre of the institute network. The CIC administers and maintains this network. All the Departments / Centers / Schools are connected to this network by edge switches and are configured as separate VLAN's. All the Halls of Residences are also connected to the Institute via a dedicated distribution switch and every room is provided with a data outlet.

(iii) Access from the Residential Campus

The faculty and staff members can use the Internet and Intranet facility from their residences through PPP (Point to Point Protocol) servers. The data transfer is through

the IIT's telephone exchange so the data speed is restricted to the voice cable data rate. In addition, ADSL modems are also used in residences of the Institute campus to access the Internet facility.

(iv) Computational Facility

CIC has now added one more PC Laboratory to the two existing laboratories. This is in view of the increase in number of students as well to cater to more number of laboratories per week. All three laboratories are fully equipped with the latest teaching aids and a seating capacity of around 110 seats each. CIC also provided laboratories with smaller student strengths. The Centre also has a Terminal Server Room which can support about 40 terminals and are served by High End Servers. The Center's Work Station Laboratory is also available for research scholars of the Institute. Servers available in the Centre are connected to the Institute LAN and the users can work from any corner of the academic campus. CIC also provides computational servers to the students with specific hardware and software requirement for their research.

CONTINUING EDUCATION CENTRE

DEAN : **Professor Bani Chatterjee (01-04-2007 to 30-09-2007)**
 Professor Ajay Chakrabarty (01-10-2007 till date)

FACILITIES

(a) Equipments

- (i) High luminosity overhead projectors.
- (ii) LCD Panel for multimedia projection.
- (iii) 3M Multimedia Projector.
- (iv) Shure cordless microphone and transmitter/receiver set.
- (v) Ahuja tape recorder and public address system.

(b) Software

- (i) Distance Education Database (from International Centre for Distant Learning)
- (ii) KOMPASS Industrial Directory of India giving details of over 60,000 companies
- (iii) Macromedia Authorware (4.0.6 licences)
- (iv) Adobe Photoshop - graphics package
- (v) Microsoft Front Page Express - for Web page development
- (vi) Microsoft Office 2000 Professional
- (vii) Microsoft Windows 2000 Professional
- (viii) Microsoft Windows 2000 Server with terminal server facility
- (ix) Norton Antivirus 5.0 for Windows 95/98/NT, Norton System Works 2000 for Windows 95/98
- (x) ALGOR FEM package for stress fluid flow and electrostatic field analysis

PARTICULARS OF M.TECH AND PH.D SCHOLARS JOINED / COMPLETED :

(i)	No. of Teachers completed Ph.D degree	:	24
(ii)	No. of Teachers completed M.Tech programme	:	14
(iii)	No. of Teachers joined Ph.D programme	:	15
(iv)	No. of Teachers taking advance admission to Ph.D programme	:	21
(v)	No. of Teachers joined M.Tech. programme	:	14

CD CELL ACTIVITIES

(i)	Manuscripts for text books completed	:	1
(ii)	No. of Text books approved	:	5

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

(i)	QIP Short Term Courses	:	10
(ii)	Total No. of participants (QIP)	:	297

1.	Purvodaya : Ascent of the East (National Conclave)	April 07–08, 2007
2.	Fabrication, repair & Installation of Non-Conventional Rural Energy Devices	April 10 – June 08, 2007
3.	Workshop on Filament Winding Technology	April 12–13, 2007
4.	Early Software Reliability Prediction	April 18–20, 2007
5.	Small Industries Management Programme (SIMAP)	April 23–27, 2007
6.	Wireless Communications & Networks	May 14–19, 2007
7.	Dechlorophyllation of Betel Leaves	May 21 – July 20, 2007
8.	Computer Network Management	May 21 – June 12, 2007
9.	MEMS And Microsystems	May 28 – June 02, 2007
10.	Short Term Course on C++ & Java	May 28 – June 15, 2007
11.	DSP Tools & Practice	June 04–09, 2007
12.	Training Programme on Materials Management for Probationary Officers of Indian Railway Stores Services (IRSS)	June 11 – July 04, 2007
13.	Computer Network Management	June 15 – July 09, 2007
14.	Agro Service through Modern Agricultural Technologies	June 18 – August 31, 2007
15.	Advanced Training in Agricultural Engineering (ATAE-07)	June 25 – July 15, 2007
16.	Embadded System & Technology	June 25–30, 2007
17.	Reliability Aspects of Space Technology	July 02–07, 2007
18.	Microwave & EMI Measurement	July 09–20, 2007
19.	German Language (A Crash Course)	July 09–29, 2007
20.	Effective Communication & Presentation Skills	July 15–19, 2007
21.	Academic Program on Aircraft Engineering, Avoinics & Manufacturing Technology	July 19 – November 30, 2007
22.	Decortication of Bahera	July 23 – September 22, 2007
23.	Information Technology	July 27 – August 19, 2007
24.	Oracle SQL & PL / SQL 10g	July 30 – August 14, 2007
25.	Hazardous & Solid Waste Management	August 12–18, 2007
26.	Stock Market, Investments and Derivatives	September 01–02, 2007
27.	Mines Safety & Legislation	September 03–07, 2007
28.	Modelling of Underwater Body Dynamic	September 08, 2007
29.	Bioinformatics in Genomics and Proteomics	September 21–22, 2007
30.	Dechlorophyllation of Betel Leaves	September 24 – November 11, 2007
31.	Captive Plantation & Processing of Medicinal & Aromatic Plants	September 24 – December 15, 2007
32.	Workshop on Sustainability of Indian Aquaculture Industry	September 28–29, 2007
33.	Polymer Quest 2007	October 01–02, 2007
34.	'Practical Shipbuilding' for newly recruited Officers	October 01–13, 2007
35.	Supply Chain Management	October 03–07, 2007
36.	A Short Term Course on Logic and Applications of Logic	October 08–12, 2007

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| 37. Physics & Technology of All Optical Communication Components and Devices | October 11–16, 2007 |
| 38. GIS Applications | October 28 – November 04, 2007 |
| 39. Communication & Management Essentials | November 02–05, 2007 |
| 40. Chemical Synthesis of Ferroic Ceramics : Understanding on the Structure, Correlations & Industrial Applications | November 05–16, 2007 |
| 41. Vacuum Technology & Process Applications | November 17–27, 2007 |
| 42. Techniques of Hydrocarbon Exploration | November 19–24, 2007 |
| 43. Power System Protection | November 21–23, 2007 |
| 44. Decortication of Bahera | November 26, 2007 – January 25, 2008 |
| 45. Highly Accelerated Reliability Testing | November 27–28, 2007 |
| 46. VLSI Signal Processing | November 29 – December 04, 2007 |
| 47. Plant Layout Facility Planning | December 06–12, 2007 |
| 48. Workshop on Monitoring and Mitigation of Landslide Hazard in NE India | December 07, 2007 |
| 49. Orientation Course for DVC Engineers on Control and Instrumentation | December 10–14, 2007 |
| 50. Quantum Correlation and Quantum Computing | December 11–13, 2007 |
| 51. Cryogenic Air Separation | December 12–20, 2007 |
| 52. Modern Computer Architectures | December 14–16, 2007 |
| 53. Optical And Wireless Networks (OWN) | December 17–22, 2007 |
| 54. Technology CAD For VLSI Design | December 27–29, 2007 |
| 55. Fourth International Conference on “Theoretical, Applied, Computational and Experimental Mechanics” (ICTACEM 2007) | December 27–29, 2007 |
| 56. Academic Programme on Aircraft Engineering, Avionics & Manufacturing Technology for HAL Design Trainees | January 03 – April 30, 2008 |
| 57. Operation & Maintenance of Rural Tools Equipments and Power Machinerics used in Agriculture Industry & Services | January 07 – April 06, 2008 |
| 58. International Conference on “Rubber and Rubber Like Materials” | January 08–10, 2008 |
| 59. Conference on “Advances in Space Science & Technology, 2008” | January 14–16, 2008 |
| 60. International Workshop on “Biohydrogen Technology” | February 07–09, 2008 |
| 61. Real - Time Systems | February 16–20, 2008 |
| 62. Remote Sensing and GIS | February 18 – March 02, 2008 |
| 63. Workshop on “Physics of Warped Extra Dimensions” | February 21–23, 2008 |
| 64. LAN & Networking | February 22 – March 16, 2008 |
| 65. Recent Trends in Human Resources Development | February 25–29, 2008 |
| 66. Fabrication, Repairs & Installation of Non-Conventional Rural & Energy devices | March 03 – April 30, 2008 |

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| 67. Organic Farming For Sustainable Agriculture | March 17–31, 2008 |
| 68. Training on “STATCOM & FPGA” | March 18–20, 2008 |
| 69. COMPOSIT – 2008 | March 29–30, 2008 |
| 70. Industrial Safety Engineering | March 31 – June 20, 2008 |

CENTRAL RESEARCH FACILITY

CHAIRMAN : **Professor Indranil Manna**

FACULTY ASSOCIATED

Prof. A. K. Das	Vice Chairman, Life Science Division
Prof. Rahul Mitra	Vice Chairman, Materials Division
Prof. A. Basak,	In charge, CD Polarimeter
Prof. M. Bhattacharjee	In charge, EPR
Prof. S. K. Srivastava	In charge, ESCA
Prof. S. K. Ghosh / Prof. T. K. Maiti	In charge, FACS
Prof. I. Manna	In charge, FESEM, XRD, HRXRD
Prof. B. Adhikari	In charge, FTIR
Prof. T. K. Nath	In charge, Hall Effect
Prof. R. Banerjee	In charge, HPLC
Prof. Rahul Mitra	In charge, HRTEM
Prof. K. K. Ray	In charge, UTM (Instron)
Prof. A. K. Das	In charge, MALDI
Prof. S. Roy	In charge, Mass Spectrometer
Prof. S. B. Singh	In charge, OES
Prof. J. Dutta Majumder	
Prof. B. K. Dhindaw	In charge, Optical Microscopy
Prof. P. K. Datta / Prof. P. Roy Chowdhury	In charge, Optical Fibre
Prof. A. K. Ghosh	In charge, PCR, 2-D Gel. DNA Sequencer
Prof. M. Chakraborty	In charge, SEM
Prof. R. Mitra	
Prof. C. Jacob	In charge, SPM
Prof. S. Das	In charge, TEM
Prof. K. Das	In charge, Thermal Analysis
Prof. S. H. Dey	In charge, LC-MS / MS

Senior Scientific Officer :

Datta, Amal Kumar	Ph.D. (IIT Kharagpur), Experimental & theoretical condensed matter Physics.
Maiti, Rabindranath	Ph.D. (IIT Kanpur), Inorganic Chemistry, Scanning Electron Microscopy and Metal Matrix Composites.

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

DNA sequencer; Real time Polymeric Cyclic Reaction (PCR) analyzer, 2-dimensional gel electrophoresis :

1. Sequencing DNA Samples provided by different investigators in automated DNA

sequencer

2. Analyzing gene expression in different tissue sample by Real time PCR machine
3. Analyzing Protein samples by 2-D Gel electrophoresis system.

FACS : The instrument Fluorescence Activated Cell Shorter (FACS) is extensively used by the faculties and research scholars of Depart of Biotechnology and Medical Science & Technology, for cell cycle analysis, immune cell profiling, quantitation of various cytokines by bead array method.

FE-SEM Lab : This unit, purchased from a DST project under NSTI, has added a new dimension of microstructural analysis with nanometric resolution in bulk samples and surfaces without necessitating electron transparent thin foil preparation. This SEM is regularly used for microstructural studies of nano-structured materials, bulk alloys, thin films and powders (microstructure, micro-composition of phases, grain size, crystal and micro-defects in metallic, intermetallic, polymer and ceramic samples including composites. In addition, it is possible to carry out orientation imaging of crystallites by electron back scattered diffraction analysis. Beneficiaries include Departments of Biotechnology, Chemistry, Physics, Chemical Engineering, Cryogenic Engineering, Electronics and Electrical Communication Engineering, Electrical Engineering, Geology, Mechanical Engineering, Metallurgical and Materials Engineering, Materials Science Centre, Rubber Technology Centre, and many more. The external users include the other educational institutes, R&D laboratories and industries. A large number of publications, as well as Ph.D., M.Tech and B.Tech theses have come out with contributions from this FESEM.

FTIR Lab : FTIR analysis of different samples in powder, liquid and also film form in MID IR and FAR IR range, also some samples above ambient temperature is done by our institute students and faculties, also outside institute and industries.

Hall Effect : We have been investigating electronic-, magneto - transport and magnetic behavior of half -metallic highly spin polarized nanostructured colossal magnetoresistive (CMR) manganite magnetic oxides, doped CMR manganites, magnetic and optical properties of diluted magnetic semiconducting SPINTRONIC oxides ZnO:Mn/Ni/Fe/Co on (0001) Al₂O₃, Fe-rich soft ferromagnetic metallic glasses for low field GMI sensor applications, Nanostructured Ni-Zn, Co-Zn ferrites for high frequency sensor applications, Magnetic, electronic transport, Hall resistivity and anomalous Hall effect studies in epitaxial Ni nanoparticles embedded in metallic matrix, electronic transport, orbital ordering, magnetic anisotropy, magnetization behavior and effect of substrates structural transformation on 3-dimesinal lattice strain of epitaxially grown tensile and compressively strained 500 Å LCMO, LSMO CMR manganites films on single crystalline (001) BaTiO₃, SrTiO₃, LaAlO₃, NdGaO₃ and LaSrAlTiO₃ (001) substrates.

HPLC : The HPLC is equipped with Variable Wavelength Detector and Diode Array Detector which enables it to identify and quantify a wide range of biochemicals and various biomolecules such as peptides, proteins, sugars, phenolics etc. The available preparative columns (in addition to a wide range of nalyticalolumns) can be effectively employed for purification of compound for preparative purposes.

HRTEM Lab : The machine is routinely used for research on nano-structured materials, including bulk alloys, thin films and powders. In addition, it is used for identification and composition of phases, measurement of grain size, and to study line defects and stacking

faults in metallic, intermetallic and ceramic samples, as well as composites. In addition, it is possible to study phase transitions at low temperatures using the specimen holder operating at the liquid nitrogen temperature. The users of the HRTEM from IIT, Kharagpur include the students and faculty members of the departments of our institute include Biotechnology, Chemistry, Chemical Engineering, Cryogenic Engineering, Electronics and Electrical Communication Engineering, Electrical Engineering, Geology, Mechanical Engineering, Metallurgical and Materials Engineering, Materials Science Centre, Rubber Technology Centre, Physics, and so on. The external users include the other educational institutes, R&D laboratories and industries. The projects associated with the equipment are based on aluminium alloys, steels, composites, Biomaterials, Nanostructured materials, steel, intermetallics, Rubber and polymer based composites, Ceramic materials, Electronic Materials, etc. The laboratory has received and executed orders for study of a large number of samples from RDCIS, SAIL, Ranchi. A large number of publications, as well as Ph.D., M.Tech and B.Tech theses have come out with contributions from HRTEM laboratory.

LC-MS/MS : Isolation and characterisation of novel bioactive phytomedicinal compounds.

MALDI-ToF :

1. Biomarker identification of various bacteria using MALDI-ToF mass spectrometry
2. Crystal structure determination of proteins from pathogenic organisms.

OES Lab : Optical emission spectroscopy is used for chemical analysis of ferrous and non ferrous alloys within very short period (30 seconds). The samples analysed are predominantly, alloys used for research purpose in various Departments/Centres within IIT Kharagpur. Capability of the instrument in rapid simultaneous analysis of up to sixty elements fulfils the requirements of many facets of the metal industry, from production control to R&D or from incoming material inspection to scrap sorting.

Optical Fiber Lab : Photonic Crystal fiber design, fabrication and characterization for application as photonic components and devices.

Scanning Electron Microscope (SEM) Lab : The SEM laboratory is equipped with the JEOL JSM-5800 Scanning Microscope, OXFORD ISIS-300 EDS microanalytical system and DENTON VAC gold sputter coater unit. It is one of the most useful instruments for the people working with the surface and interface characterization of materials in particular. The students and faculties of various departments of the institute involved in materials research has been extensively used the instrument during last one year. The external users from various educational institutes, R&D laboratories and industries from different parts of the country, also have utilized the facility for their research work with satisfaction.

The projects associated with the instrument are aluminium alloys, In-situ composites, failure analysis of materials, Biomaterials, Nanostructured materials, Microalloyed steel, Laser surface alloying, Cutting tool materials, Functionally graded materials, Intermetallics, Rubber and polymer based composites, Ceramic materials etc.

SPM Lab : The Scanning Probe Microscopy (SPM) Lab is being used to analyze materials on a microscopic and nanoscopic scale to determine surface morphology, phase separation, etc. All kinds of materials, ranging from metals to semiconductors to polymers are studied here.

TEM and TEM Sample Preparation Lab : Work is in progress on pulsed Co-electrode position.

Thermal Analysis : Thermal analysis is one of the most basic characterization tool and is often used to study degradation of materials, reaction mechanisms and phase transformations in materials, etc. In our thermal analysis laboratory, we have one Differential Scanning Calorimeter (DSC), one Thermo-gravimetric and Differential Thermal Analyzer (TG-DTA) and one Thermo Mechanical Analyzer (TMA). The DSC is being extensively used to study the thermal stability of nanocomposites, glass transition temperatures of polymeric materials, and curing of polymeric materials. The recent works of significance done with the TG-DTA system include the evaluation of thermal stability of polymer nano composites, TG studies on the calcinations of aqueous combustion synthesized metal oxide powders, analysis of reactions towards formation of new ceramic compounds, effect of mechanical milling on the reaction onset temperature of aluminum based nano composites, etc. The TMA is being used to study the sintering behaviour of nano composite materials as well as to determine the thermal expansion coefficients of composite materials.

XRD LABORATORY : X-Pert Pro PW 3040/60 (High Resolution) and PW1710 : The Philips PW1710 X-Ray diffractometer has provided continuous service to the internal (within IIT) and external users for diffraction analysis of metallic, ceramic and polymeric samples to identify the phases and their distribution, determine volume fraction of the phases, monitor phase transition and evaluation and evaluate normal residual stress, phase evaluation studies in nanocrystalline and amorphous products have yielded the most interesting series of results from the work carried out in this laboratory in the past one year.

The Panalytical X-Pert Pro PW 3040/60 High Resolution-I and High Resolution-II X-Ray diffractometer has also provided continuous service to the internal (within IIT) and external users. Normal phase analysis with X'Celerator, monitor phase transition and evaluation and evaluate normal residual stress, Texture, Thinfilm (GIXRD) and Phase transformation at High Temperature, phase evaluation studies in nanocrystalline and amorphous products have yielded the most interesting series of results from the work carried out in this laboratory in the past one year.

Thrust Areas :

1. Microstructural and micro-compositional analysis
2. Molecular Biophysics and Biotechnology
3. Silica optical fiber preform and drawing
4. Nanoparticles and composites, Nanostructured Materials
5. Bioprospecting (LC-MS/MS)
6. Identification and quantification of different biomolecules such as peptides, carbohydrates, phenolics and vitamins.
7. (Hall Effect)) SPINTRONICS, CMR, TMR, GMR Nanostructured highly spin polarized Magnetic oxides, Nanostructured Ni-Zn, Co-Zn Ferrites, Nanostructured Fe-rich soft ferromagnets for Giant Magneto-impedance low magnetic field sensor applications.

New Acquisitions :

1. MALDI: Protein crystallography facility

2. LC-MS/MS (MICROMASS QUATTRO MICRO, WATERS)

ADDITIONAL INFORMATION

Consultancy Projects :

XRD Lab. : Consultancy work from several industries, universities and research organization like Vidyasagar University; Department of Central Mechanical Engineering Research Institute (CMERI), Durgapur, Central Institute of Plastics Engineering and Technology (CIPET), Bhubaneswar, Utkal University, Visvabharati University, Shantiniketan and was undertaken by the XRD Lab, CRF, IIT Kharagpur.

Service Rendered to Other Organizations :

HRTEM : SAIL R&D, IACS Kolkata, VSSC Trivandrum, SN Bose Institute Kolkata, IIT Guwahati, IIT Kanpur, BESU Shibpur, Jadavpur University Kolkata, Vidyasagar University, etc.

SEM : IIT Roorkee, IACS Calcutta, ISM Dhanbad, NML Jamshedpur, BIT Meshra, NIT Durgapur, Vidyasagar university, Ravenshaw college and Cochin university of science and Technology.

CENTRAL LIBRARY

CHAIRMAN : Professor Sadananda Sahu

Librarian

Sutradhar, B. Ph.D., M.Sc., M.L.I.Sc., CCA

Deputy Librarian :

Ratnasamy, M. M.L.I.Sc., PGDCA

Pusty, J. N. M.L.I.Sc, M.Com.

Assistant Librarian :

Shankar, Uma M.L.I.Sc., M.A.

Mazumdar, Kamal M.L.I.Sc., B.Com.

Pathak, S. K. Ph.D, M.L.I.Sc., M.Sc., M.A., DCA

Mohapatra, P. K. M.L.I.Sc, M.A.

Nandi, Atin M.L.I.Sc, M.Sc., DCO

APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Appointment :

Dr. B. Sutradhar

Librarian

Mr. J. N. Pusty

Deputy Librarian

Mr. P. K. Mohapatra

Assistant Librarian

Mr. A. Nandi

Assistant Librarian

Retirement :

Mr. M. G. Mandal

Senior Library and Information Officer

Resignation :

Mr. Shri V. K. Jagajeevan

Assistant Librarian

The Central Library is one of the biggest technical libraries in Asia and its web site address is <http://www.library.iitkgp.ernet.in>

DOCUMENT COLLECTIONS :

The Central Library acquired 1369 general books and 1915 text books. It also added 2878 bound volumes of periodicals, besides reprints and annual reports of other universities. The Library subscribes 1054 journals and provides access to over 10000 online full-text journals.

CIRCULATION :

The books circulation activities are fully automated and serve the users consisting of the faculty, research scholars, students and staff. The books circulation service is kept open for 50 hours a week. On the average, the monthly circulation transactions are about 9917. About 39 copies of documents were obtained through Inter-Library Loan.

DIGITAL LIBRARY :

The Digital Library is Kept open for about 14 hours a day and provides access to the following databases:

INSPEC, Elsevier Science Direct, Springer Verlog Link, Proquest, ABI/INFORM, Applied Science & Technology Plus online, IEL Digital Library, ACM Digital Library, ASME, ASCE, EBSCO Databases, Emerald Full Text, Nature Journal, ASTM Standard, Capitaline, SciFinder Scholar, ISI Web of Science, MathSciNet, American Chemical Society e-journals, Circulation, J-Gate Custom Content for Consorita, The Lancet, PNAS Full Text, The New England Journal of Medicine etc.

It also provides access to Video-Courses which contains the lectures delivered by out faculty members. Twice a week the Digital Library organizes User Education Programme so as to train the students to use our digital resources effectively.

INDEST – AICTE Consortium Databases :

The Central Library IIT, Kharagpur is a member of the INDEST Consortium. INDEST membership facilitates the users to access the full text of about 6500 online journals which also include the following: Full Text Databases: a) IEL (IEEE & IEE Electronic Library); b) Elsevier Science Direct; c) Springer Verlag Link; d) ACM Digital Library; e) Proquest's ASTP; and f) ABI/INFORM. Abstracting Databases: a) SciFinder Scholar; b) Compendex; c) INSPEC; d) J-Gate; e) Web of Science; f) MathSciNet etc.

Central Library, IIT Kharagpur has setup an Institutional Repository using open source software 'D-Space'. At present the Institutional Repository has 1000 articles, several question papers, books and theses.

INVITED LECTURES

1. Dr. B. Sutradhar

Invited lecture delivered on "Digital Library Preservation", Sixth Refresher Course of Dynamic Role of Academic Libraries in Digital Era organized by Department of Library and Information Science, University of Calcutta, September, 6-26, 2007

2. Dr. B. Sutradhar
Invited lecture delivered on “Digital Library and Digital Resource Management at Central Library, IIT Kharagpur”, Library connect seminar organized by Elsevier at Bhubaneswar, Orissa, November 23, 2007

BOOK PUBLISHED

#	Name of the Author(s)	Title	Publisher	Year
1.	Dr. S. K. Pathak	An evaluation of Central Library, IIT Kharagpur. Contribution to the book <i>"The successful university library in a developing county"</i>	Main Library, The University of the West Indies, St. Augustine Campus, St. Augustine, Trinidad and Tobago, West Indies.	2008

PARTICIPATION IN CONFERENCE / WORKSHOPS

Dr. B. Sutradhar participated Fifth Annual Workshop and Meet of INDEST-AICTE Consortium organized by Indian Institute of Technology Roorkee during December 27-28, 2007

Mr. P. K. Mohapatra participated in the “International Workshop on Digital preservation of Heritage: Research Issues in Archiving and Retrieval” organized by Indian Institute, Kolkata during October 29-31, 2007.

AWARD

B. Sutradhar, Librarian at Central Library, has been awarded the Ph.D. degree in Library and Information Science by the Vidyasagar University on 20th July 2007 for his thesis entitled “Electronic Information Sources, Services and the possibility of Networking for Resources Sharing in the Libraries of the Indian Institute of Technology : An Evaluation”.

S. K. Pathak, Assistant Librarian at Central Library, has been awarded the Ph.D. degree in Library and Information Science by the University of Pune, Pune on 06th December 2007 for his thesis entitled “Use of Electronic Journals in Astronomy and Astrophysics Libraries in India”.

CENTRAL WORKSHOP & INSTRUMENTS SERVICE SECTION

CHAIRMAN : **Professor Prasanta Kumar Das**

Officer :

Patra, S.	Assistant Workshop Superintendent
Sanyal, A. K.	Engineer

The Central Workshop & Instruments Service Section (CWISS), a unique service centre at IIT Kharagpur was established in 1965 to cater to the fabrication of custom made instruments to sustain the postgraduate and research activity in the Institute.

It is one of the major service sections of the Institute having following units :

1. Mechanical
2. Carpentry
3. Electronics
4. Audio Visual

Apart from executing Work Orders from various Departments / Centers / Sections of the Institute, CWISS also undertakes work orders from outside on cost basis.

(1) MECHANICAL SECTION

Mechanical Section in CWISS comprises Mechanical Fabrication, Mechanical Instrument and Glass Blowing Section.

(a) Mechanical Fabrication Section

It is equipped with various types of machines like CNC Lathe, EDM, Milling, Conventional Lathe, Bench Lathe, Watch Maker's Lathe, Drilling, Shaping Machine, Bench Drill, Bench Shaper, Grinding Machines (Surface, Cylindrical, Pedestal, Belt and Hand operated), Jig Boring and Pantograph Machine, Power Saw, Shearing Machine, Polishing, Bobbing, Press, Arc Welding, Brazing and Soldering, etc.

A new CNC Engraving Machine and CNC Milling Machine are the new addition during the current year which have added a new machining capability to the section.

The Mechanical Fabrication Section caters the service to almost all the departments in IIT for any type of precision and complicated mechanical fabrication or repair with various types of metals.

Last year the Mechanical Section has performed jobs of about 120 work orders comprising of –

- i) Fabrication of different types of Wave Guides
- ii). Fabrication of Film Extruder
- iii) Fabrication of Target holder
- iv) Fabrication of Die-Punches of different sizes
- v) Fabrication of different sizes tensile, Charpy specimens of different materials
- vi) Fabrication of sample holder for wear test
- vii) Fabrication of Flanges, Studs, etc.
- viii) Fabrication of Rack, Pinion & Gears
- ix) Fabrication of Sample for, XRD, X-ray, SEM, test
- x) Fabrication of different attachment for leaser operation
- xi) Fabrication of Micro-channel
- xii) Fabrication of air pollution measuring device
- xiii) Fabrication of Mould with different materials
- xiv) Fabrication of Die-Punch
- xv) Fabrication of Fixture arrangement for wear test
- xvi) Fabrication of powder feed arrangement
- xvii) Fabrication of CBM set-up
- xviii) Fabrication of LVDI holder
- xix) Fabrication of Low volume Aerosol sampler.

(b) Mechanical Instruments Section

Different types of precision mechanical instruments are repaired in this section. Some typical examples include different types of stopwatches, gauges, valve regulators, balances, vacuum pumps, gear pumps, husk cutter, water flow meter, gas flow meter, dial indicator, dial gauge, micrometer, gas regulator, pressure gauge, autoclave, viscometer, various types of equipments and machines used in our Hospital, etc. Fabrication of sample holders of SEM & XRD, fabrication of very precision items etc.

(c) Glass Blowing Section

This Section is equipped with glass blowing lathe, glasscutter, glass grinder, glass annealing chamber, etc. Mainly glass work of Borosilicate glass is done here with the help of oxygen and LPG for Departments, like Chemistry, Biotechnology, Chemical, Cryogenic, Mechanical, Materials Science, Metallurgical Engineering, Agricultural & Food Engineering & Aquaculture, Physics & Meteorology, etc. The main fabrication jobs of this section include different type of condensers, Dewars, different volume capacity F.B, R.B., Flusk with neck joints, manometer, U&S Tubes, glass bubbler, glass coil for oil bath, gas collector, etc. The fabrication of Glass ware items are done as per drawing and design of the equipments. This year this Section has finished about 129 work orders.

(2) CARPENTRY SECTION

Housed in the workshop complex behind Chemical Engineering & Automobile Section, this Section has Auto Planner, Joints Nature's machinery, Vertical Band Saw

and Multipurpose Machine. Apart from carpentry jobs, it does undertake construction of Frames, Hand painting, Spray painting, Polishing of leather writing of name plates, display board & upholstery jobs as students' projects, model for students, Arena etc.

This Section also meets the major requirements of furniture of the Institute. During the year 2007-2008, this section has completed 148 work orders.

Details of some of the work done during period :

i)	Faculty Table	...	21 Nos.
ii)	Office Table	...	03 Nos.
iii)	Computer Table	...	17 Nos.
iv)	Laboratory Table	...	22 Nos.
v)	Working Table	...	12 Nos.
vi)	Book Shelf	...	08 Nos.
vii)	Sign Board	...	19 Nos.
viii)	Wall case	...	04 Nos.
ix)	Model for Students	...	04 Nos.
x)	Notice / Key Board	...	07 Nos.
xi)	Stool / Bench	...	27 Nos.
xii)	Box as per design / Packing	...	09 Nos.
xiii)	Wooden blocks	...	30 Nos.
xiv)	Name & No. Plate & Writing	...	105 Nos.
xv)	Repair of old Table & Chair	...	10 Nos.
xvi)	Models for Kshitij		

(3) ELECTRONICS SECTION

In present day machines electronics plays a major role. Apart from conventional electronics equipments like Oscilloscopes, Signal generator, DC Power supply units, UPS and so on, these are various other machines where electronic control and measurement form an integral part of such machines. Electronics Section gives post warranty service to such machines and equipments spread over almost all departments. The section also has facility for design and fabrication of double sided PCBs using LPKF PCB Prototyping machine.

A list of some of the equipments that were repaired by this section are

i)	DC Power Supply Unit	Materials Science, Physics & Meteorology, Cryogenic Engineering, Central Research Facility, Biotechnology
ii)	Lock-in-Amplifier	Physics & Meteorology
iii)	Weighing Machine	Mining Engineering
iv)	Strain Indicators	Civil Engineering
v)	U. S. Therapy Machine	B. C. Roy Technology Hospital
vi)	Centrifuge	Biotechnology
vii)	P. H. Meter	Biotechnology
viii)	Hotair Oven / Mantle	Geology & Geophysics

ix)	E. D. M. Machine	Mechanical Engineering
x)	Shear Indicator	Civil Engineering
xi)	Stabilizer	Materials Science, Cryogenic Engineering, Mining Engineering, Electronics Electrical Communication Engineering
xii)	Standerdization of Adom 4011 card	Cryogenic Engineering
xiii)	Diamond cutter instrument	Metallurgical & Materials Engineering
xiv)	MKS Controller	Central Research Facility
xv)	Magnetic Stirrer	Chemistry
xvi)	Cooling bath	Chemistry
xvii)	Relay Controller & pressure switch	Chemistry
xviii)	Amplifiers (4 channel, 2 Channel)	Civil Engineering
xix)	Oscilloscopes	Materials Science
xx)	Potentiostat Galvanostat with pulsed supply	Metallurgical & Materials Engineering
xxi)	Rotary evaporator	Chemistry
xxii)	Slow strain rate testing machine	Metallurgical & Materials Engineering
xxiii)	Laser beam	Chemical Engineering
xxiv)	Resistivity bridge	Metallurgical & Materials Engineering
xxv)	Programmable current source	Materials Science
xxvi)	Lamination machine	Academic Section
xxvii)	805 Controllers	Cryogenic Engineering
xxviii)	Temperature indicator	Agricultural & Food Engineering, Chemical Engineering
xxix)	Furnaces	Metallurgical & Materials Engineering
xxx)	Chart recorder	Metallurgical & Materials Engineering
xxx1)	ND-YAG Laser	Mechanical Engineering

L.P.K.F. M/C Usage

Electronics & Electrical Communication Engineering	-	19
Electrical Engineering	-	13
G. S. Sanyal School of Telecommuncations	-	08
Computer Science & Engineering	-	03
School of Medical Science & Technology	-	<u>01</u>
Total Job	=	44

(4) Audio Visual Section

Audio Visual Section provides most modern audio visual support for conducting regular classes (approximately 160 classes per week) at different lecture halls.

It also provides support to various student activities like Quiz, Plays, Spring Festival, Kshitij, Inter Hall competitions and Training & Placement activities. It also helps in

conducting other academic activities like Convocation, Senate Meeting, JEE, GATE, etc. as well as various Seminars, Conferences and Workshops organized by the Institute.

The audio visual equipments that are used include Multimedia Projector, Over Head Projector, Document Cameras, High quality Amplifiers and Mixtures, Wireless Microphones, Noise Suppressors and Conference Systems.

CENTRE FOR THEORETICAL STUDIES

HEAD : Professor Pratim Kumar Chattaraj

FACULTY ASSOCIATED

Pal, Sudebkumar Prasant	B.Tech. (Hons.), M.Tech., Ph.D. (IISc Bangalore), (Computer Science & Engineering) Computational geometry, Design and analysis of algorithms
Banerjee, Soumitro	B.E., M.Tech., Ph.D. (IIT Delhi), (Electrical Engineering) Nonlinear Dynamics, Chaos / Bifurcation Theory
Roy, A. R.	M.Sc., Ph.D. (IIT Kharagpur), (Mathematics) Relativistic Cosmology, Fuzzy Mathematics, Operations Research
Mathur, B. K.	M.Sc., Ph.D. (Calcutta University), (Physics & Meteorology) Superconductivity, Magnetism, Electronic States, Biophysics
Taraphder, A.	M.Sc., Ph.D. (IISc Bangalore), (Physics & Meteorology) Theoretical Condensed Matter Physics
Bharadwaj, Somnath	M.Sc., Ph.D. (IISc Bangalore), (Physics & Meteorology) Theoretical Astrophysics and Cosmology
Kar, Sayan	M.Sc., Ph.D. (IIT Kanpur), (Physics & Meteorology) Relativity and High Energy Physics
Khastgir, Pratik S.	M.Sc., Ph.D. (IOP, Bhubaneswar), (Physics & Meteorology) Mathematical Physics and Integral Models
DasGupta, Anirvan	B.Tech., M.Tech., Ph.D. (Kanpur), (Mechanical Engineering) Dynamics, Control and Robotics
Chattaraj, P. K.	M.Sc., Ph.D. (IIT Bombay), (Chemistry) Theoretical Chemistry, Quantum Chaos
Bandyopadhyay, Sanjoy	M.Sc., Ph.D. (IISc Bangalore), (Chemistry) Computational Chemistry, Molecular Modelling
Alam, S. S.	M.Sc., Ph.D. (IIT Kharagpur), (Mathematics) Statistics, Operations Research, Computer Science
Kumar, Somesh	M.Sc., Ph.D. (IIT Kanpur), (Mathematics) Statistical Decision Theory and Inference, Quantum Computing
Ghatak, S. K.	Ph.D. (Calcutta University), (Physics & Meteorology) Condensed Matter Physics

Officer :

Halder, Ujal	Post Diploma in Computer Application, Diploma in Electrical Engineering, (Computer Science & Engineering) Administration, Web development, Assembling, Trouble shooting
Nandan, Hemwati	KFD, SRF, 3 years
Guha Sarkar, Tapamoy	JRF, MRT, 3 years

The Centre for Theoretical Studies (CTS) at the Indian Institute of Technology Kharagpur (IIT Kharagpur) has been in existence since 1998 and is located in the first floor of the Sahid

Bhavan (Old Institute Building) at the Eastern end of the IIT campus. Its primary goal is to generate and nucleate theoretical research on fundamental aspects of basic and engineering sciences. The role of the CTS in the academic framework of IIT Kharagpur is to bring together people of similar interests under a common umbrella. The CTS, apart from acting as a facility for research in theoretical studies in science and engineering, also trains graduate students and provide opportunities to post doctoral workers and researchers from outside IIT Kgp. Additionally, the CTS has an active visitors programme of both short and long term visitors. The CTS also organizes seminars, workshops on a regular basis on diverse topics. An important component of CTS workshops and seminars is to motivate young students (both undergraduates from IIT Kharagpur and graduate students from within and outside IIT Kharagpur) to actively pursue theoretical research in front-line areas of science and engineering. Finally, besides promoting research on specialised topics within a given sub field, the CTS hopes to cultivate inter-disciplinary theoretical research as a major goal, tapping the diversity available in the academic population of an Institute like IIT Kharagpur.

AIMS & OBJECTIVES

1. To generate and nucleate theoretical research
2. To organize seminars on diverse topics
3. To organize Conferences/Workshops
4. To provide research facilities to students/faculties from within and outside IIT Kharagpur
5. To offer postgraduate level elective courses

FACILITIES

- i) A Computer Lab with 11 Pentiums, 2 Quad core server and Linux Cluster from CDC
- ii) HP Laser printer, HP Laserjet duplex network printer, HP Colour Deskjet Printers, Scanner
- iii) DAT Drive (24 GB)
- iv) Software (Mathematica, Matlab, Maple, Scilab, IDL etc.)
- v) CTS library
- vi) Visitor's Hall for the Visitors Visiting the Institute under CTS Visitors Programme

COLLABORATIVE EFFORTS

The Center for Theoretical Studies has very active collaborative research programmes in the broad areas of Astrophysics and Cosmology. The research carried out under this collaboration is focused mainly on Cosmology. The collaboration with NCRA, TIFR, Pune is through a sponsored project funded by BRNS, DAE, Mumbai. This focuses on the possibility of using low-frequency radio wave observations to study a variety of astrophysical processes through the 21 cm neutral hydrogen radiation, including turbulence in the interstellar medium and the early universe.

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Research is carried out on the following areas :

- 1. Astrophysics, Cosmology and Relativity**
 - i) Magnetic fields of strange stars and neutron stars
 - ii) Large scale structure formation in the Universe
 - iii) Bulk-brane dynamics

- 2. Dynamics and control**
 - i) Nonlinear dynamics : Bifurcation Theory and Chaos
 - ii) Control theory
 - iii) Vibrations

- 3. Mathematics, Mathematical physics and Theoretical Computer Science**
 - i) Integrable models
 - ii) Computational and combinatorial geometry
 - iii) Pure and applied mathematics
 - iv) Quantum computation and quantum information
 - v) Graph and Hypergraph Theory

- 4. Theoretical Condensed Matter Physics**
 - i) Computational Condensed Matter and Statistical Physics
 - ii) Superconductivity

- 5. Theoretical Chemistry**
 - i) Large scale simulations of complex systems
 - ii) Density functional theory, quantum chaos

Thrust Areas :

1. Astrophysics, Cosmology & Relativity
2. Nonlinear Sciences
3. Mathematics, Mathematical physics and Theoretical Computer Science
4. Theoretical Condensed matter Physics
5. Theoretical Chemistry

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)	Duration
1.	Effects of non-linearity and viscoelasticity of blood and wall tissues and magnetohydrodynamic effects on the flow field in arteries in normal and pathological states	CSIR, New Delhi	2006 – 2009

- | | | |
|--|-------------------|-------------|
| 2. Kinematics of flows in diverse contexts | DST, New Delhi | 2006 – 2009 |
| 3. Measuring the HI power spectrum with the GMRT | BRNS, DAE, Mumbai | 2007 – 2010 |

VISITORS PROGRAMME

Objective :

To provide facilities to faculty members, postdoctoral fellows and students from academic and research institutions in India and abroad to conduct research on theoretical problems in science and engineering in collaboration with faculty members of IIT Kharagpur.

Visitors during 2007–2008 :

#	Name of the visitor	Institute / University	Associated Faculty
1.	Dr. Supratik Pal	Ph.D., Jadavpur University	Dr. S. Kar Department of Physics & Meteorology
2.	Dr. Motahar Reza	Sr. Lecturer, National Institute of Science and Technology, Berhampur	Dr. S. Chakraborty Department of Mechanical Engineering
3.	Dr. Saibal Roy	Lecturer, Barasat Government College, Kolkata	Dr. S. Bharadwaj Department of Physics & Meteorology
4.	Dr. M. A. Neelakantan	Assistant Professor, Department of Chemistry, NEC, TN	Prof. P. K. Chattaraj Department of Chemistry
5.	Dr. Santanu Chattopadhyay	Reader in Physics, J. K. College, Purulia	Prof. S. Banerjee Department of Electrical Engineering
6.	Dr. Pankaj Kumar Mishra	Ph.D., IIT, Kanpur	Dr. S. Bharadwaj Department of Physics & Meteorology
7.	Mr. Saswata Shannigrahi	Ph.D., Student, TIFR	Prof. S. P. Pal Department of Computer Science & Engineering
8.	Dr. Bhag Chand Chauhan	Department of Physics, Government College Karsog, H.P	Prof. P. K. Raina Department of Physics & Meteorology
9.	Dr. Sujit kumar Bose	Professor [Retired], SNBNCBS, Kolkata	Prof. S. Dey Department of Civil Engineering
10.	Dr. Biswajit Pandey	Post Doc., IUCAA, Pune	Dr. S. Bharadwaj Department of Physics & Meteorology
11.	Dr. Nilakantha Nayak	SNBNCBS, Kolkata	Prof. N. Chandra Department of Physics & Meteorology

INVITED LECTURES BY FACULTY MEMBERS

1. Dr. S. Bandyopadhyay Indo-German Conference on “Modeling Chemical and Biological Reactivity”, Indian Institute of Chemical Technology, Hyderabad, India
2. Dr. S. Bandyopadhyay Workshop on “Structure and Dynamics of Biomolecules 2007”, S. N. Bose National Centre for Basic Sciences, Kolkata, India
3. Prof. P. K. Chattaraj “Conceptual DFT and Chem. Reactivity”, National Seminar programme on “Frontiers in Chemistry – V”, Department of Chemistry, University of North Bengal, March 2008
4. Prof. P. K. Chattaraj “Reactivity, Aromaticity and Toxicity”, National Symposium on, “Quantum Chemistry, Soft Computing & Optimization”, Indian Association for the Cultivation of Science (IACS)
5. Prof. P. K. Chattaraj “Conceptual DFT and Chem. Reactivity”, National Symposium on “Electronic Structure and Properties of Atoms and Molecules”, Central University, Hyderabad
6. Prof. P. K. Chattaraj “Quantum Trajectory”, Indo- German Conference on “Modeling Chemical and Biological (Re)activity”, IICT, Hyderabad, September, 2007 (Member, Scientific Advisort Committee)
7. Prof. P. K. Chattaraj “Quantum Trajectory”, International Conference on “Recent Developments in Non-linear Dynamics”, School of Physics, Bharathidasan University, Tiruchirapalli, February 2008
8. Prof. P. K. Chattaraj “Chem. Reactivity”, Workshop on “Concepts in Chemistry”, sponsored by IAS (Bangalore), INSA (New Delhi) and NAS (Allahabad), Ramananda College, Bishnupur, September, 2007 (Resource Person)
9. Prof. P. K. Chattaraj “Conceptual DFT and Chem. Reactivity”, Refresher Course in Chemistry for College and University Teachers, Science College, Calcutta University
10. Prof. P. K. Chattaraj “Chem. React.”, National Conference on “Windows of Chemistry”, Bankura Sammilani College, West Bengal, February 2008 (Chairman, Technical Session)
11. Prof. S. P. Pal “Combinatorial methods for studying LOCC incomparability”, International School and Conference on “Quantum Information (ISCQI)”, Institute of Physics, Bhubaneswar,

March 9-12, 2008

LECTURE BY VISITING EXPERT

- | | | |
|-----|--|--|
| 1. | Professor Govind Swarup
National Centre for Radio
Astrophysics, TIFR, India | Radiowaves and the Universe Key questions
today; GMRT and SKA
(S. Datta Majumdar Memorial Lecture) |
| 2. | D. Nandrekar, M Bhasin and
T. Agrawal, IUCAA, Pune | Demonstrations on Virtual Observatories |
| 3. | Prof. R. Banerjee
S. N. Bose Centre, Kolkata | Hawking radiation and anomalies II |
| 4. | Prof. A. N. Sekar Iyenger
SINP, Kolkata | Nonlinear Dynamics Experiments in Plasma |
| 5. | Dr. Anindya Chatterjee
Mechanical Engineering
IISc, Bangalore | Sub-exponential attenuation of waves in a
periodic structure |
| 6. | Dr. S. Mazumder
Solid State Physics Division, BARC,
Trombay, Mumbai | The phenomenon of dynamical scaling of
structure factor |
| 7. | Mr. Kaushik Mitra
Department of Physics
University of Maryland, USA | Bosons and fermions in harmonically trapped
optical lattices |
| 8. | Prof. B. C. Chauhan
Government College
Karsog, Mandi (HP) | Solar Neutrinos: Oscillations and Flux
variations |
| 9. | Dr. N. Nayak
SNBNCBS, Kolkata | Spin squeezing and entanglement |
| 10. | Prof. Jozef Gruska
Faculty of Informatics
Masaryk University, Brno
Czech Republic | INFORMATICS as a FUNDAMENTAL
SCIENCE and its relation to physics and
mathematics |
| 11. | Prof. S. N. Behera
Ex-Director, IOP, Bhubaneswar | Fifty years of the publication of BCS Theory
of Superconductivity |

BOOK PUBLISHED

- | # | Name of the Author(s) | Title | Publisher | Year |
|----|--|---|--|--------------------|
| 1. | Mr. S. Giri, Mr. D. R.
Roy and Prof. P. K.
Chattaraj | “Variation of Local
Reactivity during
Molecular Vibrations,
Internal Rotations and
Chemical Reactions”
in Theory of
Chemical Reactivity :
A View from Density
Functional Theory | Taylor and Francis,
Boca Raton, Florida | 2008
(In Press) |
| 2. | Prof. P. K. Chattaraj | Theory of Chemical | Taylor and Francis, | 2008 |

(Editor)

Reactivity : A View
from Density
Functional Theory

Boca Raton, Florida

LAURELS & DISTINCTIONS

1. Dr. S. Kar Member, Editorial Board, Indian Journal of Physics
2. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Chemical Sciences, Bangalore, Published by Indian Academy of Science (2007)
3. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Assam Science Society, Assam, Published by The Assam Science Society (2007)
4. Prof. P. K. Chattaraj Member, Editorial Board : Canadian Journal of Pure & Applied Science, Published by Senra Academic Publishers (2007)
5. Prof. P. K. Chattaraj Member, Editorial Board : Journal of Molecular Structure : THEOCHEM, Published by Elsevier Science (2008)
6. Prof. P. K. Chattaraj Fellow of the Indian National Science Academy, New Delhi, 2008
7. Prof. P. K. Chattaraj Council Member, Chemical Research Society of India, 2008
8. Prof. Soumitro Banerjee Fellow of the Indian National Science Academy, New Delhi, 2008

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. Workshop on "Quantum Correlation and Quantum Computing (QCQC-2007)" December 11–13, 2007
2. Workshop on "Physics of Warped Extra Dimensions (PWED-2008)" February 21–23, 2008
3. Workshop on "Foundations of Chemistry" March 2008

INFORMATION CELL

PROFESSOR-IN-CHARGE : Professor Balbir Kumar Mathur

The Information Cell has been the hub of academic information service of the Institute all round the year. In the past year, the Cell has fully renovated the web sites of the Institute, Online Notice-Board and of the Global Alumni Network. The Cell also created and hosted sites of about forty conferences, seminars, workshops and short-term courses held during the past year and to be held in the next academic year. In addition to regular updating information on departmental pages, academic programmes, profiles of all faculty, halls of residences and administrative positions in the Institute, the Cell also published information books like Communication Directory, Planner, Staff Directory and Pocket Guide. The Cell participated in preparation of Press Releases and Institute Information Notes as and when required from time to time.

The Cell also developed additional information modules for in-house application and they can be used in any other academic organization as well. These are : on-line Faculty Self Appraisal Package, Departmental Report Package, Online Voting System, Guest House Booking Package, Extension of on-line Message Board facility to the Academic Section, Training and Placement Section and the Technology Students Gymkhana. The Cell has made available the basic information about all Institute Staff on the LAN. The Cell has also developed software for various service sections for online filing of complaints.

In a major development work being carried out in the Cell, distributed academic databases of the Institute are going to be linked to create a one-point information access system. It will make easy availability of information as well as provide a strong decision making support to the Institute.

INSTITUTE CIVIL WORKS

CHAIRMAN : **Professor Sriman Kumar Bhattacharyya**

Officer :

Mukherjee, T. K.	Superintending Engineer
Roy, Subrata	Executive Engineer
Rai, B. B.	Engineer
Muruganathan, N.	Engineer

Considering the increase in the student strength, the Institute has taken several new initiatives to augment its infrastructural facilities in terms of students' hostel, class rooms, apartments for faculty and staff members, laboratory complex etc.

Construction of 250 capacity hostel for girls named "Rani Laxmibai Hall of Residence" has been completed and put to service. The capacity of Mother Teresa Hall of Residence has been augmented. Initiatives have been taken to augment the capacity of students hostel by adding an additional floor on the existing ones or by adding an additional block.

Construction of 144 numbers "A" and "B" type apartments for faculty is under progress. Arrangements are made to start the construction of 2 nos. 2000 capacity students' hostel, a dedicated laboratory complex for first year students, chemical science block, class room and tutorial room complex. Arrangements have also been made to start the construction of apartments for staff members.

CPWD is presently carrying out many projects for IIT Kharagpur out of which, new 120 Room Guest House is in the advanced stage of completion. Expansion of academic buildings by CPWD will also start very soon.

Construction of Rajiv Gandhi School of Intellectual Property Law (RGSOIPL) is in the advanced stage of completion.

INSTITUTE ELECTRICAL WORKS

PROFESSOR-IN-CHARGE : Professor Sabyasachi SenGupta

Officer :

Ghosh, Sabyasachi	Executive Engineer (Electrical)
Kumar, Mahesh	Executive Engineer (Electrical)
Chakrabarty, Dipak Kumar	Executive Engineer (Electrical)

The overall load in the Institute & residential area is increasing rapidly. The multilevel class rooms, faculty apartments, the undergraduate laboratory complex and many new boys hostels are coming up in a short span of time. The students strength is also expected to rise to around 15000 and the total population of the campus is to rise proportionately.

To cater to the above requirements the following measures have been taken :

1. Augmentation of the main receiving Substation from 11 MVA to 14.3 MVA.
2. Augmentation of all distribution Substations to double their earlier capacities.
3. Strengthening of the distribution system with underground cables.
4. Intelligent energy monitoring system from substation to the various departments for the purpose of energy audit.
5. Installation of capacitor banks and STATCOM devices in the substations for power factor and power quality improvement.
6. Fixing of Energy saving light fittings in the academic departments.
7. Upgrading electrical panels in most of the academic departments

INSTITUTE WATER WORKS

PROFESSOR-IN-CHARGE : **Professor Ashok Kumar Gupta**

Officer :

Biswas, Shyamal Kumar Engineer

To meet the additional water demand from the increased student and faculty strength, Water Works Section of the Institute has taken up several new water related works. They are in different stages of progress.

Works completed :

The following works have been just completed :

1. Construction of three riverbank deep tubewells at Anicut Pumphouse;
2. Drilling of a new deeptubwell at at Rani Laxmibai Hall of Residence;
3. Providing kitchen sink at Bachelor Flat Quarters.

On-going works :

The following new projects are being implemented :

1. Consultancy services for alternate water sources for IIT Kharagpur;
2. Installation of flow meter at water sources;
3. Construction of iron removal plants for deepwell of hall area.

Works in the pipe line :

1. Providing additional water tanks at various halls.

KALPANA CHAWLA SPACE TECHNOLOGY CELL

CHAIRMAN : **Professor Somnath Sengupta**

FACULTY

Professor :

Sengupta, Somnath	Ph.D., Image & Video Processing
Sarkar, B. K.	Ph.D., RF & Microwave Engineering
Chakrabarty, Ajay	Ph.D., Microwave circuits & Antennas & EMI / EMC
Sen, S.	Ph.D., MEMS
Patra, Amit	Ph.D., Power System & VLSI Design
Das, S. K.	Ph.D., Control System
Rajakumar, R. V.	Ph.D., Communication & Signal Processing
Sanyal, S.	Ph.D., RF & Microwave Engineering
Chakraborti, S.	Ph.D., Communication
Biswas, P. K.	Ph.D., Image Processing
Bandyopadhyay, S. S.	Ph.D., Cryogenic Engineering
Chowdhury, K.	Ph.D., Cryogenic Engineering

Assistant Professor :

Saha, G.	Ph.D., Communication
Sinha, M.	Ph.D., Aerospace Engineering
Mukhopadhyay, S.	Ph.D., Video Image & Processing
Bhattacharya, A.	Ph.D., RF & Microwave Engineering
Das, S.	Ph.D., MEMS & Microsystems
Chakraborty, P. K.	Ph.D., Solid-state Science and Technology
Ghosh, B.	Ph.D., RF & Microwave Engineering
Bhattacharya, T. K.	Ph.D., RF MEMS

Visiting / Adjunct Faculty :

Bose, A.	M.E., Mechanical Engineering
Dasgupta, S.	Ph.D., Control System
Das, B. B.	Ph.D., Control System

Emeritus Professor :

Naryanan, K. G.	Ph.D., Microwave Engineering
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Chair Professor :

Sarkar, B. K.	Ph.D., RF & Microwave Engineering
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Officer :

Sahoo, G.	Ph.D., EMI / EMC, Microwave , Waveguide Slot Antenna and Mining Electronics
Guchait, P. K.	M.Tech., Polymers Science & Engineering
Ghosh, Saswati	Ph.D., EMI / EMC, RF Microwave Circuit & Antenna

FACULTY APPOINTMENT, PROMOTION, RETIREMENT, RE-EMPLOYMENT AND RESIGNATION

Faculty Appointed as Emeritus Professor :

Dr. K. G. Narayanan	Professor
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Faculty Retirement :

Prof. S. L. Maskara	Professor
Prof. S. K. Lahiri	Professor
Prof. T. S. Lamba	Professor

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

Space Technology Cell, IIT Kharagpur was renamed as Kalpana Chawla Space Technology Cell and was formally inaugurated by Chairman ISRO on 17th November 2004 this Cell has been functioning under the supervision of chairman of Space Technology Cell since June 1998. The Cell is being funded by ISRO, DRDO, CMPDIL Ranchi, etc. During the period under report the following highlights of sponsored research activities in this inside KCSTC and in different of departments of IIT

1. Dual Mode Ring Resonator Bandpass Filter with wide stopband
2. Design of Wide-band, Sharp-rejection Bandpass Filters with Parallel – coupled Lines
3. Compact Bandpass Filters with Wide Controllable Fractional Bandwidth
4. Analysis of linear tapered waveguide by two approaches
5. Compact Sharp cutoff wide stopband low-pass filter using defected ground structure and spurline
6. Size Reduction and Harmonic Suppression of Microstrip Branch – Line Coupler Using Defected Ground Structure
7. On An Algorithm for Boundary Estimation of Commonly Occuring Heart Value Diseases in Time Domain
8. Log Gabor Wavelet and Maximum a Posteriori Estimation in Speaker Identification
9. A Robust Heart Sound Segmentation Algorithm for Commonly Occurring Heart Value Diseases
10. An object based coding scheme for frontal surface of defective fluted ingots
11. A Hierarchical Framework for Generic Sports Video Classification
12. Texture Classification Using a Novel, Soft-Set Theory Based Classification Algorithm
13. Performance of high rate data in wideband CDMA with correlated interferers
14. An Energy – Efficient Packet Filtering Architecture for Wireless Sensor Nodes

15. Effects of correlated interferers on packet data in presence of voice in cellular CDMA
16. Resource allocation for data in presence of voice in cellular CDMA with correlated interferers
17. Estimation of Antenna Factor of Wire Antenna as EMI Sensor Fusion
18. An Evolutionary Algorithm based approach to Automated Design of Analog and RF circuits using Adaptive Normalized Cost Functions
19. Image – based classification of Defects in Frontal Surface of Fluted Ingot
20. Impedance Calculation of Broadwall Longitudinal Slot on Rectangular Waveguide
21. Harmonic Suppression and Miniaturization of Microstrip Branch Line Couplers
22. Method of Moment Analysis of Arbitrary Length Longitudinal Slot on Broadwall of Rectangular Waveguides
23. Analysis of Longitudinal Slot Antennas in the Broadwall of Standard and Non-standard Rectangular Waveguides
24. Planar Compact, Wideband Bandpass Filters with Wide Upper Stopband
25. Estimation of EMI from Waveguide Joints and Analysis of Thick Rectangular windows and Open-end of a Rectangular Waveguide as EMI Sensors
26. Compact Bandpass Filter for Ultra –Wide Band Communication
27. U-Shaped microstrip structure to decrease DGS resonance frequency
28. Analysis of Wire Antennas as an Element in Reflect Array Antennas
29. Theoretical Investigation of Phase Control Using Variable Length Dipole and Loaded Dipole in Reflectarray Antenna
30. Monopole Antenna Loaded with Dielectric Resonator as EMI Sensor
31. Designing Matched Filter for Imaging of Buried Objects, Water Layer and Voids within the Earth Surface & b amp; Underground Coal Mines using Electromagnetic Wave
32. Detection of Water Layer within the Earth Surface & Underground Coal Mines using Electromagnetic Wave
33. Imaging of Water Layer and buried object using Electromagnetic wave
34. Compact Wideband Bandpass Filters with Extended Upper Stopband
35. Harmonic Suppression and Size Reduction of Planar Branch Line Couplers
36. Method of Moment Analysis and Impedance Calculation of Broadwall Longitudinal Slot on Rectangular Waveguides
37. Compact Highpass Filter using Complementary Split Ring Resonator
38. Switched Beam Array Antenna for Sectorized Optimum Power Distribution into Discrete Localities of Rural Area
39. Augmentation of Anti-Jam GPS system on Moving Platform using Adaptive Array Antenna: a Low Side Lobe- Constant Radiated Power Algorithm and DOA Estimation Algorithm measuring the Deviation of Look Angle
40. Multiple Beamforming using Switched Beam Array Antenna
41. Application of Multiple Cavity Modeling Technique for Accurate Analysis of Waveguide Fed Thick Rectangular Window
42. Comparison of IE3D and CST-Microwave Studio Simulator for Planar Microwave Filter design
43. Study on the Effect of Different Shapes of Defective Ground Structures Using Finite-Difference Time-Domain Technique
44. The role of GTD in the analysis and design of Antennas on shipboard platforms
45. A Wide-band Lumped Element Compact CAD Model of Si-Based Planar Spiral Inductor for RFIC
46. Design of a 1 V Low Power 900 MHz QVCO, 19th IEEE/ACM International Conference on VLSI Design

47. High Level Synthesis of Linear Analog Systems, International Conference on Emerging Applications of IT (EAIT 2006)
48. AGC of a Hydrothermal System with Thyristor Controlled Phase Shifter in the Tie-Line
49. Texture Classification Using a Novel, Soft-Set Theory Based Classification Algorithm
50. TEM Characterization of Polyester – Urethane – Clay (3 Weigth%) nanocomposite

Multimedia and Video Processing :

An FPGA-based state-of-the-art video codec is being developed. The system under development finds its usage in Digital Video Broadcasting (DVB) system and performs real time encoding of colour videos of CIF frams size (352×288 pixels) at 30 frames/sec.

Radiation patterns of antennas on satellite :

Radiation due antennas in free space can be readily computed and measured. However, when the antenna platform, that is the satellite structure need to be accounted for, then it becomes impractical to measure even in the most modern Anechoic Chambers of the world. Also, numerical techniques fail to predict the effect of the large structure on antenna radiation due to the limitations of computer memory and speed, even in today's world. Hence, analytical techniques like STD needs to be developed for this purpose. This has been the field of study for the present investigator.

Monopulse Comparator :

Design of highly compact comparator for monopulse radar application using reduced height Ku-band waveguided.

DRA

Design, Simulation and fabrication of CPW feed DRA ton the narrow band application.

IRA

Impulse Radiating Antenna. Design Simulation and fabrication of USB IRSA.

MPCA

Miniaturized Printed Circuit Antenna Design, Simulation and fabrication, Testing of Antenna for different Applications like Mobile, UMTS, etc.

RFID

Radio frequency Identification - Design Implementation of Tracking Algorithm and the simulation of the Antenna.

MTMs

Gain Enhancement of eclectically small antennas using Metamaterials:- Design and

Simulation of an electrically small antenna surrounded by Metamaterial shell / sphere.

MOM

Method of Moment (MOM) analysis, design, fabrication and testing of various types of waveguide slot excited Dielectric resonator Antennas (DRAs).

Electromagnetic Modeling of high frequency electronic systems to estimate EMC

Electromagnetic interference is becoming a crucial issue in the design of modern high frequency electronic systems. In the conventional design methodology, EMC issues are addressed only after a prototype is built. However, this process has a potentially significant impact on the cost and time-to-market of the products. This needs to develop an accurate and efficient electromagnetic analysis and modeling to analyze the performance of high frequency electronic circuits for verifying the design against all sorts of electromagnetic interference before fabrication. This has been taken up as the present work. Different conducting and dielectric bodies have been modeled using Method of Moments and the radiation and reception characteristic have been studied.

GPS

Global positioning system (GPS), Adaptive Equalizer, Adaptive Array Antenna (Smart Antenna), Digital Signal Processing, Microwave Communication, Image processing & Numerical Techniques in Electromagnetic.

Thrust Areas :

- 1) Micromachining (MEMS)
- 2) Cryogenics
- 3) Propulsion and Engines
- 4) EMI / EMC
- 5) Sensors
- 6) RF and Microwave Planar Circuits
- 7) Materials
- 8) Digital Communication
- 9) Embedded Software Solutions
- 10) Antennas
- 11) Control Systems
- 12) Microelectronics
- 13) IP-Core Design

New Acquisitions :

1. CST Software – Microwave studio, version –5.
2. IE3D - version – 9 by Zeland Software Inc.
3. WIPL-D
4. HFSS
5. VCO – Model no – ZOS – 1025, Freq. Range-685-1025MHz
6. LNA :-
 - i) Model-ZEL – 0812 LM, Freq. Range- 800-1200 MHz

- ii) Model – ZHL-0812 HLN, Freq. Range-800-1200MHz
 - iii) Model – ZHL-2HAD, Freq. Range-50-1000 MHz
 - iv) Model- ZFL – 1000VH2, Freq. Range- 10-1000MHz
7. Filters :-
- i) LOW PASS FILTER:- Model.no – BLP – 550, Freq. Range – DC-520
 - ii) HIGH PASS FILTER:- Model.no – NHP-1000, Freq. Range-DC-550
8. Mixers :-
- i) Model.No-ZLW – 2, Freq. Range- 685-1025MHz
 - ii) Model.no- ZEM-4300, Freq. Range-300-4300MHz

ON-GOING RESEARCH PROJECTS

Sponsored Projects :

#	Title of the Project	Sponsor(s)
1.	Electromagnetic Modeling of High Frequency Electronic Systems to Estimate Electromagnetic Compatibility	DST, New Delhi
2.	Development of Specific Software Modules for Realising Monopulse Slotted Array Antenna Using Non-Standard Wave guide at Ku-Band Along Sensitivity Analysis	RCI, Hyderabad
3.	Feasibility Study of Anti-Jam GPS Receiver for GPS Guided Weapons	ARMREB, New Delhi
4.	FPGA – based design and development of H-264 Codec	ISRO- IIT Kharagpur Cell
5.	Development of RF MEMS Capacitive Shunt Switch in Application as Phase Shifters for Satellite Communication System	ISRO- IIT Kharagpur Cell
6.	Feasibility Study of Microwave Imaging for Material Resource Exploitation in Planetary Mission	ISRO- IIT Kharagpur Cell
7.	Contoured beam synthesis for array antenna to obtain efficient footprint pattern with gain optimization	ISRO- IIT Kharagpur Cell
8.	Feasibility Study of Compact Foldable Type Trans / Receive Antenna Design in 2-3GHz Band	ISRO- IIT Kharagpur Cell
9.	Development of Algorithm for Adaptive Antenna Array for Satellite Communication	ISRO- IIT Kharagpur Cell
10.	Development of Software Packages for Waveguide-based Microwave Circuits	ISRO- IIT Kharagpur Cell

Consultancy Projects :

#	Title of the Project	Sponsor(s)
1.	Preparation of Vision/theme and feasibility report	Tirupati Assets Pvt. Ltd., Kolkata
2.	Development of Educational Complex	Tirupati Assets Pvt. Ltd., Kolkata
3.	Chemical & EMI Testing of Converter	M/S Leader Auto Gas (I) Pvt.Ltd., Mumbai
4.	RF Fundamentals for Wireless Network	WMNetServ Ltd., Bangalore

INVITED LECTURES BY FACULTY MEMBERS

1. Prof. Ajay Chakrabarty EMI / EMC & Mobile Antenna (Nirma University)
2. Prof. Ajay Chakrabarty EMI / EMC (Future Institute of Technology, Sonarpur)
3. Prof. Ajay Chakrabarty EMI / EMC (BIT Mesra)
4. Prof. Ajay Chakrabarty EMI / EMC (NIT Durgapur)
5. Prof. Ajay Chakrabarty EMI / EMC (DIATM, Durgapur)
6. Prof. Ajay Chakrabarty EMI / EMC (IEEE Conference in Calcutta)
7. Prof. Ajay Chakrabarty EMI / EMC (Jadavpur University)
8. Prof. Ajay Chakrabarty EMI / EMC (Bengal Engineering College)
9. Prof. Ajay Chakrabarty EMI / EMC activity, EMI/EMC, Mobile antenna (INCEMIC)
10. Prof. Ajay Chakrabarty EMI / EMC (BITS Pilani)
11. Prof. Ajay Chakrabarty Advanced Microwave Technology (University Institute of Technology, Barkatullah University)
12. Prof. Ajay Chakrabarty EMI / EMC (BIT Mesra, Ranchi)
13. Prof. Ajay Chakrabarty Probability Theory, Linear Algebra & Information Theory (Centre for Space Science & Technology Education on Asia and the Pacific (CSS TEAP), SAC Ahmedabad) August 07-10, 2007
14. Prof. Ajay Chakrabarty Industry Academic Convergence to Bridge Skills Gap and Meet Shortage in the Manufacturing and Services Sector (Sonar Bangla Kolkata) October 10, 2007
15. Prof. Ajay Chakrabarty Lecture on Electromagnetics (WE-2007) (Visakhapatnam (ANITS) College of Engineering) October 12-13, 2007
16. Prof. Ajay Chakrabarty EMI / EMC (WOC 2007) (Punjab Engineering College Chandigarh) December 14, 2007
17. Prof. Ajay Chakrabarty EMI / EMC (Siksha 'O' Anusandhan University Bhubaneswar, Orissa) February 05, 2008
18. Prof. Ajay Chakrabarty Advances in EMI / EMC (Siksha 'O' Anusandhan University Bhubaneswar, Orissa) February 05, 2008
19. Prof. Ajay Chakrabarty Industry Academic Convergence to Bridge Skills Gap and Meet Shortage in the Manufacturing and Services Sector (Academy of Technology, Aed Congar) February 09-11, 2008
20. Prof. Ajay Chakrabarty Electromagnetics and Application WEMA-08 (Bonam Venkata Chalamayya Engineering College, J.N.T University, Hyderabad) March 08-09, 2008
21. Prof. Ajay Chakrabarty Relevance of EMI in the Battlefield DEFCOM

- | | | |
|-----|------------------------|--|
| 22. | Prof. Ajay Chakrabarty | 2007 (New Delhi) March 12, 2007
EMI Sensor & Trans Receive System (Group of Institution, Tirunelveli) March 14-15, 2008 |
| 23. | Prof. Amit Patra | Power Management Circuits (National Semiconductor Corporation, Santa Clara, USA) |
| 24. | Prof. Amit Patra | Power Management Circuits (Intel Corporation, Portland, Oregon, USA) |
| 25. | Prof. Amit Patra | Online Testing of Digital VLSI Circuits (Intel Corporation, Portland, Oregon, USA) |

LECTURE BY VISITING EXPERT

- | | | |
|----|---|---|
| 1. | Dr. Saba Mudalier
Air Force Laboratory, Hanscom
USA | Some Aspects Electromagnetic Scattering |
|----|---|---|

THESES (Doctoral and MS)

#	Name of Scholar	Title of Thesis
1.	Priyanka Mandal	Design & Analysis of Microwave Antennas and Passive Components for Wireless Communication
2.	Mainak Mukhopadhyay	Some Studies on Global Positioning System Anti – Jamming Technique for GPS and Smart Antennas
3.	Gautam Mohanti	Design of Phase – only Reconfigurable Linear Algebra Arrays Using Genetic Algorithms

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

- | | | |
|-----|---|-------------------------|
| 1. | “Wireless Communications & Networks” | |
| 2. | “Wireless Networks” | |
| 3. | “Teletraffic Engineering” | |
| 4. | “Teletraffic Engineering” | |
| 5. | Microwave Laboratory Experiments for Faculties and Laboratory Technicians | |
| 6. | “Communication & IP-Core Design” | April 04-05, 2007 |
| 7. | “MEMS & Cryogenics” | April 11-12, 2007 |
| 8. | “Control & Materials” | April 30 – May 01, 2007 |
| 9. | “ISRO – IIT Workshop” | September 20, 2007 |
| 10. | “MEMS & Microsystems” | May 28 – June 02, 2007 |
| 11. | “Microwave & EMI Measurement” | July 09–20, 2007 |
| 12. | “Advances in Space Science and Technology” (CASST–2008) | January 13–16, 2008 |

NATIONAL CADET CORPS (NCC)

COMMANDING OFFICER : **Wg. Cdr. A. K. Bhattacharjee**

AIMS & OBJECTIVES

- (i) To develop qualities of character, courage, comradeship, discipline, leadership, secular outlook, spirit of adventure & sportsmanship and the ideas of selfless service among the youth to make them useful citizens.
- (ii) To create a human resource of organized, trained and motivated youth, to provide leadership in all walks of life including the Armed Forces and be always available for the service of the nation.
- (iii) To create suitable environment to motivate the youth to take up a career in the Armed Forces.

MAJOR ACTIVITIES

During the training year 2007-2008, 224 cadets of 1st year and 2nd year of engineering were trained as NCC cadets. One Service Officer, one Associated NCC Officer and 12 service personnel were involved in imparting NCC training to the IIT students.

LECTURES BY VISITING EXPERTS

Experts came from Air Force Station, Kalaikunda to deliver lectures to the cadets regarding Fire Extinguisher & First Aid.

SEMINARS / WORKSHOPS / CONFERENCES / SYMPOSIA / SHORT TERM COURSES ORGANIZED

1. A Combined Annual Training Camp was conducted for all 1st year NCC cadets at Pingla, West Mednipur. The cadets were kept under hectic schedule. Drill practice, Physical training, Games, Debates, Quiz competition and cultural programs kept the cadets glued with thrill and excitement. Co-ordinator, Dean and Deputy Director also paid visit to the camp. November 26 – December 05, 2007

NATIONAL SERVICE SCHEME (NSS)

STUDENTS ACTIVITIES RELATED TO NSS

National Service Scheme (NSS) Unit of the Institute is functioning with registered 523 undergraduate students of 1st and 2nd year level. It took up several service oriented activities in the fringe villages of IIT Kharagpur campus. The important activities include, providing basic education to the school-going and school-dropout children residing in and around the campus; preparation of overall developmental plan for the nearby slums; improvement and protection of environment in the campus including plantation of 600 plants and up keeping of about 1200 plants in the campus; preparation and demonstration of scientific and technological models at Nehru S&T Museum; conducting survey on health, sanitation and hygiene of people living in the fringe villages like Balarampur, Gopali, Pathri, and Sampetabosti to understand the present scenario for organising health awareness camping programme in the area; conducted a Health awareness cum First Aid training camp for 169 NSS volunteers in collaboration with Indian Red Cross Society, IIT Kharagpur Campus unit. Besides the regular activities as mentioned above, the NSS unit organised the Annual Camp partly at Kultikri village in Sankrail Block of West Midnapore and partly at the IIT campus during 24th November to 2nd December, 2007 with the participation of 150 male and female student volunteers.

RAJBHASHA VIBHAG

CHAIRMAN : **Professor Parmeshwary Dayal Srivastava**

Rajbhasha Vibhag earlier known as 'Hindi Cell' was attached with the Department of Humanities & Social Sciences. Its main activities were limited to translate Institute's Annual Report and Annual Accounts from English to Hindi for sending them to Ministry for their placement in the Parliament. Later, it was felt that Institute has to play greater role in the implementation of Official Language Policy of the Government of India. As a result, Rajbhasha Vibhag was separated from the Department of Humanities & Social Science in the Academic year 2006-2007. Since then it functions as an independent entity in its new office situated at old building.

It has a well established setup with fullfledged Library of not less than 600 Hindi books. It has latest bi-lingual software for preparation of documents in bi-lingual form. It has been assigned with the responsibility of implementation of Official Language. Its activities include translation of Annual Reports, Annual Accounts, Audit Reports, different nameplates, preparation of Degrees / Diplomas in Hindi and publication of a monthly Hindi magazine "Jharokha" and "Awaaz", a student magazine in Hindi. A "Hindi Day" was organised in the month of September 2007 in which several competitions were held for both Hindi and non-Hindi speaking employees. Cash prizes were given to successful participants.

On 1st October 2007, Prof. P. D. Srivastava joined as a Chairman of Rajbhasha Vibhag. After taken over the charge by Prof. P. D. Srivastava, various committees such as Advisory, Publication, Executive and Sub-committees in every department are formed in order to have a greater interaction with the other departments of the Institute and for running smoothly various activities related to the Official Language Policy Implementation. A two days workshop on Official Language Policy and its Implementation (December 18-19, 2007), Training Programme on Working Knowledge of Hindi (February 26-27, 2008) and a Five days Translation Training programme (May 13-17, 2008) were organized. Approximately 100 employees from various departments are benefited by these programmes. Most of the Resource Persons for these programmes are directly related to Rajbhasha Vibhag, Delhi, Bangalore and Kolkata.

A Town Official Language Implementation Committee (TOLIC) has been constituted by the Ministry of Home Affairs, Rajbhasha Vibhag, GOI vide its letter No. 12024/3/2008/Raj.Bha (Impl-2) under the Chairmanship of the Director, IIT Kharagpur. All the Central Government Office located in and around Kharagpur are members of this Committee. The Director has nominated the Prof. P. D. Srivastava as the Chairman to look after day to day works of the TOLIC and Mr. Kishore Kumar of Rajbhasha Vibhag has been nominated to act as Secretary of the TOLIC.

SPONSORED RESEARCH & INDUSTRIAL CONSULTANCY

DEAN : **Professor Partha Pratim Chakrabarti**

Officer :

Mandal, Manoj K. B.Tech. (Hons.), M.Tech., MBA, Finance

Research plays an integral role in the pursuit of IIT Kharagpur's vision for the future. The scientific and technical themes that are changing the world – *computation and information technology, life sciences and biotechnology, nanotechnology and energy and the environment* – are at the center of IIT Kharagpur's research focus.

IIT Kharagpur's research programs reach across the campus and beyond, linking together 19 Departments, 13 academic Centers and a large number of advanced R&D laboratories, stimulating the integration of inquiry, new knowledge and education.

With the discovery of new scientific concepts and technologies, especially in emerging interdisciplinary fields, this institute continues to carry out research and development in a number of unique thrust areas. IIT Kharagpur has developed relationships with hundreds of academic institutions, funding agencies, and a large number of industrial affiliates all over the country and the world on specialized projects.

IIT Kharagpur has special expertise in *advanced chip design and CAD for VLSI and MEMS* including in niche areas like *formal verification* where it works hand in hand with international organizations. The areas of software development, planning, management, ERP are core capabilities of the Institute. The large gamut of specialized *software technologies* include *power management software* (used by Power Grid Corporation), *telemedicine software* (currently used in several remote sites in several States), *communication empowerment software for physically challenged*, software for medical measurements and tools for *security and biometric authentication*. Other important software developed include a specialized *bond-graph based technology* that is used in a variety of areas for analysis of dynamics by companies within and outside the country, a *biomechanics simulator* that is now deployed in industry and a fluid mechanics and ocean dynamics based *software for storm surge* measurements that has been deployed in several countries. A fully functional *ERP software* has been developed and implemented, Neyveli Lignite Corporation and other organizations.

Life Sciences research forms a major thrust area with special emphasis in *medical science and technology*. A unique *male contraceptive, RISUG* is undergoing third phase of trials. Interdisciplinary research is being carried out in areas of *non-invasive measurements, advanced image processing, medical implants, protein structure analysis and drug design, orthopedic biomechanics* and brain research. Green technology routes have produced unique protocols for *insect resistant cotton, jute, bio-hydrogen, separation and purification of anti-carcinogenic components from green tea leaves*, etc. Research in biotechnology has resulted in a number of high quality *enzymatic processes for a variety of food technologies* several of which have been transferred.

The Institute is working towards development of major research hub in nanotechnology. Research in *nano-materials*, *smart composites*, *polymers* (especially rubber technology) and *metallurgy* include unique microstructures prepared from gelcast ceramics, nano-composites, nano-wires, semiconductors and metal alloys. The MEMS group has made significant contributions to national research programmes of ISRO and DRDO by development of advanced *accelerometers*, *gyros*, *micro-valves*, etc. The area of *micro-fluidics and bio-nano-mems* has developed new techniques for *DNA hybridization and micro-scale cooling for electronic components*. The Institute has special expertise in advanced *plasma technologies and plasma based materials* that are being used for advanced research for industrial, strategic and biomedical areas.

A new thrust has been provided in energy research including *fuel cell based systems and energy materials*. The current on-going research activities in *mechanical sciences* include thermal engineering, CFD, motion and vibration dynamics, *robotics* and robot development, etc. The Institute has developed *state-of-the-art cutting tools* comparable to the best available worldwide. Prototype vehicle development activities include development of a large *autonomous underwater vehicle*, fault-tolerant micro-aero vehicle, hovercraft and electric vehicles.

During the year 2007-2008, the Institute received from government, private and international funding agencies / enterprises 365 research and consultancy projects for a total value of Rs. 126.34 crores (30 million USD – almost 150% increase over last year).

Industry-academia partnership has assumed new dimension in the last year. Many technology-intensive industrial houses are increasingly forming partnerships in joint research projects, acquiring technologies developed in the Institute and seeking consultancy supports from the Institute. Some of the major research initiatives in recent years include establishment of major R&D Centers (eleven specialized laboratories) in Energy Sector in collaboration with DVC, Enhancing research capacity and initiating integrated M.Tech. and Ph.D. Programme in the area of Food Science & Technology, sponsored by Department of Biotechnology, Government of India, Steel Technology Center, Vodafone-Essar-IIT Kharagpur Centre of Excellence. In Telecommunications, National Program in Marine Hydrodynamics, Centre of Excellence in Information Assurance, National facilities for EPMA, General Motors Collaborative Research Laboratory in Electronics Controls and Software (ECS) and a Regional Center for Rural Technology Action Group (RUTAG) are some of the recent such successful initiatives.

IndAc2008, an exposition to showcase the technologies developed by the faculty and students was organized in April 2008 in the campus. The whole event was conceived, organized and managed by the student community under the banner of Technology Transfer Group (TTG) and was attended by representatives of many of the top corporate houses of the country who showed keen interest in licensing several technologies.

The Intellectual Property Rights and Industrial Relations (IPR & IR) Cell under SRIC is responsible for the licensing and the transfer of technologies developed by faculty members, students and other researchers at IIT Kharagpur to the commercial sector. IIT Kharagpur has a long tradition of protecting inventions and has applied for 190 patent applications over the years out of which 96 have been granted.

SCIENCE & TECHNOLOGY ENTREPRENEURS' PARK

MANAGING DIRECTOR : **Professor Nisith Ranjan Mandal (Upto October 15, 2007)**
 Professor Dhrubes Biswas (From October 16, 2007)

MAJOR IMPROVEMENTS

- (1) The infrastructural development has been made in consonance with the requirement of the office space as well as other necessities.
 - i) Creation of additional seating capacity (to accommodate Entrepreneurs including students, faculties and general public)
 - ii) Purchase of PCs for improvement of computing infrastructure
 - iii) Upgradation of existing PCs
 - iv) Upgradation of conferencing facilities
 - v) Enhancement of toilet facilities
 - vi) Realignment of office space
 - vii) Creation of Entrepreneurs Lab as common use computational facilities.
- (2) Appointment of trained professionals for newer programs and streamlining existing ones.
- (3) Purchase of essential equipments (fire safety, raincoats and boots for laborers etc.) has been given priority in consonance with our vision to bring a level of security within the STEP boundaries.
- (4) Landscaping of STEP in order to provide a facelift to the entire surrounding area other than the main building.
- (5) Infrastructural development of the old building of STEP for proper facilitation of the incubatees.
 - i) The entire old building has been painted and spruced up to give it a proper look
 - ii) The adjoining maintenance has been improved along with basic facilities upgraded
 - iii) Additional work is on to improve the central arcade to improve space utilization
 - iv) Additional cubicles have been put into place to cater to the needs of larger number of entrepreneurs

RESEARCH AND DEVELOPMENT

Brief descriptions of on-going activities :

(i) **The Entrepreneurial Activities at STEP IIT Kharagpur premises :**

Companies under Incubation

Major Entrepreneurial Activity

- | | |
|---|---|
| 1. P2 Power Solutions Pvt. Ltd. | Work in the domain of Power Quality enhancement at distribution level helping industries strengthen their power assets through avant-garde technology and technical expertise. In today's highly competitive environment, poor Power Quality and inefficient usage of power can significantly erode net earnings due to high operating costs. Installation of P2 power products reduces operating costs by improving the efficiency of the power supply system and almost eliminating failures and trips due to inefficient and poor Power Quality |
| 2. DataResolve Systems | DataResolve Systems offers the most innovative product and services for information and data security. All the products and services of the company revolve around the issue of securing different forms of electronic data in the form of files, archives of a corporate firm lying unprotected anywhere in the world which is potentially prone to theft. |
| 3. ElectroSoft Consultants | Involved in several sponsored and consultancy projects dedicated towards empowerment of physically challenged people, automation and control systems, to preparation of Vision and Theme papers. |
| 4. Centre for Advanced Communication | Interactive Software Integrated Learning System (ISILS) is the heart beat, nerve centre, brain, driving force of our overall system. |
| 5. Integrated Chemical Industries | Integrated chemical Industries provides for manufacturing leather chemical and specialty chemicals for industrial use. |
| 6. Nucleodyne Computer System Pvt. Ltd. | Software Development and consultancy |
| 7. National Institute of Science and Technology | It works in the field of software technology in consultancy mode. |
| 8. Hydro dyne | Work in the arena of Sophisticated Naval Architecture and design. Already constructed two hovercrafts which are undertaking comprehensive test run and trial to suit the long term needs of the Indian Navy. |
| 9. High tech consultants | Modeling, simulation, Control, Fault Detection and Isolation |
| 10. Focus R&D | Software Research |
| 11. Softlore Solutions | Training programs on various new software technologies. |

It is noteworthy that STEP has come a long way and has become self driven and an independent entity. Thanks to the policies put into practice STEP has been put back into the tracks of progress with our own financial independence firmly in place. We have additional funds flowing for general use and maintenance from our business incubation and we hope to get better incubatees who can put the space being provided to them to quality use.

There are other 12 companies under the incubation of TIETS as well.

(ii) Entrepreneurial Activities at STEP-Gopali :

# Companies under Incubation	Major Entrepreneurial Activity
1. Electro Thermal Insulation	In the field of Insulation wires and polymer insulations
2. Sandhya Glass works	Glass cutting work. Design of glass mirrors
3. Gulton Rubber works	Making of Rice husk rollers

Present activities being undertaken at STEP-Gopali are as under :

- (1) Redeployment of Manpower at STEP–Gopali so as to assist in the effective management of the entire area. The Resources have been redistributed in to assist in proper care of important horticultural activities like
 - i) Ornamental
 - ii) Medicinal plants and
 - iii) The Heritage Tea Gardens
- (2) Security – the security infrastructure of the entire STEP-Gopali area has been overhauled and a new security infrastructure put in place in order to keep unwanted elements at bay and to provide an efficient security cover at Gopali. The appointment of professional security guards has been done from January 2008.
- (3) The breach and broken walls have been mended and fencing has been heightened to suit the requirements. Additional security apparatus has been kept aside in order to keep up pace with any exigency.
- (4) Additional space of 1500 sq ft has been made available to entrepreneurs in order to keep their growing requirement of more space for entrepreneurial activities.
- (5) Basic amenities needed for the day to day requirements of Entrepreneurs has been upgraded
- (6) Realignment of activities of STEP–Gopali with the local people living in the vicinity in order to provide local solutions to local problems by integrating them with their needs and aspirations in tune with our Social entrepreneurship vision. STEP plans to implement projects keeping into consideration a healthy Return on investment (ROI) so as to attain a healthy SROI (Social Return on Investment) in the wider domains of EEEH (energy, health, environment and education) such as : Maternity care, Child and family welfare, Child education and nourishment

- (7) Rural Entrepreneurship has been vigorously promoted which will culminate in a rural entrepreneurship park to be possibly funded by DST (Department of Science & Technology).
- (8) Process of translocation of Vermi-compost Unit from STEP IIT main campus to STEP-Gopali area has started and is in advance stages, beyond which the existing space will be freed up for a more qualitative use.
- (9) The water and electricity problems being faced by the entrepreneurs have been resolved with negotiations with the government boards dealing with their supply.
- (10) Managing director keeps in touch with the day to day activities at STEP-Gopali by weekly and daily appraisal reports sent to him in accordance.
- (11) The MD makes sure to visit the place for timely meetings and discussions with the entrepreneurs.

Thrust Areas :

1. VLSI for Technology Business Incubation and high technology incubation
2. Agro based products at Gopali
3. Management Process for launching and sustaining Startups
4. Organic fertilizer through vermi-composting & its training Programs
5. Product focus in Energy, Environment, Education & Health

MISSION PROJECTS:

1. Recently a 2 Crores seed fund approval has been granted for setting up a VLSI based Technology Business Incubation at STEP on April 12th 2008.
2. The proposal for the starting of Small and Medium Scale Industries' Business Incubator has been submitted to the Ministry of Small & Medium Scale industries.

NEW ORGANIZATIONS INCUBATING AT STEP

#	Name of Company/Proprietor	Expertise Developed
1.	Sparsh Learning Technologies	Develop and market software, courseware for teaching / learning / training in different areas
2.	Proprietor : Biswanath Dey	Prepaid cash card for ATM system for Electric Bill
3.	Xaneda Technologies India Private Limited	A whole new business in Analog Mixed Signal Design Service area in India

COLLABORATIVE EFFORTS

International collaborations

We have been at the fore front of entrepreneurial activities having already played host to eminent dignitaries from around the world. We have been honored to have with us some eminent luminaries from.

1. University of Colorado, Boulder
2. University of California, Berkeley

We also have guests from Korea, Finland and Israel as a result of our wider game plan to project the rich academic culture of IIT around the world. As part of our wider effort to bridge common ground having entrepreneurship as a common platform, Prof. Biswas visited Jyvaskyla University, Finland and participated as well as conducted various entrepreneurship sessions with the students.

Global Venture Lab

STEP, IIT Kharagpur, will be setting up the GLOBAL VENTURES LAB in collaboration with UC Berkeley, California, Jyvaskyla University, Finland and IIT Kharagpur to match the skills of various entrepreneurs to make the students the best entrepreneurs of the world. This came out of the Boot camp organized by UC Berkeley at CA which Prof. Biswas attended last December where a need was felt to upgrade the level of cooperation between the three universities to newer heights. It is accepted that the students of IIT Kharagpur have access to world class, innovative, highly technical, skilled manpower UC Berkeley students have an abundance of pertinent venture capital and entrepreneurial resources, JYU, Finland has an abundance of ideas and innovations.

VISIT OF EXPERTS

1. Prof. Dipankar Chakravarti, University of Colorado, Boulder, visited STEP, IIT Kharagpur in April 2008. He held discussions on issues of mutual importance along with social aspects of entrepreneurship. He also spent some quality time with the grass-root students of Entrepreneurship Development Program (EDP)
2. Dr. Mauno Harju, Development Director, Ph.D., Nanotechnology Cluster Program, Jyvaskyla Innovation Ltd. Finland, along with his team of three members visited STEP, IIT Kharagpur for Global Nanotechnology Business Incubator program and held discussions with the students and Professors of IIT Kharagpur on mutual areas of interest
3. Prof. Yongkyun Yoon, Choongbuk, South Korea with his team of ten members visited STEP IIT in the month of January 08 for initiating discussion on technology and innovation related aspects at the university level as well as collaborate with our knowledge repository

ONGOING TRAINING PROGRAMS

1. Technology Entrepreneurship Development Program (TEDP)

The TEDP program has been reengineered for grass root entrepreneurship relevant to semi urban and rural poor people. This time we have scaled up our TEDP to conduct 4 such programs for the grassroots entrepreneurs in the domains of EEEH (energy environment education and health) utilizing the vibrant ecosystem at STEP IIT KGP.

This effort is in consonance with the vision of local solutions to be provided to the local people by training the grass-root people in these four domains. The students are trained to serve themselves as entrepreneurs as well as these grass-root entrepreneurs are exposed to the environment of IIT for 6 weeks. This gives them self confidence to establish themselves.

2. **Faculty Development Program (FDP)**

A two weeks' program positioned towards training faculties from other engineering colleges in the local area including IIT Kharagpur was sent and it was accepted by Department of Science & Technology. FDP is aimed at the faculties of the entire north-eastern and eastern region of India for the purpose of advancing the entrepreneurial culture in and around their region. Faculties from various places such as Jharkhand, West Bengal, Orissa and Assam had come to participate in the program. The approach is towards training the faculties so that they in return are able to train the students back home and create an entrepreneurial ecosystem. The FDP was received with admiration and was able to meet its desired objective of entrepreneurial knowledge propagation.

TRAINING & PLACEMENT SECTION

PROFESOR-IN-CHARGE : **Professor Balbir Kumar Mathur**

PLACEMENT DETAILS

The Training and Placement Section is responsible for arranging practical training for 3rd year students and job placement of final year students graduating from the Institute. The Section is actively engaged in forging synergistic relationships between the Institute and various industries and user systems of technical and scientific manpower. Based on these interactions, the T&P Section gives feedback to the Institute on the academic programmes.

146 companies / organizations visited the campus for recruitment in 2007-2008. 14 others preferred to call the students for interviews to their offices. The details of number of students who had interested for placement and those actually placed through campus interviews are as follows :

Course / Degree	No. of students interested	No. of students placed
B.Tech. (Hons.)	330	324
B.Arch. (Hons.)	009	08
M.Sc.	157	100
Dual Degree M.Tech.	159	156
M.Tech.	507	361
M.S.	018	16
M.C.P.	019	15
M.B.M.	117	116
M.M.S.T.	002	02
PGDIT	074	41
PGDTNM	010	04
PGDRD	002	00
Ph.D.	003	03
Total	1407	1146

SUMMER TRAINING

Eight weeks of Summer Practical Training at the end of 3rd year B.Tech / Dual Degree is a compulsory part of the B.Tech.(Hons.) / Dual Degree curriculum at IIT Kharagpur, carrying 2 credits. All efforts are made to place the concerned students in the best of organizations in India and abroad, for summer training. An emergent trend is that more and more students are seeking summer training abroad.

A total of 1500 companies / organizations in India were contacted for training facilities for the last summer vacations in May-July 2007. Among these 130 in India had offered training facilities, out of which 94 organizations had extended out-of-pocket allowances (covering 254 students) and many other extended subsidized transport, subsidized canteen and/or

subsidized accommodation for our students. The highest out-of-pocket allowance of Rs. 20,000 per month was paid by Yahoo and six organizations extended Rs.15,000/- per month (Hindustan Lever Ltd., ITC Ltd., Schlumberger, Microsoft, Magma Design & Morgan Stanley, Barclay Capital, IBM and Siemens). Ten companies offered stipend in the range Rs. 10,000/- per month to 14,000/- per month and twenty organizations offered out of pocket allowance in the range Rs. 5000/- to Rs. 8,000/- per month and rest of the organizations offered below Rs. 5000/-.

350 students (all years) had taken up summer training in organizations abroad during the summer 2008. During summer 2008, a total of 580 third year B.Tech.(Hons.) / Dual Degree students were placed for summer training. The Department of Mining Engineering handled the placements of their students for summer training separately. A number of 2nd year B.Tech.(Hons) / Dual Degree and M.Sc. students were also placed for optional training.

STUDENT PARTICIPATION

To harness the student power, a formal system of student participation in the process had been initiated during 2005-2006. This has evolved and the 2007-2008 placement saw students participating in running placement process. In fact, through this participation it was possible to run up to seven / eight companies per day and round the clock. Students take active part in calling up companies and managing the logistics of placement.

TECHNOLOGY TELECOM CENTRE

PROFESSOR-IN-CHARGE : **Professor Ratnam Varada Raja Kumar**

Officer :

Gupta, Pankaj	B.Tech. in Computer Engineering
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NEW PLANNING

- i) Planning to lay the underground cable to each independent Quarter (B & C1 type) in Dandakaranya Area to minimize the maintenance problem.
- ii) Building a Wimax Network in the Campus

WORK DONE

- i) Telephone facilities provided to Rajiv Gandhi School of Intellectual Property Law
- ii) Telephone facilities provided to Rani Laxmi Bai Hall of Residence
- iii) Apart from the above, new telephone connections are being provided to newly joined faculties and newly opened Labs. The total analog numbers installed are 2503.

TECHNOLOGY STUDENTS' GYMKHANA

PRESIDENT : **Professor Manish Bhattacharjee**

ACTIVITIES

Inter IIT Sports Meet :

The 43rd Inter IIT Sports Meet began with the Inter IIT Aquatic Meet held during October 02–05, 2007, at IIT Bombay. IIT Kharagpur secured over all 2nd position in Swimming both in Men's & Women's categories. Extra ordinary performance in swimming by Chirag Fialoke, a first year UG student, was the highlight of the meet. He got 13 medallions, which include 10 Gold medals, 2 Silver medals and one Bronze medal. The second phase, which includes all other games, started from December 13th to 21st, 2007. IIT Kharagpur secured Silver Medal in Badminton, Bronze in Weight Lifting, Basketball and Cricket.

Inter Hall Competitions in Sports and Games :

During the Autumn Semester Inter Hall competitions started with the Inter Hall Aquatic competitions in the month of August 2007. MMM (HK), an UG first year hall, won the Championship followed by Nehru and Patel Hall in second and third positions. Chirage Fialoke, a first year UG student, became the Individual Champion. Inter Hall Athletics Meet was held from 3 to 4th November, 2007. RP Hall of Residence became the Champion. LLR and Azad Halls secured 2nd and 3rd positions.

In the Spring Semester the second phase of inter hall competitions in cricket, football, hockey, basketball, volleyball, badminton, table tennis, tennis and weight lifting are held. Patel Hall of Residence bagged the Overall General Championship in Sports & Games for the year 2007-2008

For the first time the Inter Hall Competitions among the girl's hostels are introduced on experimental basis. Competitions in table tennis, badminton, swimming and basketball are held.

Inter Hall Competitions in Social & Culture Events :

As usual the Inter Hall competitions in various social & culture events are organized. Nehru Hall of Residence became the Overall General Champion in Social & Culture. The traditional Inter Hall Illumination & Rangoli competition was organized with great enthusiasm. RP Hall and Nehru Halls became champions in Illumination and Rangoli competitions respectively.

Inter Hall Competitions in Technology :

Inter Hall competitions in Technology is gradually getting a good momentum. This year competitions are held in various categories Azad Hall Residence won the Overall General Championship in Technology for the year 2007-08.

MAJOR EVENTS ORGANISED

Spring Fest'08 :

The Spring Fest'08 was organized during January 24th and 26th, 2008. This year participation from colleges from various parts of country was very good. Artists like Sukhvinder Singh, Pandit Viswamohan Bhat entertained audience. The Hasya Kavi Sammelan as usual delighted TOAT-full audience.

Kshitiz'08 :

The Annual Tech Fest Kshitiz'08 was organized during February 4th and 7th, 2008. Around 6000 participants from various colleges of India and abroad took part in various competitive events like Business Plan, Advertisement designing, case studies to Paper presentations, Computer programming and Robotics. Presence of stalwarts of scientific, technical and managerial domains like Prof. K. Eric Drexler, renown Astrophysicist Prof. Lawrence M. Krauss, the Founder of Wikipedia Mr Jimmy D. Wales, Environmental Lawyer Mr. M.C. Mehta, Intel Country Manager Mr. Ramamurthy Sivakumar, Google Product Manager Mr. Surojeet Chatterjee, and eminent Car Designer Mr. Dilip Chhabria gave the participants a great learning ambience. Participants also showed great talent in innovations and creations.

Ajay Ghosh Memorial Trophy Cricket Tournament :

The Ajay Ghosh Memorial Trophy Tournament, an Inter University Cricket tournament among the universities of West Bengal, affiliated to the Cricket Association of Bengal, was held during 2nd Nov'07 to 8th Nov'07. The Cricket Association of Bengal financed the tournament and Technology Students' Gymkhana was the host. Calcutta University and Kalyani University became Champion and Runner Up.

OUTSIDE PARTICIPATIONS

West Bengal Inter University Football Tournament :

The Football Team of IIT Kharagpur participated in the Exide Vidyasagar Trophy Football Tournament organized by the Indian Football Association (I.F.A.). The tournament held at Howrah Stadium, Howrah.

All India Inter Technical College day-night cricket tournament :

The Cricket Team of IIT Kharagpur participated in the All India Inter Technical College Day & Night Cricket Tournament organized by Indian School of Mines, Dhanbad, from 27th to 30th March, 2008

Inter Engineering Badminton Tournament :

The Badminton Team of IIT Kharagpur participated in the Inter Engineering Badminton Tournament held at Sambalpur and won Gold

Ramachandra Memorial Tennis Tournament :

The Tennis team of IIT Kharagpur participated in the Ramachandra Memorial Tennis Tournament organized by Midnapore District and secured second position. The Staff Team, comprising Mr. S. A. Rai and Mr. T. K. Guchhait, became the Runner up in Veterans Category.

DEVELOPMENTS

- i) Development of a new Modern Gymnasium with modern equipments
- ii) Development of Swimming Pool with chlorine plant to clean water

NEW ACQUISITIONS

- i) Equipments of international standard for Athletics
- ii) Bowling Machine for training in cricket
- iii) Multiple Practice Net facility for training in Cricket
- iv) Imported equipments for Modern Gymnasium
- v) Billiards Table
- vi) Golf Kits
- vii) Roller and Lawn Mowers for maintenance of play fields

FACILITIES

- i) Modern Gymnasium
- ii) Billiards
- iii) Athletics Stadium with modern training facilities
- iv) Two Cricket Fields with modern practice facilities
- v) Six Tennis Courts including two flood lit courts
- vi) Two flood lit Volleyball Courts
- vii) Two flood lit Basketball Courts
- viii) One wooden Badminton Court
- ix) Table Tennis room with two tables
- x) Yoga room
- xi) Standard Swimming Pool

PART - III

STATISTICAL INFORMATION

TABLE : A-1

ADMISSION TO UNDERGRADUATE (B.TECH./B.ARCH./M.SC./DUAL DEGREE) COURSES IN THE SESSION 2007-2008

#	Course	SANCTIONED STRENGTH				ADMISSION OFFERED				ACTUALLY REGISTERED			
		GEN	SC	ST	TOTAL (PD)	GEN	SC	ST	TOTAL	GEN	SC	ST	TOTAL

(A) B.TECH. 4-YEAR

1	Aerospace Engineering	16	03	02	21(1)	16	03	01	20	16	03	01	20
2	Agricultural & Food Engg.	17	03	02	22(1)	17	03	-	20	15	03	-	18
3	Biotech. & Biochemical Engg.	14	03	02	19(1)	14	04	01	19	14	04	01	19
4	Chemical Engineering	26	05	02	33(1)	26	07	-	33	26	06	-	32
5	Civil Engineering	31	06	03	40(1)	31	08	-	39	31	08	-	39
6	Computer Science & Engg.	28	06	03	37(1)	29	07	04	40	29	07	04	40
7	Electrical Engineering	28	05	03	36(1)	29	05	03	37	28	05	03	36
8	Electronics & ECE	31	06	03	40(1)	31	06	03	40	31	06	03	40
9	Industrial Engineering	15	03	01	19(1)	15	04	-	19	15	04	-	19
10	Instrumentation Engineering	16	03	02	21(1)	16	04	-	20	16	03	-	19
11	Manufacturing Science & Engineering	15	03	02	20(1)	15	05	-	20	15	05	-	20
12	Mechanical Engineering	34	07	03	44(1)	35	07	01	43	35	07	01	43
13	Met. & Materials Engineering	22	04	02	28(1)	22	06	-	28	22	06	0	28
14	Mining Engineering	20	04	02	26(1)	20	02	-	22	19	02	-	21
15	Ocean Engg. & Naval Arch.	17	03	02	22(1)	17	05	-	22	17	05	-	22

Total (A) :		330	64	34	428(16)	333	76	13	422	329	74	13	416
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Table : A-1 (Continued)

#	Course	SANCTIONED STRENGTH				ADMISSION OFFERED				ACTUALLY REGISTERED			
		GEN	SC	ST	TOTAL (PD)	GEN	SC	ST	TOTAL	GEN	SC	ST	TOTAL

(B) B.ARCH. 5-YEAR

1	Architecture	25	05	02	32(1)	25	01	-	26	24	01	-	25
Total (B) :		25	05	02	32(1)	25	01	-	26	24	01	-	25

#	Course	SANCTIONED STRENGTH				ADMISSION OFFERED				ACTUALLY REGISTERED			
		GEN	SC	ST	TOTAL (PD)	GEN	SC	ST	TOTAL	GEN	SC	ST	TOTAL

(C) M.Sc. INTEGRATED 5-YEAR

1	Applied Geology	18	03	01	22(1)	18	04	-	22	18	03	-	21
2	Economics	22	04	02	28(1)	23	01	-	24	20	01	-	21
3	Exploration Geophysics	17	03	02	22(1)	16	01	02	19	15	-	02	17
4	Industrial Chemistry	17	03	02	22(1)	17	-	-	17	15	-	-	15
5	Mathematics & Computing	17	03	02	22(1)	17	04	-	21	17	03	-	20
6	Physics	18	03	01	22(1)	18	02	-	20	15	01	-	16
7	Statistics & Informatics	22	04	02	28(1)	22	05	-	27	21	04	-	25
Total (C) :		131	23	12	166(7)	131	17	02	150	121	12	02	135

Table : A-1 (Continued)

#	Course	SANCTIONED STRENGTH				ADMISSION OFFERED				ACTUALLY REGISTERED			
		GEN	SC	ST	TOTAL (PD)	GEN	SC	ST	TOTAL	GEN	SC	ST	TOTAL

(D) DUAL DEGREE 5-YEAR

1	Aerospace Engineering	09	02	01	12(1)	09	03	01	13	08	03	01	12
2	AG & F.E./Water Res. Dev. & Management	16	03	01	20(1)	16	-	-	16	14	-	-	14
3	Biotech. & Biochem. Engg.	12	02	01	15(1)	12	03	-	15	12	03	-	15
4	Chemical Engineering	13	03	01	17(1)	13	03	01	17	13	03	01	17
5	Civil Engineering / Struct. Engg.	10	02	01	13(1)	10	03	-	13	10	03	-	13
6	Computer Sc. & Engineering	19	04	02	25(1)	19	04	02	25	19	04	01	24
7	Elect. Engg./ Instru. Engg.	12	02	01	15(1)	12	02	-	14	12	02	-	14
8	E&ECE/ Auto. & Comp. Vision	19	04	02	25(1)	19	04	02	25	19	04	02	25
9	Industrial Engineering / IEM	13	03	01	17(1)	13	04	-	17	13	04	-	17
10	Manuf. Sc. & Engg. / IEM	09	02	01	12(1)	09	03	-	12	09	03	-	12
11	(i) M.E. / M. S. Engineering (ii) M.E./Thermal, Energy & Environ. Engineering	23	04	02	29(1)	23	04	-	27	23	04	-	27
12	Met. & Mat. Engg. / Met. Engg.	09	02	01	12(1)	09	01	-	10	09	01	-	10
13	Mining Engineering	09	02	01	12(1)	09	03	-	12	06	03	-	09
14	Mining Engg. / Safety Engg. & Disaster Mgt. in Mines	08	02	01	11(1)	08	03	-	11	07	03	-	10
15	Ocean Engg. & Naval Arch.	10	02	01	13(1)	10	03	-	13	08	03	-	11

Total (D) :	191	39	18	248(15)	191	43	06	240	182	43	05	230
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TOTAL (A + B + C + D) :	677	131	66	874*(39)	680	137	21	838**	656	130	20	806**
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* Under PD category a maximum of one seat in each course is reserved subject to 3% of total seats i.e. 27 seats.

** Including preparatory and re-admission.

TABLE : A-2

ADMISSION TO 2-YEAR M.SC. COURSES, 2007 – 2008

#	Course	OFFERED					REGISTERED					NOT REGISTERED				
		GE	SC	ST	PD	TOTAL	GE	SC	ST	PD	TOTAL	GE	SC	ST	PD	TOTAL
1	Chemistry	24	05	-	-	29	24	05	-	-	29	-	-	-	-	-
2	Geophysics	16	03	-	-	19	16	02	-	-	18	-	01	-	-	01
3	Geological Sciences	13	-	-	-	13	13	-	-	-	13	-	-	-	-	-
4	Mathematics	14	03	-	01	18	12	02	-	01	15	02	01	-	-	03
5	Physics	22	05	01	01	29	17	05	01	01	24	05	-	-	-	05
6	Statistics & Informatics	19	-	-	-	19	15	-	-	-	15	04	-	-	-	04
TOTAL :		108	16	01	02	127	97	14	01	02	114	11	02	-	-	13

TABLE : A-3**DISCIPLINE-WISE BREAK-UP OF STUDENTS AWARDED M.C.M. SCHOLARSHIP 2007-2008****Rate of Scholarship : Rs. 1000/- p.m. plus Free-tuitionship**

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(A) B.Tech. 4-Year							
1	Aerospace Engineering	08	08	05	04		25
2	Agricultural & Food Engineering	08	02	05	01		16
3	Biotechnology & Biochemical Engineering	04	04	04	04		16
4	Chemical Engineering	06	06	09	04		25
5	Civil Engineering	08	05	14	04		31
6	Computer Science & Engineering	08	06	12	11		37
7	Electrical Engineering	11	07	12	11		41
8	Electronics & Electrical Communication Engineering	06	10	09	02		27
9	Energy Engineering		05	03	03		11
10	Industrial Engineering	05	04	02	05		16
11	Instrumentation Engineering	06	05	03	04		18
12	Manufacturing Science & Engineering	05	04	03	03		15
13	Mechanical Engineering	12	10	10	08		40
14	Metallurgical & Materials Engineering	08	04	05	07		24
15	Mining Engineering	06	04	04	04		18
16	Ocean Engineering & Naval Architecture	05	03	04	04		16

Table : A-3 (Continued)

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(B) B.Arch. 5-Year							
	Architecture	10	03	08	02	03	26
(C) M.Sc. Integrated 5-Year							
1	Applied Geology	06	03	-	02	02	13
2	Economics	04	02	04	-	-	10
3	Exploration Geophysics	02	03	-	05	03	13
4	Industrial Chemistry	02	01	02	02	01	08
5	Mathematics & Computing	02	06	05	05	04	22
6	Physics	02	03	-	01	04	10
7	Statistics & Informatics	06	05	05	-	-	16
(D) M.Sc. 2-Year							
1	Chemistry				04	14	18
2	Geophysics				03	03	06
3	Geological Sciences				07	07	14
4	Mathematics				03	07	10
5	Physics				08	13	21
6	Statistics & Informatics				01	05	06

Table : A-3 (Continued)

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(E) Dual Degree 5-Year							
1	Aerospace Engineering	03	02	01	04	-	10
2	Agril. & Food Engg. / Water Res. Dev. & Manag.	03	01	-	04	-	08
3	Biotechnology & Biochemical Engineering	02	03	02	03	-	10
4	Chemical Engineering	04	05	06	01	-	16
5	Civil Engineering / Structural Engineering	05	03	04	-	-	12
6	Computer Science & Engineering / Computer & Information Technology	04	05	02	06	-	17
7	Electrical Engineering / Instrumentation Engineering	04	03	-	04	-	11
8	E&ECE / Automation & Computer Vision	04	08	05	01	-	18
9	Industrial Engineering / IEM.	07	02	02	03	-	14
10	Manufacturing Science & Engineering / IEM	02	03	02	02	-	09
11	M.E. / M.S. Engineering	04	04	04	06	-	18
12	M.E. / Thermal, Energy & Environ. Engineering						
13	Met. & Mat. Engg./ Metallurgical Engineering	-	02	02	01	-	05
14	Mining Engineering	07	05	10	02	-	24
15	Mining Engineering / Safety Engineering & Disaster Management in Mines						
16	Ocean Engineering & Naval Architecture	01	01	04	03	-	09
TOTAL :		216	209	172	136	17	750

TABLE : A-4A**STUDENTS AWARDED ONLY FREE TUITIONSHIP 2007-2008**

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(A) B.Tech. 4-Year							
1	Aerospace Engineering	-	01	03	01	-	05
2	Agricultural & Food Engineering	-	01	01	-	-	02
3	Biotechnology & Biochemical Engineering	-	-	02	-	-	02
4	Chemical Engineering	-	01	-	01	-	02
5	Civil Engineering	-	02	-	01	-	03
6	Computer Science & Engineering	-	01	01	02	-	04
7	Electrical Engineering	-	01	01	01	-	03
8	Electronics & Electrical Communication Engineering	-	02	-	04	-	06
9	Energy Engineering	-	-	-	-	-	-
10	Industrial Engineering	-	01	02	-	-	03
11	Instrumentation Engineering	-	-	01	01	-	02
12	Manufacturing Science & Engineering	-	02	-	-	-	02
13	Mechanical Engineering	-	01	03	05	0-	09
14	Metallurgical & Materials Engineering	-	02	-	-	-	02
15	Mining Engineering	-	03	02	-	-	05
16	Ocean Engineering & Naval Architecture	-	01	01	-	-	02

Table : A-4A (Continued)

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(B) B.Arch. 5-Year							
1	Architecture	-	04	01	-	-	05
(C) M.Sc. Integrated 5-Year							
1	Applied Geology	-	02	02	01	-	05
2	Economics	-	03	-	-	-	03
3	Exploration Geophysics	-	-	02	-	02	04
4	Industrial Chemistry	-	01	-	03	01	05
5	Mathematics & Computing	-	01	03	-	-	04
6	Physics	-	01	03	01	02	07
7	Statistics & Informatics	-	03	04	01	-	08
(D) M.Sc. 2-Year							
1	Chemistry				03	-	03
2	Geophysics				01	01	02
3	Geological Sciences				01	-	01
4	Mathematics				03	02	05
5	Physics				03	-	03
6	Statistics & Informatics				01	-	01

Table : A-4A (Continued)

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(E) Dual Degree 5-Year							
1	Aerospace Engineering	-	02	02	-	-	04
2	Agril. & Food Engg. / Water Res. Dev. & Manag.	-	03	-	-	-	03
3	Biotechnology & Biochemical Engineering	-	02	-	-	-	02
4	Chemical Engineering	-	01	-	-	-	01
5	Civil Engineering / Structural Engineering	-	01	-	-	-	01
6	Computer Science & Engineering / Computer & Information Technology	-	-	-	-	-	-
7	Electrical Engineering / Instrumentation Engineering	-	01	02	01	-	04
8	E&ECE / Automation & Comp. Vision	-	02	01	01	-	04
9	Industrial Engineering / IEM	-	-	01	-	-	01
10	Manufacturing Science & Engineering / IEM	-	01	01	-	-	02
11	Mechanical Engineering / M.S. Engineering	-	01	07	03	-	11
12	M.E. / Thermal, Energy & Environ. Engineering						
13	Met. & Mat. Engineering / Metallurgical Engineering	-	-	-	-	-	-
14	Mining Engineering	-	02	01	-	-	03
15	Mining Engg. / Safety Engg. & Disaster Mgt in Mines						
16	Ocean Engineering & Naval Architecture	-	-	01	-	-	01
TOTAL :		12	53	48	27	05	145

TABLE : A-4B**STUDENTS GRANTED TUTION FEE EXEMPTION (ONLY SC / ST) 2007-2008**

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	
(A) B.Tech. 4-Year												
1	Aerospace Engineering	3	1	3	2	2	-	2	-			13
2	Agricultural & Food Engineering	3	-	2	-	-	-	-	-			05
3	Biotechnology & Biochemical Engineering	4	1	3	-	1	1	1	1			12
4	Chemical Engineering	5	2	5	-	6	-	4	-			22
5	Civil Engineering	8	-	10	1	3	-	4	-			26
6	Computer Science & Engineering	7	4	6	3	5	2	4	3			34
7	Electrical Engineering	5	3	5	2	5	2	5	2			29
8	Electronics & Electrical Communication Engineering	6	3	6	3	5	2	4	2			31
9	Energy Engineering	-	-	2	1	5	1	3	-			12
10	Industrial Engineering	4	-	3	-	2	-	2	-			11
11	Instrumentation Engineering	3	-	3	1	3	1	3	1			15
12	Manufacturing Science & Engineering	3	2	3	-	2	1	4	-			15
13	Mechanical Engineering	7	1	7	3	4	2	5	1			30
14	Metallurgical & Materials Engineering	4	2	7	-	3	-	3	-			19
15	Mining Engineering	1	1	7	1	2	-	-	-			12
16	Ocean Engineering & Naval Architecture	3	2	6	-	2	-	3	-			16
	Total (A) :	66	22	78	17	50	12	47	10			302

Table : A-4B (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	
(B) B.Arch. 5-Year												
1	Architecture	1	-	-	-	-	-	-	-	-	-	01
	Total (B) :	1	-	-	-	-	-	-	-	-	-	01
(C) M.Sc. Integrated 5-Year												
1	Applied Geology	3	-	-	-	-	-	-	-	-	-	03
2	Economics	1	-	-	-	-	-	-	-	-	-	01
3	Exploration Geophysics	-	2	1	-	-	-	-	-	-	-	03
4	Industrial Chemistry	-	-	-	-	-	-	-	-	-	-	-
5	Mathematics & Computing	3	-	6	-	3	-	-	-	1	-	13
6	Physics	1	-	4	-	-	-	-	-	-	-	05
7	Statistics & Informatics	3	1	1	-	-	-	-	-	-	-	05
	Total (C) :	11	3	12	-	3	-	-	-	1	-	30
(D) M.Sc. 2-Year												
1	Chemistry							3	-	5	1	09
2	Geophysics							-	-	-	-	-
3	Geological Sciences							2	-	3	1	06
4	Mathematics							2	-	3	-	05
5	Physics							5	1	5	1	12
6	Statistics & Informatics							-	-	1	-	01
	Total (D) :							12	1	17	3	33

Table : A-4B (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	
(E) M.Tech. Dual Degree 5-Year												
1	Aerospace Engineering	3	1	2	-	2	-	-	-	2	-	10
2	Agril. & Food Engg. / Water Res. Dev. & Manag.	-	-	3	-	1	-	-	-	-	-	04
3	Biotechnology & Biochemical Engineering	3	-	3	-	2	1	1	-	-	-	10
4	Chemical Engineering	3	1	4	-	3	1	-	-	3	-	15
5	Civil Engineering / Structural Engineering	3	-	3	-	3	-	-	-	1	-	10
6	Computer Science & Engineering / Computer & Information Technology	4	1	4	2	2	4	3	1	2	1	24
7	Electrical Engineering / Instrumentation Engg.	2	-	2	1	2	2	2	1	2	1	15
8	E&ECE / Automation & Computer Vision	4	2	4	3	2	3	2	1	2	-	23
9	Industrial Engineering / IEM	4	-	5	-	1	-	-	-	1	-	11
10	Manufacturing Science & Engineering / IEM	2	1	2	-	2	1	1	-	1	-	10
11	Mechanical Engineering / M.S. Engineering	4	-	4	2	2	1	3	1	-	1	18
12	M.E./Thermal, Energy & Environ. Engineering	-	-	-	-	2	-	1	-	1	1	05
13	Met. & Mat. Engg. / Metallurgical Engineering	-	1	1	-	-	-	1	-	1	-	04
14	Mining Engineering	2	1	1	-	-	-	-	-	-	-	04
15	Mining Engineering / Safety Engineering & Disaster Management in Mines	2	1	1	-	-	-	-	-	-	-	04
16	Ocean Engineering & Naval Architecture	2	1	4	-	2	-	-	-	1	1	11
	Total (E) :	38	10	43	8	26	13	14	4	17	5	178
	TOTAL (A + B + C + D + E) :	116	35	133	25	79	25	73	15	35	8	544

Table : A-5 (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	
(B) B.Arch. 5-Year												
1	Architecture											
(C) M.Sc. Integrated 5-Year												
1	Applied Geology											
2	Economics											
3	Exploration Geophysics		1									1
4	Industrial Chemistry											
5	Mathematics & Computing		1	1								2
6	Physics											
7	Statistics & Informatics	1										1
(D) M.Sc. 2-Year												
1	Chemistry							1		4		5
2	Geophysics											
3	Geological Sciences							1			1	2
4	Mathematics									2		2
5	Physics											
6	Statistics & Informatics									3	1	4

Table : A-5 (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	
(E) Dual Degree 5-Year												
1	Aerospace Engineering		1									1
2	Agril. & Food Engg. / Water Res. Dev. & Manag.											
3	Biotechnology & Biochemical Engineering											
4	Chemical Engineering			3		1						4
5	Civil Engineering / Structural Engineering											
6	Computer Science & Engineering / Computer & Information Technology						1					1
7	Electrical Engineering / Instrumentation Engineering											
8	E&ECE / Automation & Computer Vision											
9	Industrial Engineering / Industrial Engineering & Management					1						1
10	Manufacturing Science & Engineering / IEM					1						1
11	Mechanical Engineering / M.S. Engineering											
12	M.E. / Thermal, Energy & Environ. Engineering											
13	Met. & Mat. Engineering / Metallurgical Engineering		1					1	1			2
14	Mining Engineering											
15	Mining Engineering / Safety Engineering & Disaster Management in Mines											
16	Ocean Engineering & Naval Architecture		1									1
TOTAL :		5	8	14	6	11	2	2				48

TABLE : A-6**A. STUDENTS AWARDED ENDOWMENT PRIZES : 2007 – 2008****1. ENDOWMENT PRIZES - (UNDERGRADUATE) :**

#	Name of Prize	Name of the winner	Institute Roll No.	Amount (Rs.)
1.	Sarat Memorial Prize	Ridhima Kedia	04CS1021	500.00
2.	Suhasini Devi Memorial Prize	Asha Parekh	04CH1027	500.00
3.	P. K Bhattacharya Memorial Prize	Nishank Saxena	03EX2008	500.00
4.	Sachinandan Basak Memorial Prize	Anandaroop Chakraborty	06EC1045	500.00
5.	Amlan Sen Memorial Prize	Amit Gahoi	04ME1040	1,000.00
6.	Swapn Kumar Saha Memorial Prize	Rithe Rahul Kumar Jagdish	04EC1029	1,000.00
7.	Medury Bhanumurthy Memorial Prize	Indrajit Mal	04MT1016	350.00
8.	H. N. Bose Memorial Prize	Anirban Ghosh	03PH2001	3,000.00
9.	Sharmila Bose Memorial Prize	Aditi Das	03CY2018	3,000.00
10.	Bigyan Sinha Memorial Prize	Rishabh Singh	04CS1015	1,000.00
11.	Usha Martin Award	Indrajit Mal	04MT1016	1,000.00
12.	Systems Society Award	Sandesh V Borgaonkar	04EE1023	2,500.00
13.	Prof. K. L. Chopra Award	Subhamoy Ghatak	06PH4016	1,000.00
14.	Charubala Devi Memorial Prize	Anvesh Komuravelli	05CS1031	1,000.00
15.	Gouri Basak Design Award	Deepak Sohane	04AR1013	1,000.00
16.	Prof. Prabodh Chandra Sanyal Award	Sanchayan Chakraborty	03MA2004	1,000.00
17.	B. L. Nagpal Memorial Prize	Puneet Kumar Patra	05CE1032	2,000.00
18.	Umesh Kumar Bhatia Sports Prize	Indrajit Mal	04MT1016	1,000.00
19.	Pradeep Kumar Chakraborty Award	Arunima Singh	05MT1025	1,000.00
20.	G. B. Mitra Award	Anirban Ghosh	03PH2001	1,000.00
21.	Bhartiya Cutler Hammer Prize	Mayank Kr Bhagat	05EE1014	3,000.00
22.	R. M. Lalwani Prize	Anvesh Komuravelli	05CS1031	1,000.00
23.	H. P. Bhadury Memorial Prize	Shrenik Kothari	05ME1042	1,500.00

24.	John Von Neuman Award	Anvesh Komuravelli	05CS1031	2,500.00
25.	Prof. S. K. Nandi Memorial Prize	Himanshu Yadav	05CH1033	500.00
26.	International Symposium (Microwave & Communication) 1981 Prize	Amit Agarwal	05EC1033	3,000.00
27.	Class Of 1970 Alumni (US) Association Prize	Arka Alope Bhattacharya	06CS1039	2,500.00
28	Technology Alumni Association (Delhi Chapter) Award	Rasha Eqbal	07CH1030	1,500.00
29	IIT Kharagpur Alumni (California Chapter) Award	Arka Alope Bhattacharya	06CS1039	3,000.00
30	Ram Gopal Kabre Memorial Prize	Pradipta Banerjee	06AR1001	1,000.00
31	Prof. S. P. Sengupta Memorial Prize	Anirban Garai	04ME3203	2,500.00
32	K. Rama Rao Endowment Prize	Kumar Satyam	05AG1016	2,500.00
33	Smt. Ava Sanyal Memorial Prize	Arunima Singh	05MT1025	2,500.00
34	Prof. B. N. Avasthi Memorial Award For Sports	Jointly : Chirag Fialoke (male) Shivani Pal (female)	07CY2017 05EE1031	2,500.00 2,500.00
35	Prof. Sunil Kanti Sen Memorial Award	Jointly : Rasha Eqbal Aritra Chatterjee	07CH1030 07NA3007	2,000.00 2,000.00
36	Prof. Sudhir Ranjan Sengupta Memorial Prize	Priyanka Thamma	04CE1009	2,000.00
37	Best B.Tech. Project Thesis Award by Mr. Mitrajit Mukhopadhyay	1 st – Himanshu Sharma 2 nd – Richa 3 rd – Vivek Kumar	04CH3007 04CH1016 04CH1024	25,000.00 15,000.00 10,000.00
38	A. A. Hakim Memorial Endowment Prize	Amrita S Sarma	03AG3304	2,500.00
39	Keshab K Parhi Endowment Prize	Prithviraj Banerjee	03EC3510	15,000.00
40	Nilanjan Ganguly Memorial Award For E&ECE Department	Ritesh Parikh	04EC3207	10,000.00
41	Nilanjan Ganguly Memorial Award For Physics Department	Anirban Ghosh	03PH2001	10,000.00
42	Kedar Nath Singh Memorial Prize	Anirban Ghosh	03PH2001	6400.00
43	Dwaraka Nath Singh Memorial Prize	Amod Kumar Jain	03ME3016	6400.00
44	Jugal Kishore Singh Memorial Prize	Sourav Padhy	04ME1042	6400.00

Table : A-6 (Continued)**2. J. C. GOSH MEMORIAL PRIZES :**

#	Name of the Departments	Name of the winner	Institute Roll No.	Amount (Rs.)
1	Aerospace Engineering	Richa Singh	05AE1019	2000.00
2	Agricultural & Food Engineering	Tushar Gulati	05AG3005	2000.00
3	Biotechnology & Biochemical Engineering	K.M.Saravana Kumar	05BT3013	2000.00
4	Chemical Engineering	Himanshu Yadav	05CH1033	2000.00
5	Civil Engineering	Puneet Kumar Patra	05CE1032	2000.00
6	Computer Science & Engineering	Anvesh Komuravelli	05CS1031	2000.00
7	Electrical Engineering	Mayank Kr Bhagat	05EE1014	2000.00
8	Energy Engineering	Apte Chinmay Raghunath	05EG1013	2000.00
9	Instrumentation Engineering	Kartikya K Sharma	05IE1021	2000.00
10	Electronics & Electrical Communication Engineering	Amit Agarwal	05EC1033	2000.00
11	Industrial Engineering	Soumya Ranjan Nanda	05IM1015	2000.00
12	Mechanical Engineering	Shrenik Kothari	05ME1042	2000.00
13	Manufacturing Science & Engineering	Akash Reddy Senji	05MF1020	2000.00
14	Metallurgical & Materials Engineering	Arunima Singh	05MT1025	2000.00
15	Mining Engineering	Amit Agasty	05MI3004	2000.00
16	Ocean Engineering & Naval Architecture	Deepak Abraham Cherian	05NA3006	2000.00
17	Industrial Chemistry	Gourab Bhattacharje	04CY2008	2000.00
18	Applied Geology	Khushboo Arora	04GG2008	2000.00
19	Exploration Geophysics	Siddharth Mukund	04EX2019	2000.00
20	Mathematics & Computing	Abinash Pati	04MA2007	2000.00
21	Physics	Wrick Sengupta	04PH2001	2000.00

Table : A-6 (Continued)

3. BEST PROJECT AWARD :

#	Name of the Departments	Name of the winner	Institute Roll No.	Amount (Rs.)
a) 4-Year B. Tech. (Hons.) Courses :				
1	Aerospace Engineering	Potturi Amarnatha Sarma	04AE1011	1,000.00
2	Agricultural & Food Engineering	Mohit Gupta	04AG1011	1,000.00
3	Biotechnology & Biochemical Engineering	Debkishore Mitra	04BT1003	1,000.00
4	Chemical Engineering	Srimoyee Bhattacharya	04CH1015	1,000.00
5	Civil Engineering	Bhasker Rathi	04CE1019	1,000.00
6	Computer Science & Engineering	Mridul Aanjaneya	04CS1022	1,000.00
7	Electrical Engineering	Kumar Anubhav	04EE1008	1,000.00
8	Energy Engineering	Parag Jain	04EG1001	1,000.00
9	Instrumentation Engineering	Subhojit Chakladhar	04IE1010	1,000.00
10	Industrial Engineering	Raja Ram Mohan Roy M	04IM1013	1,000.00
11	Electronics & Electrical. Comm. Engineering	Rithe Rahul Kumar Jagdish	04EC1029	1,000.00
12	Mechanical Engineering	Naveen Agarwal	04ME1033	1,000.00
13	Manufacturing Science & Engineering	Vishal Garg	04MF3006	1,000.00
14	Metallurgical & Materials Engineering	Sudhanshu Shekhar Singh	04MT1011	1,000.00
15	Mining Engineering	Vinay Kumar Paliana	04MI3006	1,000.00
16	Ocean Engineering & Naval Architecture	Vineet Bhardwaj	04NA1014	1,000.00
b) 5-Year Dual Degree Courses :				
1	Aerospace Engineering (AE1)	Abhishek Halder	03AE3009	1,000.00
2	Agricultural & Food Engineering (AG1)	Konica Gupta	03AG3305	1,000.00
3	Biotechnology & Biochemical Engineering (BT1)	Riddhiman Dhar	03BT3010	1,000.00
4	Chemical Engineering (CH1)	Ankur Gupta	03CH3001	1,000.00
5	Civil Engineering (CE1)	Shravan Bendapudi	03CE3002	1,000.00
6	Computer Science & Engineering (CS1)	Kumar Puspesh	03CS3025	1,000.00
7	Electrical Engineering (EE1)	Paritosh Pande	03EE3014	1,000.00

8	Electronics & Electrical Communication Engineering (EC1)	Jointly : Saurav Bandyopadhyay Kaushik Dasgupta	03EC3205 03EC3202	500.00 500.00
9	Industrial Engineering & Management (IM1)	Ankit Kumar Gandhi	03IM3011	1,000.00
10	Mechanical Engineering (ME1)	Amod Kumar Jain	03ME3016	1,000.00
11	Mechanical Engineering (ME2)	Akshay Mishra	03ME3033	1,000.00
12	Mechanical Engineering (ME4)	Atul Goyal	03ME3402	1,000.00
13	Manufacturing Science & Engineering (MF1)	Nikhil S Prakash	03MF3010	1,000.00
14	Metallurgical & Materials Engineering (MT1)	Mohan Sushantam	03MT3007	1,000.00
15	Mining Engineering (MI1)	Lalit Sharma	03MI3004	1,000.00
16	Ocean Engineering & Naval Architecture (NA1)	Rajnish Kumar	03NA3008	1,000.00
c) 5-Year M.Sc. Courses :				
1	Industrial Chemistry	Shiladitya Sen	03CY2019	1,000.00
2	Exploration Geophysics	Abhishek Raj	03EX2011	1,000.00
3	Applied Geology	Dip Shankar Nanda	03GG2016	1,000.00
4	Mathematics & Computing	Anindya Roy	03MA2022	1,000.00
5	Physics	Debyendu Mondal	03PH2007	1,000.00
d) 2-Year M.Sc. Courses :				
1	Chemistry	Arjun Sengupta	06CY4001	1,000.00
2	Geological Sciences	Arnab Ghosh	06GG4009	1,000.00
3	Geophysics	Uday Shanker Mishra	06EX4002	1,000.00
4	Mathematics	Jointly : 1) Hari Shankar Mahato 2) Supratim Das	06MA4008 06MA4013	500.00 500.00
5	Physics	Jointly : 1) Somnath Nag 2) Arunabha Saha	06PH4006 06PH4019	500.00 500.00
6	Statistics & Informatics	Ishapathik Das	06SI4006	1,000.00

Table : A-6 (Continued)

B. STUDENTS AWARDED ENDOWMENT MERIT SCHOLARSHIP : 2007-2008

#	Name of the Scholarship	Name of the Scholarship holder with Roll Number	Amount (Rs.)
1	B. P. Poddar Scholarship	Siddhartha Sen, 04EC1030	1000/- P.M.
2	Vinod Gupta Leadership Scholarship	S Muralidhar Duvvuri, 05AG3008	400/- P.M.
3	Kumud Manorama Memorial Scholarship	Oliv Sen, 05ME1033	1000/- P.M.
4	Hem Chandra Rout Memorial Scholarship	Umesh Gupta, 04NA3005	500/- P.M.
5	Mrs. Minoti Bagchi Memorial Scholarship	Mahendra Shukla, 07SI2018	1000/- P.M.
6	Gour Chandra Saha Memorial Scholarship	Vaibhav Sharma, 06EC1027	1000/- P.M.
7	Puri Memorial Scholarship	a) Ashutosh N Bagaria, 04EE1035 b) Chanchal Kumar, 06CE1003 c) Andhavarapu Radhika, 07MI1020	1000/- P.M. 1000/- P.M. 1000/- P.M.
8	American Business List Humanities Scholarship	Sailesh Pati, 03EC3201	400/- P.M.
9	Technology Alumni Association (Kharagpur Chapter) Scholarship	-	1000/- P.M.
10	Technology Alumni Association (Calcutta Chapter) Scholarship	Rasha Eqbal, 07CS1039	500/- P.M.
11	K. K. Agarwal Memorial Scholarship	Devanshu Agrawal, 04AG1012	400/- P.M.

12	Indian Women's Association, Bonn Scholarship	Soumya Shaw, 07HS2008	1500/- P.M.
13	HPCL Start Up Scholarship	a) Neetesh Gupta, 07CS1007 b) Naveen Kumar, 07CS1008 c) Sumit Sinha, 07CS1009 d) Koushik Das, 07EC1037 e) Nijwm Wary, 07EC1036	1000/- P.M. 1000/- P.M. 1000/- P.M. 1000/- P.M. 1000/- P.M.
14	Devi Mahamaya Mallick Memorial Scholarship	Sri Ankit Pat, 07MA2003	1200/- P.M.
15	Dr. Arunabha Chatterjee Memorial Scholarship	Anirban Gangopadhyay, 03PH2002	4380/- P.M.
16	Goralal Syngal Memorial Scholarship	a) Sougata Sarkar, 04EC1004 b) Vinu Rajashekhar, 05CS3025 c) Prateek, 06CS1006 d) Dheeraj Kr. Singh, 07CS1004 e) Md. Jawaid Iqbal, 07CS1006 f) Amit Sharma, 06CS1025 g) Parth Sethi, 05CS1025 h) Rithe Rahul Kumar Jagdish, 04EC1029 i) Ritesh Parikh, 04EC3207	2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M. 2100/- P.M.
17	M. K. Sircar Memorial Scholarship	a) Ganshyam Meena, 06ME1003 b) Kuldeep Kumar, 06MT1003	1000/- P.M. 1000/- P.M.
18	Prova Basu Memorial Scholarship	Sourav Saha, 05EE3002	12,000/- per annum
19	Mrinal Chandra Basu Memorial Scholarship	Ankur Kothari, 04IE1015	12,000/- per annum
20	ABS Scholarship	Yagnish Rathi, 04NA1008	1000/- P.M.

21	Guru Kripa Educational Loan Scholarship	a) Koushik Hembram, 06EC3004 b) Raghav Agrawal, 06EC1012	750/- P.M. 750/- P.M.
22	Arjun Das Datta Memorial Scholarship	a) Md. Tanweer Alam, 06CS3012 b) Arit Kr. Mondal, 06CS1008 c) P. Deepak, 06EE1020 d) M. Ravikant, 06MT3009 e) Kushal Pandya, 06ME1030 f) Ankit Kumar, 07CE1001 g) I Priyadarshini Bobburi, 07BT3014 h) Kripasindhu Sarkar, 07CS3025 i) Adhihi Shwetha Adhi, 07AR1002 j) Abhirup Mallik, 07PH2009	2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M. 2500/- P.M.
23	Rajendra Nath Das Merit-cum-Means Awards	a) Sudip Roy, 05CS1035 b) Vaibhav Goel, 05EC1021 c) Himanshu Yadav, 05CG1033 d) K. M. Saravana Kumar, 05BT3013 e) Ullas Agrawal, 05ME3034 f) Gourav Khaneja, 06CS1017 g) Rahul Gupta, 06EE1027 h) Udit Kejriwal, 06ME1047 i) Vivek Khetan, 06CH3004	25,000/- 25,000/- 25,000/- 25,000/- 25,000/- 25,000/- 25,000/- 25,000/- 25,000/-
25	Dr. J. C. Ghosh Memorial Scholarship	Vajha Myna, 07EC1015	5000/- P.M.

TABLE : A-7**STUDENTS AWARDED SCHOLARSHIPS BY EXTERNAL AGENCIES (2007-2008)**

#	Awarding Organization	No. of Recipients
1.	National Council of Educational Research & Training, Sri Aurobinda Marg, New Delhi - 16	101
2.	Directorate of Technical Education, West Bengal	-
3.	Directorate of Technical Education, Assam	01
4.	Directorate of Higher Education, Tripura	-
5.	Directorate of Collegiate Education, Trivandrum, Kerala	-
6.	Directorate of Technical Education, Bhopal, MP	-
7.	SC and ST Development Department, Bhubaneswar, Orissa	01
8.	Directorate of Higher Education, Arunachal Pradesh	03
9.	Birsa Munda Scholarship, Jharkhand	01
10.	Steel Authority of India Ltd., Durgapur, Rourkela, Bhilai, Vishakhapatnam Steel Plant, Bokaro	05
11.	Office of the Administrator, Mining Areas Development Fund, Government of Orissa	-
12.	New Central Sector Scholarship for Top Class Education for SC Students, Ministry of S.J&E, New Delhi	10
13.	Department of Telecommunication, Calcutta	-
14.	Central Coalfields Ltd., Ranchi	01
15.	I.A.F. Benovolent Association, New Delhi	-
16.	Department of Telecommunication, Bhubaneswar (BSNL)	-
17.	Eastern Coalfields Ltd., Calcutta	-
18.	Department of Telecommunication, Madras	-
19.	Institute of Engineers, Calcutta	-
20.	Oil and Natural Gas Commission, Calcutta	01
21.	Jagadish Chandra Bose National Talent Search, Calcutta (JBNSTS)	26
22.	Jubilee Scholarship Committee, TISCO, Jamshedpur	-

23.	Metallurgical & Engineering Consultants (India) Ltd, Ranchi	-
24.	Indian Oil Corporation Ltd., New Delhi	01
25.	Bharat Petroleum Corporation Ltd., Bombay	-
26.	Indian Council for Cultural Relations, Azad Bhaban IP Estate, Foreign Student Division, New Delhi	-
27.	Indo-Bangladesh Scholarship	-
28.	Zindal Trust, New Delhi – OPJEM Scholarship	03
29.	CMRF, Government of Bihar, C.M. Secretariate, Patna	03
30.	G.O.I. Scholarship, Government of Tamilnadu	01
31.	NEC Scholarship, Guwahati, Assam	01
32.	CMERI, Durgapur	-
33.	TATA Millennium Scholarship (Russi Mody)	06
34.	Naval Research Fellowship (Scholarship), Naval HQ, New Delhi	-
35.	AR&DB Scholarship, Ministry of Defence, Government of India	-
36.	Coal Fields India Ltd.	-
37.	Pratibha Scholarship, AP	06
38.	Rajendra Vidyalaya, Jamshedpur	-
39.	KVPY Scholarship, IISc., Bangalore	04
40.	NEC, Shilong	-
41.	Siksha Deep Trust, Raj Bhavan, Chhatisgarh	01
42.	CBSE, New Delhi	-
43.	MECON, Ranchi	01
44.	MCM Scholarship for Minorities Communities, Ministry of Minority Affairs, New Delhi	03
45.	Tribal Welfare (GOI) Scholarship, Jabalpur, MP	01
	TOTAL :	181

TABLE : A-8

STUDENTS FROM FOREIGN COUNTRIES ON ROLL OF UNDERGRADUATE COURSES, CLASS WISE, 2007 – 2008

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(A) B.Tech. 4-Year							
1	Aerospace Engineering	-	-	-	-	-	-
2	Agricultural & Food Engineering	-	-	-	-	-	-
3	Biotechnology & Biochemical Engineering	-	-	-	-	-	-
4	Chemical Engineering	-	-	-	-	-	-
5	Civil Engineering	-	-	-	-	-	-
6	Computer Science & Engineering	-	-	-	-	-	-
7	Electrical Engineering	-	-	-	-	-	-
8	Electronics & Electrical Communication Engineering	-	-	-	-	-	-
9	Energy Engineering	-	-	-	-	-	-
10	Industrial Engineering	-	-	-	-	-	-
11	Instrumentation Engineering	-	-	-	-	-	-
12	Manufacturing Science & Engineering	-	-	-	-	-	-
13	Mechanical Engineering	-	-	-	-	-	-
14	Metallurgical & Materials Engineering	-	-	-	-	-	-
15	Mining Engineering	-	-	-	-	-	-
16	Ocean Engineering & Naval Architecture	-	-	-	-	-	-
(B) B.Arch. 5-Year							
1	Architecture	-	-	-	-	-	-

Table : A-8 (Continued)

#	Course	1 st yr.	2 nd yr.	3 rd yr.	4 th yr.	5 th yr.	Total
(C) M.Sc. Integrated 5-Year							
1	Applied Geology	-	-	-	-	-	-
2	Economics	-	-	-	-	-	-
3	Exploration Geophysics	-	-	-	-	-	-
4	Industrial Chemistry	-	-	-	-	-	-
5	Mathematics & Computing	-	-	-	-	-	-
6	Physics	-	-	-	-	-	-
7	Statistics & Informatics	-	-	-	-	-	-
(D) M.Sc. 2-Year							
1	Chemistry	-	-	-	-	-	-
2	Geophysics	-	-	-	-	-	-
3	Geological Sciences	-	-	-	-	-	-
4	Mathematics	-	-	-	-	-	-
5	Physics	-	-	-	-	-	-
6	Statistics & Informatics	-	-	-	-	-	-

TABLE : A-9

COUNTRY-WISE DISTRIBUTION OF FOREIGN STUDENTS (2007-2008)

Name of the Country	B.Tech.(H) / B.Arch.(H) / M.Sc. / Dual	Total
NIL	NIL	NIL
TOTAL :	NIL	NIL

TABLE : A-10

**STUDENTS ON ROLL – UNDERGRADUATE (B.TECH / B.ARCH. / M.SC. / DUAL DEGREE) COURSES
AT THE BEGINNING OF THE SESSION 2007 – 2008**

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		M	F	M	F	M	F	M	F	M	F	
(A) B.Tech. 4-Year												
1	Aerospace Engineering	19	01	20	02	18	02	14	01			77
2	Agricultural & Food Engineering	16	02	13	02	10	02	08	02			55
3	Biotechnology & Biochemical Engineering	15	04	15	02	10	02	10	-			58
4	Chemical Engineering	26	06	34	01	29	04	20	03			123
5	Civil Engineering	35	04	34	02	26	01	26	01			129
6	Computer Science & Engineering	39	-	41	-	35	02	41	02			160
7	Electrical Engineering	32	04	37	03	35	01	34	02			148
8	Electronics & Electrical Communication Engg.	38	02	43	01	32	-	29	01			146
9	Energy Engineering			15	01	20	-	13	02			51
10	Industrial Engineering	18	01	21	-	15	-	12	-			67
11	Instrumentation Engineering	14	05	19	04	20	01	17	03			83
12	Manufacturing Science & Engineering	19	01	21	01	20	-	17	01			80
13	Mechanical Engineering	42	01	49	-	41	-	43	-			176
14	Metallurgical & Materials Engineering	25	03	21	01	17	03	19	-			89
15	Mining Engineering	20	01	23	01	14	-	14	-			73
16	Ocean Engineering & Naval Architecture	19	03	21	01	14	-	12	02			72
Total (A) :		377	38	427	22	356	18	329	20			1587
(B) B.Arch. 5-Year												
1	Architecture	15	10	17	08	15	03	11	02	12	-	93
Total (B) :		15	10	17	08	15	03	11	02	12	-	93

Table : A-10 (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		M	F	M	F	M	F	M	F	M	F	
(C) M.Sc. Integrated 5-Year												
1	Applied Geology	20	01	12	-	04	02	09	03	06	04	61
2	Economics	21	-	19	-	11	-					51
3	Exploration Geophysics	16	01	15	-	07	02	14	01	11	03	70
4	Industrial Chemistry	13	02	07	01	05	-	14	02	11	04	59
5	Mathematics & Computing	18	02	22	02	22	-	16	05	18	02	107
6	Physics	11	05	20	-	12	01	13	05	21	02	90
7	Statistics & Informatics	24	01	26	01	23	-					75
Total (C) :		123	12	121	04	84	05	66	16	67	15	513
(D) M.Sc. 2-Year												
1	Chemistry							22	05	21	06	54
2	Geological Sciences							11	07	10	10	38
3	Geophysics							09	01	07	-	17
4	Mathematics							08	04	18	02	32
5	Physics							21	02	21	04	48
6	Statistics & Informatics							12	01	17	02	32
Total (D) :								83	20	94	24	221

Table : A-10 (Continued)

#	Course	1 st yr.		2 nd yr.		3 rd yr.		4 th yr.		5 th yr.		Total
		M	F	M	F	M	F	M	F	M	F	
(E) Dual Degree 5-Year												
1	Aerospace Engineering	12	-	11	-	09	01	09	-	10	-	52
2	Agril. & Food Engg. / Water Res. Dev. & Manag.	13	01	15	02	09	-	06	-	02	04	52
3	Biotechnology & Biochemical Engineering	11	04	11	02	12	01	13	01	10	03	68
4	Chemical Engineering	15	02	18	02	13	03	10	-	07	01	71
5	Civil Engineering / Structural Engineering	13	-	13	01	11	-	06	-	06	-	50
6	Computer Science & Engineering / Computer & Information Technology	24	-	27	01	25	-	26	-	26	01	130
7	Electrical Engineering / Instrumentation Engg.	13	01	16	01	15	-	14	01	16	01	78
8	E&ECE/Automation & Computer Vision	24	01	27	01	18	01	18	02	18	-	110
9	Industrial Engineering / IEM	16	01	17	-	10	-	06	01	10	-	61
10	Manufacturing Science & Engineering / IEM	11	01	11	01	11	-	13	-	09	-	57
11	M.E. / M.S. Engineering	27	-	32	01	30	-	30	-	29	01	150
12	M.E. / Thermal, Energy & Environ. Engg.											
13	Met. & Mat. Engg. / Metallurgical Engineering	08	02	07	01	07	01	05	01	08	-	40
14	Mining Engineering	18	01	16	-	15	-	06	-	06	-	62
15	Mining Engineering / Safety Engineering & Disaster Management in Mines											
16	Ocean Engineering & Naval Architecture	10	01	10	-	10	-	06	-	08	01	46
Total (E) :		215	15	231	13	195	07	168	06	165	12	1027
TOTAL (A + B + C + D + E) :		730	75	796	47	650	33	657	64	338	51	3441

TABLE : A-11

STATEMENT OF RESULTS (UNDERGRADUATE) 2007-2008

#	Course Code	Course Name	1 st Yr.		2 nd Yr.		3 rd Yr.		4 th Yr.		5 th Yr.	
			P	I	P	I	P	I	P	I	P	I
1	AE	Aerospace Engineering (B.Tech. 4Y)	20	1	18	4	18	1	14	1		
2	AE1	Aerospace Engineering (M.Tech. Dual 5Y)	9	1	9	2	9	2	7	3	9	0
3	AEM	Aerospace Engineering / MBA	1	0								
4	AG	Agricultural & Food Engineering (B.Tech. 4Y)	9	2	13	2	11	0	9	1		
5	AG3	Agricultural & Food Engineering / Dairy & Food Engineering (M.Tech. Dual 5Y)					8	0	3	1	6	0
6	AG4	Agricultural & Food Engineering / Farm Machinery & Power (M.Tech. Dual 5Y)							2	0		
7	AGD	Agricultural & Food Engineering / Spl. in any branch (M.Tech. Dual 5Y)	10	0	7	2						
8	AGM	Agricultural & Food Engineering / MBA	3	1	8	0	1	0				
9	AR	Architecture (B.Arch. 5Y)	22	2	25	0	17	1	12	0	11	0
10	BT	Biotechnology & Biochemical Engineering (B.Tech. 4Y)	16	0	15	2	12	0	10	0		
11	BT1	Biotechnology & Biochemical Engineering (M.Tech. Dual 5Y)	14	1	11	2	12	1	12	1	12	0
12	CE	Civil Engineering (B.Tech. 4Y)	35	1	28	8	24	3	23	3		
13	CE1	Civil Engineering / Structural Engineering (M.Tech. Dual 5Y)					9	2	5	1	6	0
14	CED	Civil Engineering / Spl. in any branch (M.Tech. Dual5Y)	11	2	11	1						
15	CEM	Civil Engineering / MBA			2	0						
16	CH	Chemical Engineering (B.Tech. 4Y)	35	1	33	2	31	2	21	1		
17	CH1	Chemical Engineering (M.Tech. Dual 5Y)	17	2	18	0	16	0	10	0	7	1
18	CHM	Chemical Engineering / MBA			1	0						
19	CS	Computer Science & Engineering (B.Tech. 4Y)	39	4	39	3	31	5	34	3		
20	CS1	Computer Science & Engineering (B.Tech.) / Computer & Information Technology (M.Tech.)	27	1	19	9	21	5	22	5	22	0
21	CY	Industrial Chemistry (M.Sc. 5Y)	4	1	6	2	5	0	15	1	15	0

22	CY4	Chemistry (M.Sc. 2Y)	27	0	27	0							
23	EC	Electronics & Electrical Communication Engineering (B.Tech. 4Y)	40	4	35	9	27	5	28	1			
24	EC2	Electronics & Electrical Communication Engineering / Microelectronics & VLSI Design (M.Tech. Dual 5Y)					8	0	9	0	5	0	
25	EC4	Electronics & Electrical Communication Engineering / Telecommunication Systems Engineering (M.Tech. Dual 5Y)					1	0	2	0	2	0	
26	EC5	Electronics & Electrical Communication Engineering / Visual Information & Embedded Systems (M.Tech. Dual 5Y)					5	6	6	3	10	0	
27	ECD	Electronics & Electrical Communication Engineering / Spl. in any branch (M.Tech. Dual 5Y)	27	1	24	3							
28	EE	Electrical Engineering (B.Tech. 4Y)	37	3	36	4	31	5	34	0			
29	EE1	Electrical Engineering / Instrumentation (M.Tech. Dual 5Y)					14	0	14	0	15	0	
30	EE2	Electrical Engineering / Control Systems Engineering (M.Tech. Dual 5Y)							1	0	1	0	
31	EED	Electrical Engineering / Spl. in any branch (M.Tech. Dual 5Y)	16	1	14	3							
32	EEM	Electrical Engineering / MBA					1	0					
33	EG	Energy Engineering (B.Tech. 4Y)			12	4	19	1	14	1			
34	EX	Exploration Geophysics (M.Sc. 5Y)	21	0	13	1	9	0	14	1	14	0	
35	EX4	Geophysics (M.Sc. 2Y)	10	0	7	0							
36	GG	Applied Geology (M.Sc. 5Y)	12	4	10	2	6	0	12	0	10	0	
37	GG4	Geological Sciences (M.Sc. 2Y)	17	1	20	0							
38	HS	Economics (M.Sc. 5Y)	14	2	15	4	10	1					
39	IE	Instrumentation Engineering (B.Tech. 4Y)	23	0	19	3	21	0	20	0			
40	IM	Industrial Engineering (B.Tech. 4Y)	18	3	16	5	15	0	12	0			
41	IM1	Industrial Engineering / Industrial Engineering & Management (M.Tech. Dual 5Y)	15	1	13	4	9	1	8	0	8	1	
42	MA	Mathematics & Computing (M.Sc. 5Y)	23	1	20	4	20	2	20	2	18	1	
43	MA4	Mathematics (M.Sc. 2Y)	11	0	19	0							
44	ME	Mechanical Engineering (B.Tech. 4Y)	42	6	41	8	38	4	38	5			
45	ME1	Mechanical Engineering / Manufacturing Systems Engineering (M.Tech. Dual 5Y)					12	3	12	2	11	0	

46	ME2	Mechanical Engineering / Thermal Energy & Environmental Engineering (M.Tech. Dual 5Y)					14	1	12	1	17	0
47	ME3	Mechanical Engineering / Mechanical Systems Design (M.Tech. Dual 5Y)							1	0		
48	ME4	Mechanical Engineering / Mechanical Systems, Dynamics & Control (M.Tech. Dual 5Y)							1	0	2	0
49	MED	Mechanical Engineering / Spl. in any branch (M.Tech. Dual 5Y)	33	0	28	5						
50	MF	Manufacturing Science & Engineering (B.Tech. 4Y)	21	1	18	4	20	0	16	2		
51	MF1	Manufacturing Science & Engineering / Industrial Engineering & Management (M.Tech. Dual 5Y)	12	1	11	1	7	4	13	0	9	0
52	MI	Mining Engineering (B.Tech. 4Y)	17	3	16	6	9	4	13	0		
53	MI1	Mining Engineering (M.Tech. Dual 5Y)	4	1	6	1	9	1	6	0	6	0
54	MI2	Mining Engineering / Safety Engineering & Disaster Management in Mines (M.Tech. 5Y)	6	2	7	0	6	0				
55	MIM	Mining Engineering / MBA			2	0						
56	MT	Metallurgical & Materials Engineering (B.Tech. 4Y)	23	3	17	5	17	3	16	2		
57	MT1	Metallurgical & Materials Engineering / Metallurgical Engineering (M.Tech. Dual 5Y)	8	0	6	2	5	2	5	2	6	0
58	MTM	Metallurgical & Materials Engineering / MBA					1	0				
59	NA	Ocean Engineering & Naval Architecture (B.Tech. 4Y)	16	4	16	5	13	1	14	1		
60	NA1	Ocean Engineering & Naval Architecture / Ocean Engineering & Naval Architecture (M.Tech. Dual 5Y)	6	2	8	0	8	2	6	0	9	0
61	NAM	Ocean Engineering & Naval Architecture / MBA			1	0						
62	PH	Physics (M.Sc. 5Y)	9	0	13	6	11	2	17	0	22	0
63	PH4	Physics (M.Sc. 2Y)	22	0	25	0						
64	SI	Statistics & Informatics (M.Sc. 5Y)	20	3	23	4	20	3				
65	SI4	Statistics & Informatics (M.Sc. 2Y)	12	1	19	0						

TABLE : B-1**ADMISSION TO POSTGRADUATE COURSES IN 2007-2008**

Department / Centre / School	Specialization	Admitted	Regular	SP	QIP	DF	GN	SC	ST	PH	M	F
Aerospace Engineering	Aerospace Engineering	16	12	02	00	02	13	02	01	00	16	00
Agricultural & Food Engineering	Farm Machinery & Power	12	11	01	00	00	10	02	00	00	12	00
	Soil & Water Conservation Engineering	12	12	00	00	00	10	01	01	00	09	03
	Dairy & Food Engineering	11	11	00	00	00	09	02	00	00	09	02
	Applied Botany	13	13	00	00	00	11	02	00	00	09	04
	Water Resource Development & Management	13	12	01	00	00	11	01	01	00	12	01
	Aquacultural Engineering	12	12	00	00	00	09	02	01	00	09	03
	Agricultural Systems Management	09	09	00	00	00	08	01	00	00	07	02
	Post Harvest Engineering	12	12	00	00	00	09	02	01	00	11	01
Architecture & Regional Planning	City Planning	20	19	01	00	00	16	03	01	00	07	13
Chemical Engineering	Chemical Engineering	51	50	00	00	01	40	08	03	00	47	04
Civil Engineering	Hydraulic & Water Resources Engineering	07	07	00	00	00	04	02	01	00	06	01
	Transportation Engineering	11	11	00	00	00	09	00	02	00	10	01
	Environmental Engineering & Management	06	05	01	00	00	04	02	00	00	04	02
	Geotechnical Engineering	08	08	00	00	00	06	02	00	00	07	01
	Structural Engineering	13	11	00	00	02	10	02	01	00	13	00
Computer Science & Engineering	Computer Science & Engineering	28	20	01	03	04	21	04	03	00	27	01
Electrical Engineering	Machine Drives & Power Electronics	12	12	00	00	00	09	02	01	00	11	01
	Control System Engineering	07	07	00	00	00	05	01	01	00	06	01
	Power System Engineering	12	11	01	00	00	09	02	01	00	12	00
	Instrumentation	12	10	01	01	00	09	02	01	00	12	00

Electronics & Electrical Communication Engineering	Microelectronic & VLSI Design (EC2)	19	17	00	02	00	15	03	01	00	18	01
	RF & Microwave Engineering (EC3)	16	11	01	02	02	13	02	01	00	16	00
	Telecommunication Systems Engineering (EC4)	18	16	00	00	02	16	01	01	00	16	02
	Visual Information & Embedded System (EC5)	18	14	00	02	02	14	02	02	00	17	01
Centre for Educational Technology	Media & Sound Engineering	09	09	00	00	00	07	02	00	00	08	01
Geology & Geophysics	Earth & Environmental Sciences	10	10	00	00	00	07	02	01	00	09	01
	Computational Seismology	09	08	01	00	00	07	01	01	00	09	00
School of Information Technology	Information Technology	20	17	00	01	02	16	03	01	00	20	00
Mathematics	Computer Science & Data Processing	22	22	00	00	00	16	04	02	00	22	00
Mechanical Engineering	Manufacturing Process Engineering	22	21	01	00	00	17	03	02	00	21	01
	Thermal Energy & Environmental Engineering	24	22	01	01	00	20	03	01	00	24	00
	Mechanical Systems Design	20	17	01	00	02	13	05	02	00	20	00
	Mechanical Systems, Dynamic & Control	15	12	00	00	03	13	01	01	00	15	00
Metallurgical & Material Engineering	Metallurgical & Materials Engineering	30	30	00	00	00	22	03	04	01	25	05
Mining Engineering	Mining Engineering	11	11	00	00	00	11	00	00	00	11	00
Ocean Engineering & Naval Architecture	Ocean Engineering & Naval Architecture	09	06	02	00	01	07	00	02	00	09	00
Physics & Meteorology	Solid State Technology	15	15	00	00	00	14	00	01	00	14	01
Biotechnology	Biotechnology & Biochemical Engineering	15	15	00	00	00	12	02	01	00	09	06
Cryogenic Engineering	Cryogenic Engineering	07	07	00	00	00	06	01	00	00	07	00
Humanities & Social Sciences	Human Resources Development & Management	14	14	00	00	00	12	01	01	00	13	01

Industrial Engineering & Management	Industrial Engineering & Management	19	15	01	02	01	16	02	01	00	19	00
Reliability Engineering	Reliability Engineering	16	14	00	00	02	12	03	01	00	14	02
Materials Science	Material Science & Engineering	15	15	00	00	00	12	01	02	00	11	04
Rubber Technology	Rubber Technology	13	11	00	00	02	11	01	01	00	13	00
Vinod Gupta School of Management	Business Administration	116	00	111	00	05	94	17	04	01	98	18
School of Information Technology	Information Technology (PGDIT)	81	00	81	00	00	66	10	03	02	77	04
Ocean Engineering & Naval Architecture	Maritime Operation & Management	03	00	03	00	00	03	00	00	00	03	00
School of Medical Science & Technology	Medical Imaging & Image Analysis	09	09	00	00	00	06	02	01	00	07	02
	Medical Science & Technology	08	08	00	00	00	05	02	01	00	08	00
Vinod Gupta School of Management	PG Diploma in Business Administration	50	00	50	00	00	50	00	00	00	43	07
Vinod Gupta School of Management	PG Diploma in Management	08	00	00	00	08	08	00	00	00	08	00
Metallurgical & Material Engineering	PG Diploma in Steel Technology	22	00	22	00	00	22	00	00	00	22	00
Centre for Oceans, Rivers, Atmosphere and Land Sciences		12	12	00	00	00	09	03	00	00	10	02
G. S. Sanyal School of Telecommunications	PGDTNM	13	00	13	00	00	13	00	00	00	12	01
Rajiv Gandhi School of Intellectual Property Law	LLB (IPR)	19	00	19	00	00	18	01	00	00	12	07
Rajiv Gandhi School of Intellectual Property Law	PGDIPL	09	00	09	00	00	08	01	00	00	04	05
	TOTAL :	1033	653	325	14	41	843	127	59	4	920	113

TABLE : B-2

POSTGRADUATE STUDENTS ON ROLL
Ist year – 2007-2008 & 2nd year 2006-2007

Department / Centre / School	Specialization	Intake Capacity	1st Yr.		2 nd Yr.		Total	
			M	F	M	F	M	F
Aerospace Engineering	Aerospace Engineering	15	16	00	14	01	30	01
Agricultural & Food Engineering	Farm Machinery & Power	99	12	00	15	00	27	00
	Soil & Water Conservation Engineering		09	03	05	04	14	07
	Dairy & Food Engineering		09	02	12	01	21	03
	Applied Botany		09	04	11	01	20	05
	Water Resource Development & Management		12	01	08	00	20	01
	Aquacultural Engineering		09	03	04	01	13	04
	Agricultural System & Management		07	02	06	02	13	04
	Post Harvest Engineering		11	01	11	02	22	03
Architecture & Regional Planning	City Planning	28	07	13	15	09	22	22
Chemical Engineering	Chemical Engineering	55	47	04	46	05	93	09
Civil Engineering	Hydraulic & Water Resource Engineering	62	06	01	07	01	13	02
	Transportation Engineering		10	01	10	00	20	01
	Environmental Engineering & Management		04	02	12	00	16	02
	Geo-Technical Engineering		07	01	08	00	15	01
	Structural Engineering		13	00	11	00	24	00
Computer Science & Engineering	Computer Science & Engineering	28	27	01	31	01	58	02
Electrical Engineering	Machine Drives & Power Electronics	50	11	01	10	01	21	02
	Control System Engineering		06	01	10	02	16	03
	Power System Engineering		12	00	11	01	23	01
	Instrumentation		12	00	11	01	23	01

Electronics & Electrical Communication Engineering	Microelectronics & VLSI Design	74	18	01	22	00	40	01
	RF & Microwave Engineering		16	00	15	03	31	03
	Telecommunication Systems Engineering		16	02	20	01	36	03
	Fibre Optics & Light-wave Engineering		-	-	14	00	14	00
	Visual Information & Embedded System		17	01	00	00	17	01
Geology & Geophysics	Earth & Environmental Sciences	23	09	01	07	02	16	03
	Computational Seismology		09	00	04	01	13	01
School of Information Technology	Information Technology	16	20	00	15	03	35	03
Mathematics	Computer Science & Data Processing	23	22	00	21	00	43	00
Mechanical Engineering	Manufacturing Process Engineering	86	21	01	25	00	46	01
	Thermal, Energy & Environmental Engineering		24	00	27	00	51	00
	Mechanical Systems Design		20	00	22	00	42	00
	Manufacturing Systems Engineering		-	-	17	00	17	00
	Mechanical Systems, Dynamics & Control		15	00	00	00	15	00
Metallurgical & Material Engineering	Metallurgical & Materials Engineering	37	25	05	31	04	56	09
Mining Engineering	Mining Engineering	15	11	00	08	00	19	00
Ocean Engineering & Naval Architecture	Ocean Engineering & Naval Architecture	15	09	00	11	01	20	01
Physics & Meteorology	Solid State Technology	16	14	01	14	01	28	02
Biotechnology	Biotechnology & Biochemical	15	09	06	10	05	19	11
Cryogenic Engineering	Cryogenic Engineering	15	07	00	16	00	23	00
Humanities & Social Sciences	Human Resources Development & Management	15	13	01	15	03	28	04
Industrial Engineering & Management	Industrial Engineering & Management	20	19	00	17	02	36	02
Reliability Engineering	Reliability Engineering	15	14	02	08	00	22	02
Materials Science	Material Science & Engineering	19	11	04	17	01	28	05

Rubber Technology	Rubber Technology	15	13	00	13	02	26	02
Vinod Gupta School of Management	Business Administration	120	98	18	97	24	195	42
Vinod Gupta School of Management	PGDBA	120	43	07	105	09	148	16
School of Information Technology	PG Diploma in Information Technology	90	77	04	68	09	145	13
Ocean Engineering & Naval Architecture	Maritime Operation & Management	20	03	00	05	00	08	00
School of Medical Science & Technology	Medical Imaging & Image Analysis	10	07	02	00	00	08	02
	Medical Science & Technology	10	08	00	07	02	15	02
Vinod Gupta School of Management	PG Diploma in Management	15	08	00	15	00	23	00
Metallurgical & Material Engineering	PG Diploma in Steel Technology	25	22	00	21	00	43	00
Centre for Oceans, Rivers, Atmosphere and Land Sciences	CORAL	20	10	02	09	01	19	03
Rajiv Gandhi School of Intellectual Property Law	LLB (IPR)	50	12	07	31	08	43	15
Rajiv Gandhi School of Intellectual Property Law	PGDIPL	75	04	05	14	01	18	06
Centre for Educational Technology	Media & Sound Engineering	10	08	01	05	00	13	01
G. S. Sanyal School of Telecommunications	PGDTNM	25	12	01	07	03	19	04
	TOTAL :	1232	920	113	1021	119	1941	232

TABLE : B-3**STATEMENT OF RESULTS OF POSTGRADUATE EXAMINATION M.TECH. / MCP / MBM 2006-2007 BATCH OF STUDENTS**

Department / Centre / School	Specialization	Number Registered	No. Declared Successful	No. of Incomplete Results	Remarks
Aerospace Engineering	Aerospace Engineering	15	15	-	
Agricultural & Food Engineering	Farm Machinery & Power	15	12	06AG6101, 06AG6113, 06AG6115	
	Soil & Water Conservation Engineering	09	07	06AG6203, 06AG6210	
	Dairy & Food Engineering	13	13	-	
	Applied Botany	10	10	-	
	Water Resource Development & Management	08	08	-	
	Aquacultural Engineering	05	05	-	
	Agricultural System & Management	07	07	-	
	Post Harvest Engineering	11	11	-	
Architecture & Regional Planning	City Planning	23	23	-	
Chemical Engineering	Chemical Engineering	45	44	06CH6006	05CH6208, 05CH6034 Old Batch
Centre for Oceans, Rivers, Atmosphere and Land Sciences	Oceans, Rivers, Atmosphere & Land Sciences	08	08	-	
Educational Technology	Educational Technology	05	05	-	
Civil Engineering	Hydraulic & Water Resources Engineering	07	07	-	
	Transportation Engineering	11	11	-	04CE6206 Old Batch
	Environmental Engineering & Management	11	11	-	

	Geo-Technical Engineering	05	05	-	
	Structural Engineering	09	09	-	
Computer Science & Engineering	Computer Science & Engineering	31	31	-	
Electrical Engineering	Machine Drives & Power Electronics	10	10	-	
	Control System Engineering	11	10	06EE6206	
	Power System Engineering	10	09	06EE6303	
	Instrumentation	11	11	-	
Electronics & Electrical Communication Engineering	Microelectronics & VLSI Design	23	23	-	
	RF & Microwave Engineering	14	14	-	
	Telecommunication Systems Engineering	19	19	-	
	Visual Information & Embedded System Engineering	18	17	06EC6418	
Geology & Geophysics	Earth & Environmental Sciences	07	07	-	
	Computational Seismology	05	05	-	
School of Information Technology	Information Technology	16	15	06IT6004	05IT6021 Old Batch
Mathematics	Computer Science & Data Processing	20	20	-	
Mechanical Engineering	Manufacturing Science & Engineering	22	22	-	
	Thermal, Energy & Environmental Engineering	19	19	-	
	Mechanical System Design	23	23	-	05ME6302 Old Batch
	Mechanical Systems, Dynamics & Control	15	15	-	
Metallurgical & Materials Engineering	Metallurgical & Materials Engineering	24	23	06MT6024	
Mining Engineering	Mining Engineering.	08	08	-	03MI6001, 04MI6009 Old Batch
Ocean Engineering & Naval Architecture	Ocean Engineering & Naval Architecture	11	11	-	
Physics & Meteorology	Solid State Technology	13	13	-	

Biotechnology	Biotechnology & Biochemical	15	15	-	05BTC002 Old Batch
Cryogenic Engineering	Cryogenic Engineering	12	11	06CR6011	
Humanities & Social Sciences	Human Resources Development & Management	18	18	-	
Industrial Engineering & Management	Industrial Engineering & Management	18	16	06IM6008, 06IM6019	05IM6015 Old Batch
Reliability Engineering	Reliability Engineering	08	08	-	
Materials Science	Materials Science & Engineering	15	15	-	
Rubber Technology Centre	Rubber Technology	15	15	-	
Vinod Gupta School of Management	Business Administration	121	121	-	
School of Information Technology	Information Technology	79	76	07IT5118, 07IT5329, 07IT5332	06IT5333 Old Batch
Medical Science & Technology	Medical Science & Technology	09	09	-	
Ocean Engineering & Naval Architecture	Maritime Operation & Management	03	03	-	
Vinod Gupta School of Management	PG Diploma in Business Administration	104	100	06BM5113, 06BM5315, 06BM5510, 06BM5524	05BM5102 Old Batch
Vinod Gupta School of Management	PG Diploma in Management	08	08	-	
Metallurgical & Materials Engineering	PG Diploma in Steel Technology	22	22	-	
G. S. Sanyal School of Telecommunications	PGTNM	11	11	-	
Rural Development Centre	PGDRD	06	06	-	
Rajiv Gandhi School of Intellectual Property Law	PGDIPL	12	12	-	
	TOTAL :	1010	992	21	

NA	-	-	01	-	-	01	01	-	-	-	01
PH	09	-	09	01	-	19	18	01	-	17	02
RE	01	01	01	01	-	04	02	02	-	02	02
RT	01	-	06	-	-	07	07	-	-	06	01
RD	-	-	-	05	-	05	05	-	-	03	02
MM	08	01	01	03	-	13	13	-	-	09	04
IT	02	01	05	-	-	08	08	-	-	07	01
BM	-	-	-	02	-	02	02	-	-	02	-
TOTAL	93	18	138	22	03	274	250	22	02	207	67

TABLE : C-2

NUMBER OF MS STUDENTS ENROLLED DURING 2007-2008

Deptt./Centre/ School	Total	Genl.	SC	ST	Male	Female
AG	01	01	-	-	01	-
CS	04	03	01	-	04	-
EE	02	02	-	-	-	02
EC	14	14	-	-	14	-
AT	03	03	-	-	01	02
CR	01	01	-	-	01	-
GS	02	02	-	-	01	01
NA	01	01	-	-	01	-
IT	03	03	-	-	02	01
MM	02	02	-	-	02	-
ME	02	02	-	-	01	01
BM	01	01	-	-	01	-
TOTAL	36	35	01	-	29	07

TABLE : C-3

NUMBER OF POST DOCTORAL FELLOWS ENROLLED DURING 2007-2008

NIL

TABLE : C-4(A)

UGC SCHOLARS ENROLLED DURING 2007-2008

Dept/Centre/School	Total Number	Genl.	SC	ST	Male	Female
AG	01	01	-	-	01	-
BT	02	02	-	-	02	-
CY	09	07	02	-	05	04
MA	03	02	01	-	03	-
PH	02	01	01	-	02	-
TOTAL	17	13	04	-	13	04

TABLE : C-4(B)

UGC POST DOCTORAL FELLOWS ENROLLED DURING 2007-2008

NIL

TABLE : C-5

NUMBER OF RESEARCH SCHOLARS FROM OTHER COUNTRIES

NIL

TABLE : C-6**NAMES OF THE PH.D. DEGREE RECIPIENTS**

Department of Aerospace Engineering	Rajesh Kumar, Santanu Mitra, Udar Ratnakar Shankarrao
Department of Agricultural & Food Engineering	Soumen Palit, Chandra Shekhar Sahay, Ashish Sachan, Brijesh Srivastava, Manisha Basu, Aditi Bhadra, Rajitha K., P. Anand Kumar, Kaushal Kishor Garg, Shiby Varghese K., Subrat Kumar Behera, Krishna Narayan Dewangan, Aum Sarma, Arsh Alam Singh, Jatindra Kumar Sahu, Parag Prakash Sutar, Annapurna Kumari, Ranjan Kumar Nanda, Arnab Bandyopadhyay
Department of Architecture & Regional Planning	Basina Uma Sankar, Joydeep Dutta, Susmita Sen, Haimanti Banerji
Department of Biotechnology	Dipanjan Ghosh, Devrani Mitra, Rashmi Shrivastava, Hari Hara Surya Kumar Potula, Sampurna Sattar
Department of Chemical Engineering	Ujjal K Ghosh, Srikanta Dinda, Tapas Kumar Mandal, Arun Kumar Jana, Pinakpani Biswas, Pankaj Vijay Mathure, Chandan Das
Department of Chemistry	Snehadrinarayan Khatua, Susmita Podder, Himadri Acharya, Devalina Ray, Moumita Kar, Pallab Pahari, Surajit Som, Sasmita Mohapatra, Soumen Basu, Snigdhamayee Praharaj, Sohaham Dasgupta, Bikash Kumar Jena, Ujjal Kanti Roy, Manishabrata Bhowmick, Debesh Ranjan Roy, Susmita Behera, Jyotiranjana Ota, Runa Pal, Sanjoy Kumar Maji
Department of Civil Engineering	A. Mani, Navneet Pratap Singh, S. Ayoob, Puspendu Bhunia, Priyaranjan Pal
Department of Computer Science & Engineering	Shibaji Banerjee, Sayantan Das, Abhishek Somani, Pramod Kumar Singh, Prasenjit Basu, Monojit Choudhury, V. Pallavi, Suchismita Roy, Ansuman Banerjee
Department of Electrical Engineering	Leena G., Suvajit Mukherjee, H. N. Nagaraja, Suvarun Dalapati, Rajesh Joseph Abraham
Department of Electronics & Electrical Communication Engineering	Paramesha, Sushrut Das, Rajarshi Mahapatra, Benudhar Sahu, Mrinal Kanti Mandal, C. B. Ashesh, Nandedkar Abhijeet Vijay, Aruna Tripathy, Vustikayala Sivakumar Reddy
Department of Geology & Geophysics	Rashmi, Vikas Chand Baranwal, Suman Das, Rajesh Kumar Naik, Saikat Sengupta, Swapnendu Goon

Department of Humanities & Social Sciences	Sudeep Budhaditya Deb, Vani Archana, Balivada Pavan Kumar, Shalini Dixit, Ujjwal Jana
Department of Industrial Engineering & Management	Shivashankaragouda V. Patil, Ashutosh Sarkar, Subhash Chandra Panja, Asit Baran Bera, Chimata Murali Krishna, Preethi Upamaka
Department of Mathematics	P. Anantha Lakshmi Narayana, P. K. Parida, S. Dhinakaran, Narmada Behera, Aameeya Kumar Nayak
Department of Mechanical Engineering	Sudarsan Ghosh, Muralidhar Manapuram, Nirmal Baran Hui, Debashis Khan, Nilotpal Banerjee, Suvankar Ganguly, Mahesh B. Parappagoudar, Sashi Kanta Panigrahi, P. Ramesh Babu, Arun Kumar Pradhan, Amitava Ghosh, Kate Ramesh Prabhakar, D. S. Nagesh, Manas Mohan Mahapatra, Neeraj Agrawal, Promod Kumar Patowari, J. Shivakumar, Karali Patra, Brajesh Tripathi
Department of Metallurgical & Materials Engineering	Subhrangshu Moitra, Golap Mohammad Chowdhury, Animesh Mandal, Mervin A. Herbert, Kausik Chattopadhyay, T. Gnanadurai, V.M. Sreekumar
Department of Mining Engineering	Gyan Prakash Singh, Devi Prasad Mishra
Department of Ocean Engineering & Naval Architecture	Joydip Bhattacharjee, Sanjay Pratap Singh, P. Suresh Kumar, Rajiv Sharma
Department of Physics & Meteorology	Tarun Kumar Jha, Piyush Ranjan Das, Xavier V. F., Gourishetty Anil Kumar, Sanjay Kumar Mandal, Puja Dey, Dillip Kumar Pradhan, Rama Ghosh
Cryogenic Engineering Centre	Soma Das
Materials Science Centre	Suparna Sarkar, Aparna Gupta, Somnath Biswas, Kunal Pal, Partha Pratim Sengupta, Samik Pal, Hiranmayee Satapathy, Sanjoy Sadhukhan, Tanya Das
Reliability Engineering Centre	Naga Srinivasa Rao Pulimi
Rubber Technology Centre	Madhuchhanda Maiti, Anirban Ganguly, Samik Gupta, Sambhu Bhadra
School of Information Technology	Sushanta Kumar Mandal
School of Medical Science & Technology	Sunil Kumar
Vinod Gupta School of Management	Rajesh Kumar B., Uttam Kumar Chatterjee, Madhurima Deb

TABLE : C-7

NAMES OF THE MS DEGREE RECIPIENTS

Department of Chemical Engineering	Rajaram Vijayan, Parama Ghoshal
Department of Computer Science & Engineering	Chandan Karfa, Atanu Basu, Soham Sundar Chakraborty, G. Sundar, Anindya Chakraborty, Anirvan DuttaGupta, Anindyasundar Nandi, Md. Monjur Alam, Santosh Ghosh, Debojyoti Bhattacharya, Barun Bikash Paul
Department of Electrical Engineering	Prabir Kumar Saha, Papiya Dutta, Rajarshi Paul, Samrat Ray
Department of Electronics & Electrical Communication Engineering	Rajarshi Bhattacharya, Debasish Paul, Pralay Mandal, Manabendra Maji, Sanjoy Kumar Dey, Anirban Das, Arindrajit Ghosh, Ravi Shankar Prasad, Debashis Mandal
Department of Mathematics	Anil Kumar Lenka
Department of Mining Engineering	Swapan Kumar Khatua
G. S. Sanyal School of Telecommunications	Debasish Bera, Sujay Deb, Md. Safiullah
School of Information Technology	Manoj Paul, Debasish Kundu, Somnath Dey, Ranjan Maity, Aditi Roy, Vinay Kumar Vishwakarma

**INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR**

RECEIPT AND PAYMENT ACCOUNT FOR THE YEAR ENDED 2007–2008

SL. NO.	R E C E I P T S	AMOUNT (Rs.)	SL. NO.	P A Y M E N T S	AMOUNT (Rs.)
I	Opening Balance (Bank Balances		I	EXPENSES	
	a) In Current accounts	202996074.00		a) Establishment Expenses	860933326.00
	b) In deposit accounts	0.00		b) Administrative Expenses	311752856.00
	c) In Savings accounts	48334926.00			
II	Grants Received From Govt. of India		II	Payments made against funds from various projects	
	a) Non-Recurring (Plan)	650000000.00			
	b) Recurring (Non-Plan)	700000000.00			
III	Income on Investments from		III	Investments and deposits made	
	a) Earmarked / Endowment Fund	103634393.00		a) Out of Earmarked / Endowment funds	1239550200.00
	b) Instt. Development Fund	12088862.00		b) Out of Instt. Dev. Fund	143639384.00
	c) Own funds	26834232.00		c) Out of Own Funds & Others	2889682290.00
IV	Interest Received		IV	Expenditure on Fixed Assets & Capital Work-in-progress	732024288.00

	a) On Bank deposits	208170.00			
	b) Recoverable Advances	3483737.00			
V	Other Income	361840403.00	V	Refund of surplus money / Loans	
				a) To the Govt. of India	
				b) To the State Government	
				c) To other providers of funds	
VI	Amount Borrowed	127100000.00	VI	Finance charges (Interest)	
VII	Other Receipts	4446073236.00	VII	Other Payments	404973612.00
			VIII	Closing Balances	
				a) In current accounts	98554225.00
				b) In savings accounts	1483852.00
TOTAL		6682594033.00	TOTAL		6682594033.00

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DEPARTMENT OF AEROSPACE ENGINEERING

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DEPARTMENT OF CHEMICAL ENGINEERING

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