Annual Report

2018 - 2019

Indian Institute of Technology
Kharagpur

September 2019

Contents

Schools (12)

G. S. Sanyal School of Telecommunications
Rajendra Mishra School of Engineering Entrepreneurship
Rajiv Gandhi School of Intellectual Property Law
Ranbir & Chitra Gupta School of Infrastructure Design and Management
School of Biosciences
School of Energy Science and Engineering
School of Environmental Science and Engineering
School of Medical Science & Technology
School of Nano Science and Technology
School of Water Resources
Subir Chowdhury School of Quality and Reliability
Vinod Gupta School of Management

Centers of Excellence (5)

Centre of Excellence in Artificial Intelligence
Centre of Excellence in Robotics
Deysarkar Centre of Excellence in Petroleum Engineering
DHI Centre of Excellence on Advanced Manufacturing Technology
Rekhi Centre of Excellence for the Science of Happiness

PART–II

Centralised Services, Programmes and Units (19)

Alumni Affairs & Intitutional Development
B.C.Roy Technology Hospital
Career Development Centre
Central Library
Central Research Facility
Computer and Informatics Centre
Central Workshop & Instruments Service Section
Continuing Education Centre
Estate Civil, Construction & Maintenance Section
Estate (Electrical & Mechanical) Works Section
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Institute Information Cell
Kalpana Chawla Space Technology Cell
Rajbhasha Vibhag
Science & Technology Entrepreneurs' Park
Sponsored Research and Industrial Consultancy
Technology Students Gymkhana
Technology Telecom Centre
Water Works Section

PART– III

Statistical Information

Table A-1: Admission to Undergraduate Courses
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Table A-3: Students Awarded M.C.M. Scholarship

Members of the Council of Indian Institutes of Technology (Till date)

Sl. No.	Name and Designation
1.	Shri Ramesh Pokhriyal (from 31.05.2019) Shri Prakash Javadekar, (Chairperson, IIT Council) Minister for Human Resource Development
2.	Shri Dhotre Sanjay Shamrao, Minister of State for Higher Education
3.	Shri. R. Subrahmanyam, Secretary, Department of Higher Education Chairperson, BOG of six new IITs at Tirupati, Jammu, Goa, Dharwad, Bhilai-Durg and Palakkad
4.	Shri. Dilip Shanghvi, Board of Governors, IIT Bombay
5.	Shri R.C. Bhargava, Chairperson, Board of Governors, IIT Kanpur
6.	Dr. Pawan Goenka, Chairperson, BoG, IIT Madras
7.	Dr. Sanjib Goenka, Chairman, Board of Governors, IIT Kharagpur
8.	Prof. Ashok Misra, Chairperson, Board of Governors, IIT Roorkee
9.	Prof. D.D. Mishra, Chairperson, Board of Governors, I.I.T.(ISM) Dhanbad
10.	Shri Ajai Chowdhry, Chairperson, BOG IIT Patna
11.	Mrs. Lila Poonawalla, Chairperson, Board of Governors, IIT Ropar
12.	Shri. Subodh Bhargava, Chairperson, Board of Governors, IIT Mandi
13.	Dr. B.V.R. Mohan Reddy, Chairperson, Board of Governors, IIT Hyderabad
14.	Prof. Devang V. Khakhar, Director, IIT Bombay
15.	Prof. V. Ramgopal Rao, Director, IIT Delhi
16.	Prof. Partha P. Chakrabarti, Director, IIT Kharagpur Prof. Sriman Kumar Bhattacharyya, Director (Officiating Present)
17.	Prof. Bhaskar Ramamurthi, Director, IIT Madras
18.	Prof. Gautam Biswas, Director, IIT Guwahati
19.	Prof. Ajit Kumar Chaturvedi, Director, IIT, Roorkee
20.	Prof. C.V.R. Murty, Director, IIT Jodhpur
21.	Prof. Pushpak Bhattyacharya, Director IIT Patna
22.	Prof. Sudhir K. Jain, Director, IIT Gandhinagar
23.	Prof. U.B. Desai, Director, IIT Hyderabad
24.	Prof. Sarit Kumar Das, Director, IIT Ropar
25.	Prof. R.V. Rajakumar, Director, IIT Bhubaneswar
26.	Prof. Timothy A. Gonsalves, Director, IIT Mandi
27.	Prof. Pradeep Mathur, Director, IIT Indore
28.	Prof Rajiv Shekhar, Director, IIT(ISM) Dhanbad
29.	Prof. K.N. Satyanarayana, Director, IIT, Tirupati, Tirupati(AP)
30.	Prof. P.B. Sunil Kumar, Director, IIT, Palakkad, Palakkad(Kerala)
31.	Prof. B.K. Mishra, Director, IIT, Goa
32.	Prof. Rajat Moona, Director, IIT Bhilai-Durg

33. Prof. Seshu Pasumarhy, Director, IIT Dharwad (Karanataka)
34. Prof. Anil D. Shahsrabudhe, Chairperson, AICTE.
35. Dr. (Mrs.) Tessy Thomas, Director, ASL, Hyderabad.
36. Prof. Vijayalakshmi Ravaindranathm, IISc Bangalore
37. Prof. Vikram M. Gadre, Deptt. Of Elect. Engg., IIT Bombay
38. Secretary, Department of Information Technology
39. Prof. Anurag Kumar, Director, IISc Bangalore
40. Dr. S.S. Sandhu, AS (TE), MHRD
41. Ms. Darshana M. Dabral, JS&FA, MHRD
42. Dr. Sandeep Chaterjee, Registrar, IIT Delhi
43. Shri. Prashant Agarwal, Director (IITs), MHRD, New Delhi
44. Shri Kundan Nath, Under Secretary (IITs), MHRD
45. Shri V.K. Wadhwa, Project Officer, Secretariat of Council of IITs
46. Shri Mohit Gupta, A.S.O. MHRD
47. Shri Arun Karan, A.S.O. MHRD
48. Mrs. Henna Kumar, A.S.O. MHRD
49. Shri Abhinav Pandey, A.S.O. MHRD

New Members of the Council

1. Dr. R. Chidambaran, Chairperson, BOG IIT Jodhpur
2. Shri. R. Subrahmanyam, Secretary (HE), MHRD
3. Prof. Rajiv Shekhar, Director, IIT (ISM) Dhanbad
4. Prof. Abhay Karandikar, Director, IIT Kanpur
5. Prof. Manoj Singh Gour, Director, IIT Jammu
6. Prof. Vikram M. Gadre, Deptt. Of Elect. Engg., IIT Bombay
7. Dr. G. Satheesh Reddy, Director General, DRDO, Ministry of Defence, Director, IIT Dharwad
8. Prof. H.C. Verma, Retired Professor, Deptt. Of Physics, IIT Kanpur
9. Prof. Pramod Kumar Jain, Director, IIT (BHU) Varanasi

Outgoing Members of the Council

1. Prof. Ashok Misra, Chairperson, Board of Governors, IIT Roorkee
2. Sh. K.K. Sharma, Secretary(HE), MHRD
3. Prof. D.C. Panigrahi, Director, IIT (ISM) Dhanbad
4. Prof. Indranil Manna, Director, IIT Kanpur
5. Prof. Ashok Jhunjhunwala, Deptt. of Elect. Engg., IIT Madras
6. Prof. R.C. Bhudhani, Director, NPL
7. Dr. S.K. Joshi, Ex-DG, CSIR
8. Dr. Srikumar Banerji, Chairman, Board of Governors, IIT Kharagpur
9. Prof. Girish Chandra Tripathi, Chairperson, BOG IIT (BHU) Varanasi

Board of Governors, IIT Kharagpur
(From 1st April, 2018 to 31st March, 2019)

Sl. No	Name & Address	Position
1.	**Shri Sanjiv Goenka** Chairman, RP-Sanjiv Goenka Group,CESC House, 1, Chowringhee Square, Kolkata – 700001	Chairman
2.	**Smt. Arundhati Bhattacharya** Former Chairperson, State Bank of India Corporate Centre, 6th Floor, State Bank Bhavan, Madame Came Road, Mumbai-400021	Member
3.	**Dr. (Smt.) Sudha N. Murty** Chairperson, Infosys Foundation, III Floor, Infosys Tower, 27, Bannerghatta Road Bangalore-560076	Member
4.	**Prof.(Dr.) Jai Pal Mittal** M.N. Saha Distinguished Professor(NASI) 11-B, Rohini Coop. Housing Society Vashi, Navi Mumbai, Maharashtra-400703	Member
5.	**Prof. N. Balakrishnan** Supercomputer Education and Research Centre, Indian Institute of Science Bangalore - 560012	Member
6.	**Prof. Partha P. Chakrabarti** Director IIT Kharagpur	Member
	Prof. Sriman Kumar Bhattacharyya Director (Officiating Present) IIT Kharagpur	Member
7.	**Prof. Sunando Dasgupta** Dept. of Chemical Engineering IIT Kharagpur.	Member
8.	**Prof. Sudeshna Sarkar** Dept. of Computer Science & Engineering IIT Kharagpur	Member
9.	**Prof. B N Singh** Registrar (Officiating) IIT Kharagpur	Secretary

Constitution of Building & Works Committee, IIT Kharagpur

(From 1st April, 2018 to 31st March, 2019)

Sl No	Name and Address	Position
1	**Prof. Partha P. Chakrabarti** Director IIT Kharagpur	Chairman
	Prof. Sriman Kumar Bhattacharyya Director (Officiating Present) IIT Kharagpur	Chairman
2	**Superintending Engineer & Circle Manager** Midnapore Distribution Circle West Bengal State Electricity Distribution Co. Ltd. (WBSEDCL) 190, S. K.Bose Road Paschim Medinipur, PIN - 721101	Member
3	**Superintending Engineer** South Western Circle Public Works Department (PWD) Saheed Mangal Pandey Sarani Paschim Medinipur, PIN- 721101	Member
4	**Head** Department of Civil Engineering IIT Kharagpur.	Member
5	**Head** Department of Electrical Engineering IIT Kharagpur.	Member
6	**Head** Department of Architecture & Regional Planning IIT Kharagpur.	Member
7	**Prof. B N Singh** Registrar (Officiating) IIT Kharagpur	Secretary

Constitution of Finance Committee, IIT Kharagpur
(From 1st April, 2018 to 31st March, 2019)

Sl No	Name and Address	Position
1	**Shri Sanjiv Goenka** Chairman, RP-Sanjiv Goenka Group CESC House, 1, Chowringhee Square Kolkata – 700001	Chairman
2	**Joint Secretary & Financial Adviser** Government of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan, New Delhi -110001	Member
3	**Director(IITs)** Govt. of India Ministry of Human Resource Development Department of Higher Education Shastri Bhawan, New Delhi -110001	Member
4	**Prof. N. Balakrishnan** Supercomputer Education and Research Centre, Indian Institute of Science Bangalore - 560012	Member
5	**Prof. Partha P. Chakrabarti** Director, IIT Kharagpur	Member
	Prof. Sriman Kumar Bhattacharyya Director (Officiating Present) IIT Kharagpur	Member
6	**Prof. B N Singh** Registrar (Officiating) IIT Kharagpur	Secretary

Administrative Heads

Director	Prof. Partha Pratim Chakrabarti, CSE	
Director (Officiating Present)	Prof. Sriman Kumar Bhattacharyya, CE	
Deputy Director	Prof. Sriman Kumar Bhattacharyya, CE	
Deans		
Alumni Affairs	Prof Subrata Chattopadhyay (A&RP)	
Continuing Education	Prof. Adrijit Goswami, Maths	
Faculty	Prof. Subhasish Tripathy, GG	
Human Resource	Prof. B. N. Singh, Aero	
International Relations	Prof. Baidurya Bhattacharya, CE	
Planning & Coordination	Prof. Manoj Kumar Tiwari, ISE	
Postgraduate Studies & Research	Prof. Prasanta Kumar Das, ME	
Students' Affair	Prof. Somesh Kumar, Maths	
Sponsored Research & Industrial Consultancy	Prof. Pallab Dasgupta, CSE	
Undergraduate Studies	Prof. Sudhir Kumar Barai, CE	
VGSOM	Prof. Prabina Rajib	
RGSOIPL	Dr. Padmavati Manchikanti	
Associate Dean (AA)	Prof. Surjya Kanta Pal, ME	From 22.10.2018
Associate Dean (CE)	Prof. Swagata Dasgupta, Chem	
Associate Dean (IR)	Dr. Anandaroop Bhattacharya, ME	From 01.07.2018
Associate Dean, SRIC	Prof. Suman Chakraborty, ME	
Associate Dean, SRIC	Prof. Gour Gopal Roy, MT	
Heads of the Departments		
Aerospace Engineering	Prof. Dipak Kumar Maiti	
Agricultural & Food Engineering	Prof. Nirupama Mallick	
Architecture & Regional Planning	Prof. Joy Sen	
Biotechnology	Prof. Sudip Kumar Ghosh Prof. Ramkrishna Sen	Upto 31.12.2018 From 01.01.2019
Chemical Engineering	Prof. Gargi Das	
Chemistry	Prof. Manish Bhattacharjee	
Civil Engineering	Prof. Kusam Sudhakar Reddy Prof. Nirjhar Dhang	Upto 31.12.2018 From 01.01.2019
Computer Science & Engineering	Prof. Sudeshna Sarkar	
Electrical Engineering	Prof. Pranab Kumar Dutta	

Electronics & Electrical Communication Engineering	Prof. Prabir Kumar Biswas	
Geology & Geophysics	Prof. Anindya Sarkar Prof. Saibal Gupta	Upto 31.12.2018 From 01.08.2019
Humanities & Social Sciences	Prof. Priyadarshi Patnaik	
Industrial & Systems Engineering	Prof. Jhareswar Maiti Prof. Sarada Prasad Sarmah	Upto 31.12.2018 From 01.08.2019
Mathematics	Prof. Mahendra Prasad Biswal	
Mechanical Engineering	Prof. Sukanta Kumar Dash	
Metallurgical & Materials Engineering	Prof. Rahul Mitra	
Mining Engineering	Prof. Debasis Deb	
Ocean Engineering & Naval Architecture	Prof. Prasad K. Bhaskaran	
Physics	Prof. Krishna Kumar	

Heads of Centres

Advanced Technology Development Centre	Prof. Sunando DasGupta	
Centre for Computational and Data Sciences	Prof. Sanjoy Bandyopadhyay, Chem	
Centre for Artificial Intelligence	Prof. Sudeshna Sarkar,CSE	From 19.04.2018
Centre for Educational Technology	Prof. Swagata Dasgupta, CET Prof. Rajib Mall, CSE	Upto 31.07.2018 From 01.08.2018
Centre for Oceans, Rivers, Atmosphere & Land Sciences	Prof. Arun Chakraborty Prof. Anil Kumar Gupta, G&G	Upto 05.08.2018 From 06.08.2018
Centre for Theoretical Studies	Prof. Somnath Bharadwaj, Phy	
Centre for Re-Water Research	Prof. M M Ghangrekar, Civil	
Cryogenic Engineering	Prof. Parthasarathi Ghosh	
Material Science Centre	Prof. Pallab Banerji	
Rubber Technology Centre	Prof. Nikhil Kumar Singha	
Rural Development Centre	Prof. Nirupama Mallick, AgFE	
Steel Technology Centre	Prof. Surjya Kanta Pal, ME	

Heads of Schools

G. S. Sanyal School of Telecommunication	Prof. Saswat Chakrabarti
Rajendra Mishra School of Engineering Entrepreneurship	Prof. Partha Pratim Das, CSE
Ranbir & Chitra Gupta School of Infrastructure Design & Management	Prof. Bhargab Maitra, CE
School of Bioscience	Prof. Amit Kumar Das, BT

School of Energy Science & Engg.	Prof. Suneel Kumar Srivastava	
School of Environment Science and Engineering	Prof. Makarand Madhao Ghangrekar, CE	
School of Medical Science & Technology	Prof. Suman Chakraborty	
School of Nano-Science and Technology	Prof. Rahul Mitra, Met & Mat	
School of Water Resources	Prof. A K Gupta, Civil Engg	
Subir Chowdhury School of Quality and Reliability	Prof. V. N. Achutha Naikan Prof. Sanjay Kumar Chaturvedi	Upto 30.11.2018 From 01.12.2018

Heads of Centre of Excellence

Centre for Robotics, PIC	Prof. Dilip Kumar Pratihar, ME	From 08.08.2018
DHI Centre of Excellence on Advanced Manufacturing Technology	Prof. Surjya Kanta Pal, ME	
P. K. Sinha Centre for Bio Energy	Prof. M M Ghangrekar, Civil	
Rekhi Centre of Excellence for the Science of Happiness	Prof. Priyadarshi Patnaik, HSS	

Heads of Sections

Computer & Informatics Centre	Prof. Arobinda Gupta Prof. Shamik Sural(CSE)	Upto 31.12.2018 From 01.01.2019
Institute Information Cell	Prof. Ghosh, CSE	
Asso. Head, IIC	Dr. Pralay Mitra, CSE	
Administrative Computer Service Support Centre (ACSSC)	Prof. Adrijit Goswami, Maths	

Chairman, Vice-Chairman

Civil Construction & Maintenance	Prof. Debasis Roy, CE	
CCM, Vice-Chairman	Dr. Nilanjan Mitra, CE Dr. Haimanti Banerji, ARP	
Hall Management Centre	Prof. Surjya Kanta Pal, ME Prof. Partha Saha (ME)	Upto 13.09.2018 From 14.09.2018
Career Development Centre	Prof. G.P.Raja Sekhar Prof. P A Deshpande, ChE	
CDC, Vice-Chairman	Prof. Uday Shankar, RGSoIPL Prof. Mamata Jenamani, ISE	From 01.01.2018
Central Library	Prof. Suneel Kumar Srivastava	
GATE – JAM	Prof. Ramkrishna Sen	Upto 26.05.2018
GATE – JAM, Vice-Chairman	Prof. Manjunatha Mahadevappa, SMST Prof. Madan Kumar Jha, AgFE Prof. Prasanta Kumar Datta	From 27.05.2018
JEE	Prof. Pallab Banerjee, MSC	Upto 25.08.2018
JEE, Vice-Chairman	Dr. Rabibrata Mukherjee, ChE Dr. Mihir Kumar Dash, CORAL	From 26.08.2018

Enterprise Resource Planning ERP, Vice-Chairman	Prof. Adrijit Goswami, Math Prof. Shamik Sural, CSE Prof. Soumya Kanti Ghosh, CSE	
Central Research Facility, Mat. Sc.	Prof. Jyotsna Dutta Majumder	
Central Research Facility, Life Sc.	Prof. Amit Kumar Das, BT	
Central Workshop & Instruments Service (CWISS)	Prof. Asimava Roy Choudhury, ME	
Rajbhasha Vibhag	Prof. Venkappayya R Desai, CE	
Nehru Museum of Science & Technology	Prof. Dhrubajyoti Sen, CE	
Kalpana Chawla Space Technology Cell (KCSTC)	Prof. Dipanwita Roy Chowdhury, CSE Prof. Santanu Chattopadhyay, E&ECE	Upto 31.12.2018 From 01.01.2019
House Allotment Committee (HAC)	Prof. Ashok Kumar Gupta, CE	
Commercial Establishments & Licencing Committee (CELC)	Prof. Madan Kumar Jha, AgFE	
Campus Schools Advisory (CSA) Committee	Prof. Somnath Sen, ARP	
Campus Green Cover (CGC)	Prof. Bhabani Sankar Das, AgFE	
Computer Purchase and Network Maintenance Committee	Prof. Arobinda Gupta, CSE	
Vice-Chairman, Technology Aquatic Society (TAS)	Dr. Alok Kanti Deb, EE	
Vice-chairman, Technology Film Society (TFS)	Dr. Amreesh Chandra, Phy	
Treasurer, TFS	Dr. A K Goswami, RCGSIDM	
President, Technology Students' Gymkhana (TSG)	Prof. William Kumar Mohanty, GG	
Treasurer, TSG	Prof. Kingshook Bhattacharyya, ME	
Principal Medical Officer (Acting)	Dr. Samir Dasgupta, SMO	From 12.10.2018
Chief Vigilance Officer	Prof. Sujoy Ghose, CSE Prof.Biswajit Mahanty, ISE	Upto 23.06.2018 From 24.06.2018
Managing Director, STEP	Prof. Satyahari Dey, Biotechnology	
Professors-in-Charge		
Chief Engineer, Electrical Works	Mr. Vivek Prakash Srivastava	
Refrigeration & AC Unit	Prof. M. Ramgopal, ME Dr. Parthasarathi Ghosh, Cryo	Upto 31.07.2018 From 01.08.2018
Horticulture	Prof. Bhabani Sankar Das, AgFE	
Water Works & Sanitation	Prof. Chandranath Chatterjee, AgFE	
Institute Guest Houses	Prof. B. C. Meikap, ChE	
Technology Telecom Centre	Prof. Raja Datta, E&ECE	
Time Table	Prof. Jyotsna Dutta Majumdar, MT	
Audio Visual Cell	Prof. Asimava Roy Choudhury, ME	

Examinations	Prof. Dilip Kumar Baidya, CE	
Advanced VLSI Laboratory	Prof. T.K.Bhattacharyya, E&ECE	
IPR & IR	Prof. C Retna Raj , Chemistry	
IIT Kharagpur Kolkata Campus	Prof. B C Meikap, ChE	
IIT Kharagpur Bhubaneswar Ext.	Prof. Subhasish Tripathy, GG	
ALPGE	Prof. Sudip Kumar Ghosh, BT	
Incubation & Entrepreneurship	Prof. Satyahari Dey, BT	
B.C.Roy Technology Hospital	Prof. Rajib Mall, CSE	
Centre for Railway Research, CRR	Prof. Subhransu Roy, ME	
Outsourced Manpower	Prof. Santanu Kumar Bhowmik, GG	
Counseling Centre	Prof. Sangeeta Das Bhattacharya, SMST Prof. Siddhartha Sen, EE	Upto 11.08.2018 From 12.08.2018
Transport & Automobile Section	Prof. Arun Kumar Majumder, MI Dr. Mihir Sarangi, ME	Upto 25.05.2018 From 26.05.2018
Rajarhat Research Park	Prof. Partha Pratim Das, CSE	
HR Training & Development	Prof. Trilochan Sahoo, Naval	

Miscellaneous Assignment

Faculty Coordinator, International Relations	Dr. Sanjay Gupta, ME
NSS Programme Coordinator	Dr. Arghya Deb, Civil Engg
Programme Coordinator, NSO (Health & Fitness)	Dr. Shivakiran B N Bhaktha, Phy
Programme Coordinator, NCC	Dr. Kamal Lochan Panigrahi, Phy
Institute's Representative at the Indian Member Council	Prof.Om Prakash Sha, Naval
Coordinator for Rural Technology Action Group (RuTAG) Cell	Prof. P B S Bhadoria, AgFE
Public Information Officer (PIO)	Shri Achintya Kumar Mandal, Deputy Registrar (S&P)
Assistant Public Information Officer (APIO)	Shri A K Naskar, DR (Acad) Shri P C Das, DR (E) Shri B Bhattacharyya, DR (F&A) Shri S K Biswas, DR (SRIC)

List of Senate Members

The 328th Meeting of the Senate held on 14th March 2019 at 3.30 P.M. in the Senate Hall

Section 14(A) - Director

Prof. Partha P. Chakrabarti

Prof. Sriman Kumar Bhattacharyya (Officiating)

Section 14(B) Deputy Director

Prof. Sriman Kumar Bhattacharyya

Section 14(C) Professors of the Institute

Aerospace Engineering

Prof. Kalyan P. Sinhamahapatra

Prof. Bhrigu Nath Singh

Prof. Dipak Kumar Maiti

Prof. Manoranjan Sinha

Architecture & Regional Planning

Prof. Uttam K. Banerjee

Prof. Jaydip Barman

Prof. Subrata Chattopadhyay

Prof. Joy Sen

Prof. Sanghamitra Basu

Biotechnology

Prof. D. Das

Prof. Satyahari Dey

Prof. Ananta K. Ghosh

Prof. Amit K. Das

Prof. Tapas K. Maiti

Prof. Sudip Kumar Ghosh

Prof. Ramkrishna Sen

Prof. Pinaki Sar

Prof. Anindya Sundar Ghosh

Prof. Mrinal Kumar Maiti

Chemical Engineering

Prof. A.N. Samanta

Prof. Sunando Dasgupta

Prof. N. C. Pradhan

Prof. Sirshendu De

Prof. Gargi Das

Prof. Sudarsan Neogi

Prof. Jayanta Kumar Basu

Prof. Goutam Kundu

Prof. B.C. Meikap

Prof. Swati Neogi

Prof. Sudipto Chakraborty

Prof. Rabibrata Mukherjee

Civil Engineering

Prof. Dhrubajyoti Sen

Prof. Sriman K. Bhattacharyya (Officiating Dir.)

Prof. K.S. Reddy

Prof. L.S. Ramachandra

Prof. Subhasish Dey

Agricultural & Food Engineering

Prof. Rajendra Singh

Prof. Virendra K. Tewari

Prof. Kamlesh Narayan Tiwari

Prof. R.K. Panda (On Lien)

Prof. Rintu Banerjee

Prof. P.B.S. Bhadoria

Prof. Ashis K. Datta

Prof. Hari Niwas Mishra

Prof. N. S. Raghuwanshi (On Lien)

Prof. S. N. Panda (On Lien)

Prof. Tridib K. Goswami

Prof. Nirupama Mallick

Prof. Madan Kumar Jha

Prof. Hifjur Raheman

Prof. Snehasish Dutta Gupta

Prof. Adinpunya Mitra

Prof. Chandranath Chatterjee

Prof. Bhabani Sankar Das

Prof. E. V. Thomas

Prof. P. Srinivasa Rao

Prof. Dillip Kumar Swain

Prof. Ashok Mishra

Bioscience

Prof. Nihar Ranjan Jana

Centre for Ocean, Rivers, Atmosphere & Land

Prof. P. C. Pandey

Prof. Arun Chakraborty

Chemistry

Prof. Pratim K. Chattaraj

Prof. Tanmaya Pathak

Prof. Amit Basak

Prof. Debashis Ray

Prof. M. Bhattacharjee

Prof. S. K. Srivastava

Prof. Nilmoni Sarkar

Prof. Swagata Dasgupta

Prof. Srabani Taraphder

Prof. Sanjoy Bandyopadhyay

Prof. Joykrishna Dey

Prof. Kumar Biradha

Prof. C. R. Raj

Prof. N. D. Pradeep Singh

Prof. Samik Nanda

Computer Science & Engineering

Prof. Sujoy Ghose

Prof. Partha P. Chakrabarti (Director)

Prof. Dilip K. Baidya
Prof. Nirjhar Dhang
Prof. S. K. V. Barai
Prof. V. R. Desai
Prof. Ashok Kumar Gupta
Prof. M. M. Ghangrekar
Prof. Baidurya Bhattacharya
Prof. Damodar Maity
Prof. Debasis Roy
Prof. Bhargab Maitra
Prof. Aniruddha Sengupta
Prof. Anjali Pal
Prof. M. Amarnatha Reddy
Prof. Arghya Deb
Prof. Sujit Kumar Dash

Cryogenic Engineering

Prof. Parthasarathi Ghosh
Prof. V. Rao Vutukuru
Prof. Kanchan Chowdhury

Electrical Engineering

Prof. S.K. Das
Prof. Amit Patra
Prof. N.K. Kishore
Prof. Siddhartha Mukhopadhyay
Prof. Siddhartha Sen
Prof. Pranab K. Dutta
Prof. B.M. Mohan
Prof. Debapriya Das
Prof. Tapas K. Bhattacharya
Prof. Chandan Chakraborty
Prof. Ashok Kumar Pradhan
Prof. Debaprasad Kastha
Prof. Aurobinda Routray

Geology & Geophysics

Prof. Sankar K. Nath
Prof. Biswajit Mishra
Prof. Anil K. Gupta
Prof. Debashish Sengupta
Prof. Abhijit Bhattacharya
Prof. Subhasish Tripathy
Prof. Anindya Sarkar
Prof. Subhasish Das
Prof. Mruganka K. Panigrahi
Prof. Santanu K. Bhowmik
Prof. Saibal Gupta
Prof. Shashi Prakash Sharma
Prof. Manish A Mamtani
Prof. William K. Mohanty
Prof. Ravikant Vadlamani
Prof. Arindam Basu
Prof. Anupam Basu (On Lien)
Prof. Indranil Sengupta
Prof. Jayanta Mukhopadhyay
Prof. Indranil Sengupta
Prof. Sudebkumar Prasant Pal
Prof. Rajib Mall
Prof. Dipanwita Roy Chowdhury
Prof. Pallab Dasgupta
Prof. Sudeshna Sarkar
Prof. Chittaranjan Mandal
Prof. Arobinda Gupta
Prof. Partha Pratim Das
Prof. Niloy Ganguly
Prof. Shamik Sural
Prof. Soumya Kanti Ghosh
Prof. K. Sreenivasa Rao
Prof. Sudip Misra
Prof. Partha Bhowmick
Prof. Pabitra Mitra
Prof. Debdeep Mukhopadhyay
Prof. Abhijit Das

Electronics & Electrical Comm. Engineering

Prof. R V R Kumar (On Lien)
Prof. Prabir K. Biswas
Prof. Mrityunjoy Chakraborty
Prof. Sant Sharan Pathak
Prof. D. Biswas (Long Absent)
Prof. Santanu Chattopadhyay
Prof. Tarun Kanti Bhattacharyya
Prof. Goutam Saha
Prof. Anindya Sundar Dhar
Prof. Raja Datta
Prof. Indrajit Chakrabarti
Prof. Sudipta Mukhopadhyay
Prof. Pradip Mandal
Prof. Amitabha Bhattacharya
Prof. Bratin Ghosh

G S Sanyal School of Telecommonucations

Prof. Saswat Chakraborti

Humanities & Social Sciences

Prof. Damodar Suar
Prof. Anjali Gera Roy
Prof. K.B.L. Srivastava
Prof. Suhita Chopra Chatterjee
Prof. Vijai Nath Giri
Prof. Chhanda Chakraborti
Prof. Priyadarshi Patnaik
Prof. Narayan Chandra Nayak
Prof. Manas K Mandal
Prof. Kishor Goswami

Prof. Paresh Nath Singha Roy

Industrial & Systems Engineering

Prof. Biswajit Mahanty
Prof. Pradip K. Ray
Prof. Manoj K. Tiwari
Prof. Jhareswar Maiti
Prof. Sarada Prasad Sarmah
Prof. Mamata Jenamani

Mathematics

Prof. Umesh Chandra Gupta
Prof. Mahendra Prasad Biswal
Prof. Somnath Bhattacharyya
Prof. Adrijit Goswami
Prof. Somesh Kumar
Prof. Rajni Kant Pandey
Prof. G. P. Raja Sekhar
Prof. P.V.S.N. Murthy
Prof. Pratima Panigrahi
Prof. Chandal Nahak
Prof. Debjani Chakraborty
Prof. Geetanjali Panda

Metallurgical & Materials Engineering

Prof. N. Chakraborti
Prof. Indranil Manna
Prof. Siddhartha Das
Prof. Karabi Das
Prof. Gour Gopal Roy
Prof. Rahul Mitra
Prof. P.K. Sen
Prof. Jyotsna Dutta Majumdar
Prof. Shiv Brat Singh
Prof. Sudipto Ghosh
Prof. Tarun Kumar Kundu
Prof. Shampa Aich
Prof. Tapas Laha
Prof. Debalay Chakrabarti
Prof. Koushik Biswas

Mining Engineering

Prof. S.S. Bhamidipati
Prof. Ashis Bhattacharya
Prof. K. U. M. Rao (On Lien)
Prof. Samir K. Das
Prof. Khanindra Pathak
Prof. Jayanta Bhattacharyya
Prof. Samir Kumar Pal
Prof. Debasis Deb
Prof. Biswajit Samanta
Prof. Debashish Chakravarty
Prof. Arun Kumar Majumder
Prof. Bhagirath Behera
Prof. Jitendra Mahakud
Prof. Pulak Mishra

Materials Science

Prof. Pallab Banerjee
Prof. Chako Jacob
Prof. Susanta Banerjee
Prof. Subhasish Basu Majumder
Prof. Bhanu Bhusan Khatua

Mechanical Engineering

Prof. Biswajit Maiti
Prof. S Bhattacharya (On Lien)
Prof. Ranjan Bhattacharyya
Prof. Sukanta K. Dash
Prof. Prasanta K. Das
Prof. Amiya Ranjan Mohanty
Prof. Sati Nath Bhattacharyya
Prof. Soumitra Paul
Prof. Manas Chandra Ray
Prof. A. K. Nath
Prof. Subhransu Roy
Prof. Dilip K. Pratihar
Prof. Suman Chakraborty
Prof. Anirvan Dasgupta
Prof. Abhijit Guha
Prof. Maddali Ramgopal
Prof. Ashimava Roy Choudhury
Prof. Manab Kumar Das
Prof. Surjya Kanta Pal
Prof. Arun Kumar Samantaray
Prof. Kumar Siva Cheruvu
Prof. Sanjay Gupta
Prof. Sandipan Ghosh Moulic
Prof. Partha Pratim Bandyopadhyay
Prof. Partha Saha
Prof. Goutam Chakraborty

Ocean Engineering & Naval Architecture

Prof. Debabrata Sen
Prof. O. P. Sha
Prof. Trilochan Sahoo
Prof. Prasad Kumar Bhaskaran
Prof.Hari V Warrior

Rajiv Gandhi School of Intellectual Property Law

Prof. Padmavati Manchikanti
Prof. Dipa Dube
Prof. K. D. Raju
Prof. Indrajit Dube

Rubber Technology

Prof. Nikhil Kumar Singha
Prof. Santanu Chattopadhyay

Physics

Prof. Samit K. Ray (On Lien)
Prof. Arghya Taraphder (On Deputation)
Prof. Krishna Kumar
Prof. Somnath Bharadwaj
Prof. Sayan Kar
Prof. Anushree Roy
Prof. Prasanta Kumar Datta
Prof. Tapan Kumar Nath
Prof. Achintya Dhar
Prof. Pragya Shukla
Prof. Sudhansu Sekhar Mandal
Prof. Utpal Sarkar
Prof. Dipak Kumar Goswami
Prof. Sonjoy Majumder
Prof. Partha Roy Chaudhuri
Prof. Ajay Kumar Singh
Prof. Kamal Lochan Panigrahi
Prof. Bhupendra Nath Dev
Prof. Kinsuk Naskar

School Of Medical Science & Technology

Prof. Soumen Das
Prof. Koel Chaudhury
Prof. Sangeeta Das Bhattacharya
Prof. Mahitosh Mandal
Prof. Manjunatha Mahadevppa
Prof. Jyotirmoy Chatterjee
Prof. Santanu Dhara

Subir Chowdhury School Of Quality & Reliability

Prof. V.N.A. Naikan
Prof. Sanjay Kumar Chaturvedi

Vinod Gupta School Of Management

Prof. Prabina Rajib
Prof. Sangeeta Sahney

Under Section 14 (1)(a) Heads of the Deptts./Centres/Schools other than Professors

Already included under 'C' above

Under Section 14 (1)(b) The Librarian of the Institute

Dr. Bablu Sutradhar

Under Section 19 (2) The Registrar (Secretary)

Prof. Bhrigu Nath Singh

Students' Representatives :

Mr. Vishal Kumar Singh, Vice President, TSG
Ms. Aruja Rustagi, PG Representative
Ms Jyayasi Nath, Women Representative
Mr. Sujit Madhab Ghosh

Director's Report

Honourable President of India **Shri Ram Nath Kovind** Chief Guest of 64th Convocation, Honourable Governor of West Bengal **Shri Keshari Nath Tripathi**, Honourable Chief Minister of West Bengal, **Respected Mamata Banerjee**, Minister-in-charge, Irrigation and Waterways Department, Government of West Bengal, **Dr Saumen Kumar Mahapatra, Shri Sanjiv Goenka,** Chairman, Board of Governors, IIT Kharagpur and Chairman, *R. P. Sanjiv Goenka Group,* Members of the Board of Governors, Members of the Senate, Distinguished Alumni, Guests, Dear Faculty and Staff Colleagues, Students, Degree and Award Recipients, Media Persons, Ladies and Gentlemen!

I stand here with great pride to extend a warm welcome to you on this solemn occasion of the 64th Convocation of our prestigious Institute that bear fond memories of the great sacrifices by multitude of great patriots. On this auspicious day, I feel overwhelmed and privileged to be in the august presence of many eminent men and women, visionaries, parents and our dear graduates *the future of our great Nation.*

Education is the key to success in life, and teachers make a lasting impact on the lives of students who define the future of India. Convocations are solemn occasions for both faculty members and students alike. Graduates are at the threshold of embarking on a new phase of the journey in the real world as these bright, young minds get ready to face the challenges that await them in the real world outside in contributing to the cause of humanity and development. True education helps learners to transform challenges into opportunities and be unfazed in the face of failure, until success is reached.

It has been mentioned in an ancient piece of literature: “Education, Logic, Science, Memory, Initiation and Work, a person who has these six virtues, for him nothing is unachievable.” As an institution, we take pride in our teaching tradition, which provides education to students not only to become scholars with specialized skills in their domain, but we inculcate in them social responsibility and creative and critical thinking abilities to transform them into citizens of the world, who can meet national needs and global expectations.

For the independent India, the foremost challenge was to be industrially evolved. For this, it was critical to train our own engineers and technocrats on our soil. With this deep desire to be a truly independent nation, the Indian Institutes of Technology were conceived as a symbol of progress and a beacon of hope. IIT Kharagpur is the first to be founded in its class, which embodied the aspirations of a New India; an India with its own human resource, trained in specialized skills to contribute to nation-building, research and development in ushering a brighter future. Since its inception, this pioneer Institution has been dedicated to the cause of excellence and has contributed immensely in a wide array of fields, such as engineering and technology, architecture, arts, culture, medicine, law and management. The rich and long tradition of teaching and research of this Institution is well known around the globe which has expanded into a wider range of areas of national importance, current relevance and happiness; maintaining highest ethical values, environmental concern and societal goodness.

We are proud of our alumni who are spread across the globe. They have proved themselves in leadership and trendsetting in various fields. International and national business leaders, renowned scientists, technologists and administrators, lauded journalists, celebrated actors and artistes, cultural activists, architects, political leaders who have played important roles in shaping the destiny of our Country and our alumni have left their imprints in all walks of life. They are the true ambassadors of this Institution of excellence who continue to give back to their Alma Mater. They did selfless service in taking forward our relentless striving to achieve higher goals set; be it as infrastructural support or as being the true flag bearer of this Institute both in the country and around the globe. I thank each one of them from the depth of my heart.

Over the years, the Institute has built its reputation as a leading centre for higher learning. Our efforts to achieve excellence in all fields of science and technology have been recognised by different ranking agencies, both at National and International levels. We have taken a series of steps to bring closer ties between our Institute and industries, either by developing focussed research centres with close collaboration with industries or by developing new courses keeping the industrial requirements in mind. To foster young minds with scientific enthusiasm and instil an urge to solve problems, we have initiated the Young Innovators Program that has attracted the attention of the nation. I am glad that corporate houses and industries continue to employ our bright graduates, proving, again and again, the merit of the education and learning we impart.

It is noteworthy to state that the Institute has responded timely by introducing a course on Happiness under the 'Rekhi Centre of Excellence'. In addition, an MOU has already been signed with the Rajya Anandam Sansthan of Government of Madhya Pradesh. It is important to note that the researchers at IIT Kharagpur have achieved innovative breakthrough on production of bio-fuel.

Let me now have privilege of introducing our Chief Guest, and the Guests of Honour who however do not need any introduction.

Shri Ram Nath Kovind, honorable President of India is lawyer, veteran political representative and long-time advocate of egalitarianism and integrity in Indian public life and society. Before assuming charge of the office of the 14th President of India on July 25, 2017, Shri Kovind served as the 36th Governor of the state of Bihar from August 16, 2015, to June 20, 2017. Shri Kovind completed his school education in Kanpur and obtained the degrees of B.Com and LL.B. from Kanpur University and enrolled as Advocate with the Bar Council of Delhi in 1971. Shri Kovind was Union Government Advocate in the Delhi High Court from 1977 to 1979 and Union Government Standing Counsel in the Supreme Court from 1980 to 1993. He became Advocate-on- Record of the Supreme Court of India in 1978. He practiced at the Delhi High Court and Supreme Court for 16 years till 1993. Shri Kovind was elected as a member of the Rajya Sabha from Uttar Pradesh in April 1994. He served for two consecutive terms of six years each till March 2006. Shri Kovind served on various Parliamentary Committees like Parliamentary Committee on Welfare of Scheduled Castes/Tribes; Parliamentary Committee on Home Affairs; Parliamentary Committee on Petroleum and Natural Gas; Parliamentary Committee on Social Justice and Empowerment; and Parliamentary Committee on Law and Justice.

Shri Keshari Nath Tripathi, His Excellency the Governor of West Bengal has been a Senior Advocate by profession, Keshari Nath Tripathi's professional acumen, nationalistic fervour, social commitment and moral values took shape under the guidance of his revered parents and elder brother. He graduated from Allahabad University in 1953 and passed LL.B Examinations in 1955. His long association with judicature in general and Allahabad High Court in particular was acclaimed by the Allahabad High Court when he was unanimously designated as a Senior Advocate in 1989 by Full Court. Known as an eminent Lawyer on the Civil Side, Shri Tripathi was regarded as an expert in election law. Shri Tripathi has been conferred many Honoris Causa Degrees by various Universities and Institutes. Shri Tripathi is not only a social and political worker but is also associated with a number of educational, cultural and literary institutions. He is a revered and widely acclaimed poet. Shri Tripathi has also written an exhaustive commentary on the Representation of the People Act, 1951.

Respected Mamata Banerjee is the first woman Chief Minister of West Bengal and has been serving as the Chief Minister since 2011. She completed her education from Calcutta University. She has dedicated her life in the service of the society and empowerment of the downtrodden. Prior to being the Chief Minister, she held various portfolios as Union Minister and has been a longtime parliamentarian. She has represented the country in various International forums. The Times Magazine named her as one of the 100 Most Influential People in the World in 2012.

Dr Saumen Kumar Mahapatra, Dr Mahapatra did his Bachelor, Masters, and PhD from Calcutta University in Zoology and was Associate Professor in Pingla College. I am happy to inform that Dr Mahapatra was associated with IIT Kharagpur. He did a training program in National IT Service Scheme at IIT Kharagpur.

Shri Sanjiv Goenka Chairman, Board of Governors of IIT Kharagpur is the Chairman of the *RP-Sanjiv Goenka Group* with an asset base of over USD 4.3 billion, and over 50,000 employees and over a hundred thousand shareholders. Born in 1961, Sanjiv Goenka is currently the Honorary Consul of Canada in Kolkata. In April 2001, he took over as the youngest-ever President of the Confederation of Indian Industry (CII), was appointed Chairman of the Board of Governors of the Indian Institute of Technology, Kharagpur and currently serves on the board of the Indian Institute of Management, Kolkata (IIM, Kolkata). Shri Sanjiv Goenka was a former President of the All India Management Institute (AIMA), and a member of the Prime Minister's Council on Trade & Industry. He is also the current Chairman of the Board of Directors of Woodlands Medical Centre Ltd, Kolkata.

HIGHLIGHTS OF ACHIEVEMENTS DURING THE PAST YEAR

I take this opportunity to present before you some of the key achievements of the Institute in the past year.

Institute's Leading Role in National Initiatives

Ever since its inception, the Institute has always made its willing and whole-hearted contribution to the growth of the nation. Our continuous effort to live up to the founding motto of our Institute, "Dedicated to the Service of the Nation" has strengthened us to lead several national initiatives with far-reaching benefits to the country and its citizens.

The Institute, as the host and the coordinator of the *National Digital Library of India* (NDLI) initiative, has accomplished more than 30 million contents with single-window access to all the existing digitized and digital contents of the nation. In the last year, with the guidance of the Ministry of Shipping of the Government of India, the Institute started its journey with a new *Centre for Inland and Coastal Maritime Technology* under the *Sagarmala programme*. The newly created Centre for Computation and Data Science of the Institute has been playing a leading role in establishing the 1.3 peta-flop supercomputing facility under the *National Supercomputing Mission* (NSM) of the Government of India. The Institute took a leading role as the co-coordinator of the *Smart Indian Hardware Hackathon* (SIHH) program and as the nodal centre for the Grand Finale, which provided a unique platform to the budding innovators to initiate unique solutions that can be converted to tangible products and business.

With an aim of improving the research ecosystem of India's higher educational institutions by facilitating academic and research collaborations between top-ranked Indian Institutions and globally ranked Foreign Institutions, through joint research projects involving mobility of students and faculty, the Government of India recently launched the *Scheme for Promotion of Academic and Research Collaboration* (SPARC). Our Institute, acting as the *National Coordinating Institute*, successfully implemented the scheme that has created collaborative networks involving top Universities from 28 countries. To help educational institutions of the country to achieve excellence, our Institute has initiated the implementation of *Software for Managing Institutions of Learning and Education* (SMILE), an ERP for Academic Institutions.

The *Young Innovators Program* 2019 launched by our Institute has received International attraction, where young students from both inside and outside the country participated in this unique program offered by the Institute that aims to ignite the innovative young minds of school children. To encourage students from neighbouring countries to study in Indian institutes, our Institute has launched a full scholarship programme for students from the SAARC region for full-time enrolment at undergraduate, postgraduate, and doctoral levels.

Recognitions

The Institute's excellence in teaching and research in diverse areas of academics has been recognised by the *National Institutional Ranking Framework* (NIRF) 2019, where for two consecutive years IIT Kharagpur is the only Institute to be ranked in the top list in overall category (*fifth rank*) as well as in Engineering (*fourth rank*), Management (*sixth rank*), Architecture (*first rank*), and Law (*fourth rank*), in addition to the newly developed innovation Ranking (*fifth rank*) in the *Atal Ranking of Institutions on Innovation Achievements* (ARIIA). The institute made the highest rate of improvement for top-ranked Indian Institutions in the latest *QS Rankings* by moving up 14 places. The tri-Institute programme on Business Analytics (PGDBA) co-offered by the Institute ranked 14th in the world by QS Ranking. The Institute ranked as India's Best in the *Times Higher Education Impact Ranking* and among World's top 50 in Industry, Innovation & Infrastructure category. The Institute has been conferred Excellence Award by *National Backward Classes Finance & Development Corporation* for efficient implementation of clean energy in several backward villages through CSR funding. We have also been adjudged the winner of the *DSCI Excellence Award* for Cyber Security Education at the NASSCOM-DSCI Annual Information Security Summit 2018. It is a matter of great pride that IIT Kharagpur has been recommended for MHRD's *Institution of Eminence* status by the University Grants Commission.

Research with Impact on Society

The Institute with its dedicated teams of students and faculty members makes persistent efforts to carry out research that reaches the society. Researchers from the Institute have developed AI-based mobile app for elderly care-giving that addresses accidental falls, mental health and physical wellbeing, an app to help smokers quit, tools to detect interstitial lung diseases and lung cancer, technology to filter fake news about disasters, methods to boost LPG distribution, development of the 'Potable Water Project' that provides 1000 litres of purified water to 60 families every day at Re 1, model to predict variability and trends in rainfall in India, battery-free implantable medical devices, and city-level maps to help cut damage from earthquakes, among many other exciting technologies that received wide attention. We are proud to have supplied employment generating rural technologies and equipment, developed under the Design Innovation Centre and RuTAG at IIT Kharagpur, to the North East Region of India. With our commitment to the development of rural technologies, the Institute organized the *Rural Technology Hackathon* 2018.

New Initiatives in Teaching

Institute has launched the first of its kind *Undergraduate Research Programme* (UGRP) that aims to give new incentives to students to carry out project ideas of their own and have it as part of their transcripts. The initiative is aimed to encourage and nurture the spirit of research and innovation among UG students early on. The UGRP funds select research ideas proposed by the students on a competitive basis and each successful proposal is guided by a member of the Institute's faculty. To impart teaching through learning, the institute has introduced a Do It (DIY) laboratory, where young minds can nurture their innovative ideas; and we are set to make this as a part of our curricula. The Institute has introduced *Amazon Web Services* (AWS) Educate programme to provide AWS Cloud Computing experience and AI-enablement for all our students, irrespective of their branch of study.

Academia-Industry Collaboration

To focus our research more towards real-world problems, the Institute closely interacts with several industrial partners in different technological areas. In a first of its kind project in India towards the *development of Cancer Image Data Bank* for harnessing Artificial Intelligence Technology in Cancer research, a project on Cancer Image Data bank (Chavi) is being carried out by the National Digital Library, IIT Kharagpur and Tata Medical Centre, Kolkata. The Centre for Artificial Intelligence and the EPINET Data Science team of ONGC are jointly developing the *Knowledge Architecture for Data Analytics of ONGC*. The Institute has joined hands with Wipro to carry out joint research on *5G and artificial intelligence*. Research outcomes from this partnership would be used by Wipro to develop solutions for its customers, across industry verticals, while we would benefit from the commercialization of the joint research insights and Wipro's real-world industry expertise. In collaboration with Jindal Stainless Limited, the Institute has started a 3-credit *course on stainless steel* as a part of the institute's undergraduate and postgraduate curriculum. The Rekhi Centre for the Science of Happiness of the Institute is collaborating with the Pullela Gopichand Badminton Academy for *development of excellence, happiness and science & technology in sports*. I am very glad to inform that today the Hon'ble Minister will inaugurate and dedicate to the nation 'IIT Kharagpur Research Park' at Rajarhat Campus, Kolkata. This research park will spur innovation, start-up and boost Industry-Academia Interaction for successful translation of IIT's innovative technologies for the benefit of the society and is in line with Make-in-India initiative.

Waste to Wealth

The Institute has initiated a project to re-imagine discarded and obsolete items of different departments and Central Stores, to an *Engineering Design and Innovation Centre*, by scavenging, salvaging, restoring, repairing and reusing parts and components, materials and other accessories to carry out innovative projects and teach hands-on Engineering product development. This Scrap-yard Design Innovation Laboratory will be a unique facility for Engineering Designers and Innovators and a wonderful training ground for IIT Kharagpur students.

The "Aditya Choubey Centre for Re-Water Research (CRW)" to develop and demonstrate affordable technologies to produce reusable quality treated water from polluted waters has been established with generous support from our alumni Shri Aneesh Reddy and Shri Anant Choubey. The centre will connect with the Government and the public sector for implementation of the technologies to curb the problem of water pollution and to reduce the stress on the freshwater resources by encouraging reuse of the treated water.

ACADEMIC PROGRAMMES

Various academic programmes at IIT Kharagpur are run by 19 Academic Departments, 17 centres, 13 schools, and more than 25 Industries & Research Labs, Research Centres and Centres of Excellence.

The Institute offers B. Tech. (Honours) programme in 15 different disciplines, B. Arch. (Honours) Programme in Architecture, 6 five-year Integrated M. Sc. programmes, 16 Dual Degree programmes, nine two-year joint M. Sc.-Ph. D. programmes and 54 Postgraduate Degree programmes leading to Joint M. Tech. /MCP-Ph. D., MBA, MHRM, EMBA, PGDBA, LLB, LLM and MMSR Degrees. The Curricula and Syllabi are updated periodically to meet the changing demands of the world. In addition, the Institute offers a number of micro specializations from diverse disciplines. In its continuous endeavour to make course curricula flexible, IIT Kharagpur has introduced several micro-credit courses. Eminent Visiting Experts (denoted as Adjunct or Visiting faculty) from national/international academic Institution/industry/R&D Laboratories associated with a faculty member from IIT Kharagpur have been teaching in these courses.

The Institute has introduced a number of new academic programmes, namely M. Tech. in Quality and Reliability Engineering, M. Tech. in Functional Materials and Devices and three Master of Science (two year) programmes under the Joint M. Sc. - Ph. D. programme to be offered by IIT Kharagpur in association with Tata Medical Centre (TMC), Kolkata in the areas of Nuclear Medicine, Molecular Medical Microbiology, and Medical Physics. Besides, the Institute has also decided to offer Certificate of Excellence in Research (CER) for the PDF and Visiting Fellows

at IIT Kharagpur, and Ph. D. Programme for the working professionals with minimum residential requirements. Introduction of the Prime Minister's Fellowship Scheme for Doctoral Research by the Government of India is expected to encourage bright students to pursue doctoral research in the areas of Science, Technology, Engineering, Agriculture and Medicine. Other new academic initiatives by the Institute include Short-term Reciprocal Student Exchange Programme between Foreign University and IIT Kharagpur, Learn-Earn-Return (LER) programme for awarding of LER merit scholarships to the top 02 JEE Advanced rankers, and Undergraduate Research Platform (UGRP) to increase the culture of research among the undergraduates.

In our pursuit to offer prompt quality services to the IIT community, the ERP system has been further revamped. All academic issues including students' registration, enrolment, course allocation, annual progress report, synopsis submission, examination results, students' feedback, sponsored research, faculty recruitment and salary and income tax details are now available online.

Today, at this function we will be conferring **295 Ph. D.** (i.e., *264 Ph. D. + 02 Joint MS - Ph. D. + 12 Joint M. Tech. /MCP - Ph. D. + 17 Joint M. Sc. - Ph. D.*), 30 MS, 624 M. Tech., 39 MCP, 112 MBA, 27 EMBA,10 MMST, 18 MHRM, 8 LLM, 29 LLB, 52 PGDBA (a tri-institute programme with IIM Kolkata and ISI Kolkata), 529 Dual Degree, 475 B. Tech. (Hons.), 36 B. Arch. (Hons.), 178 five - year integrated M. Sc. and 154 two-year M. Sc. degrees.

DISTINGUISHED ALUMNI AWARDS

I am honoured and privileged to announce that in this convocation the Senate and Board of Governors of the Institute will confer the Distinguished Alumnus Award to the following eminent personalities.

Prof. Ashim Kumar Datta [1979/B. Tech./AG/NH], Prof. Ashim Kumar Datta of the Department of Biological and Environmental Engineering at Cornell University is a path-breaking researcher and a dedicated teacher. Prof. Datta completed his B. Tech. in Agricultural and Food Engineering from IIT Kharagpur in 1979. He did his M. S. (1982) from the University of Illinois at Urbana-Champaign and his PhD (1985) from the University of Florida, Gainesville. He joined Cornell University in 1987.

Prof. Haresh Lalvani [1967/B. Arch./AR/RP], Prof. Haresh Lalvani is an internationally recognized architect, artist-inventor and design scientist. He is currently Professor, School of Architecture and Director, Center for Experimental Structures at Pratt Institute, USA. Prof. Lalvani completed his B. Arch. from IIT Kharagpur in 1967 and was awarded Silver Medal for being department topper. He did M. S. in Architecture from Pratt Institute in 1971 and PhD from the University of Pennsylvania in 1981 under the legendary architect, systems theorist, inventor and futurist, Richard Buckminster Fuller.

Dr Samir V. Kamat [1985/B. Tech./MT/RK], Dr Samir V. Kamat has been conducting cutting-edge research and development on materials for various defence applications for the past three decades. He is presently Distinguished Scientist and Director General, Naval Systems and Materials, Defence Research and Development Organization (DRDO), and posted at Visakhapatnam. Dr Kamat completed his B. Tech. in Metallurgical Engineering in 1985 from IIT Kharagpur and was a recipient of the Institute Silver Medal as department topper. He obtained PhD from Ohio State University, USA in Materials Science and Engineering in 1988 and did Post-Doctoral Fellowship from the Washington State University, Pullman, USA.

Dr Parag V. Havaldar [1991/B. Tech./CS/LLR], Dr Parag V. Havaldar is a pioneering computer vision and graphics specialist who has won a Technical Oscar for his animation technology. He is currently Lead Manager, Software Research and Development, at Blizzard Entertainment, and adjunct professor in the Department of Computer Science at the University of Southern California. Dr Havaldar completed his B. Tech. in Computer Science and Engineering from IIT Kharagpur in 1991, and obtained his PhD in computer vision and graphics from the University of Southern California in 1996.

Prof. Ramesh Jain [1975/PhD/EC/BCR], Prof. Ramesh Jain is a well-known researcher, entrepreneur and a leading academician in various fields of computer science with a career spanning over 45 years. He is currently Professor and Director, Institute for Future Health, Department of Computer Science, University of California, Irvine, USA. Prof. Jain completed his PhD in Electronics and Electrical Communication Engineering from IIT Kharagpur in 1975. He did his B.E. in Electrical Engineering from Nagpur University in
1969. Prof. Jain joined the University of California, Irvine, as the first Bren Professor in Bren School of Information and Computer Sciences in 2005.

Prof. Santanu Chaudhury [1984, 1989/B. Tech., PhD/EC, CS/RP], Prof. Santanu Chaudhury is an eminent academician well known for his contributions in the field of computer vision and pattern recognition. He is currently Director, CSIR-CEERI, Pilani. Prof. Chaudhury completed his B. Tech. in Electronics and Electrical Communication Engineering from IIT Kharagpur in 1984 and PhD in Computer Science and Engineering in 1989. He was Lecturer at the Electronics and Electrical Communication Engineering Department of IIT Kharagpur before joining IIT Delhi, where he continues as Professor, Electrical Engineering Department.

Dr Sudipta Seal [1990/B. Tech./MT/RK], Dr Sudipta Seal is an eminent scientist, distinguished professor and entrepreneur. He is currently Trustee Chair, Pegasus and University Distinguished Professor at the University of Central Florida (UCF), and Chair, Materials Science & Engineering, Advanced Materials Processing Analysis Center (AMPAC), Nanoscience Technology Center (NSTC), UCF College of Medicine, University of Central Florida, USA. Dr Seal completed his B. Tech.in Metallurgical and Materials Engineering in 1990 and won the Institute Blue for outstanding performance in sports and games. He did his M.Met. from the University of Sheffield, UK and PhD in Materials Science and Engineering from the University of Wisconsin, Milwaukee, USA in 1996.

Lieutenant-General Utpal Bhattacharyya [1969/B. Tech./CE/VS], Lieutenant- General Utpal Bhattacharyya is a distinguished former army officer and management expert. He retired from the Indian Army after serving it for 40 years, having reached the highest possible rank for an Indian Army Engineer (Three Star General – Lieutenant General). He is currently Board Director in West Coast Paper Mills, which is one of the oldest and largest producers of paper for printing, writing, and packaging in India. Lt. Gen. Bhattacharyya earned his B.Tech.in Civil Engineering from IIT Kharagpur in 1969. He did M.Sc. in Defence Studies and M.Phil. from Madras University, and Master of Management Studies from Osmania University, Hyderabad.

Swami Smarananda (Dr N Sridhar Reddy) [1980/PhD/EC/JCB], Swami Smarananda Giri (Dr N. Sridhar Reddy) is the General Secretary of Yogoda Satsanga Society of India, founded by Sri Sri Paramahansa Yogananda in 1917. The Society renders spiritual, humanitarian, and charitable services, and disseminates the Kriya Yoga teachings of Yoganandaji for the holistic development of man. Swamiji did his PhD in Digital Signal Processing from IIT Kharagpur in 1980. He completed his B. E. from Sri Venkateswara College, Delhi University and secured University First rank. He did his postdoctoral fellowship from Concordia University, Montreal, Canada.

Dr V Narayanan [1990, 2001/M. Tech., PhD/CR, AE/VS, GH], Dr V. Narayanan is an expert in cryogenic rocket propulsion technology. He joined the Indian Space Research Organization (ISRO) in 1984 and has held various positions during the last 34 years. Currently, he is Outstanding Scientist and Director, Liquid Propulsion System Centre (LPSC), ISRO, Thiruvananthapuram. LPSC is the lead centre of ISRO and is responsible for the development of liquid propulsion systems for satellite launch vehicles and spacecraft. Dr Narayanan did his M.Tech. in Cryogenic Engineering from IIT Kharagpur in 1990 and won the Institute Silver as department topper. He completed his PhD in Aerospace Engineering, specializing in cryogenic propulsion, from IIT Kharagpur in 2001.

Prof. Pushpak Bhattacharyya [1984/B. Tech./EE/RP], Prof. Pushpak Bhattacharyya is a pioneering researcher in Natural Language Processing, Machine Learning and Artificial Intelligence, and a keen educator. He is presently Director and Professor of Computer Science and Engineering, IIT Patna and Professor (on lien), Department of Computer Science and Engineering, IIT Bombay. Prof. Bhattacharyya did B. Tech. in Electrical Engineering from IIT Kharagpur in 1984. He completed his M. Tech. from IIT Kanpur in 1986 and PhD from IIT Bombay in 1994. He has been a visiting scholar and faculty member in three American universities - Massachusetts Institute of Technology, Stanford University, University of Houston, and University Joseph Fouriere (France).

Prof. Chaitali Chakrabarti [1984/B. Tech./EC], Prof. Chaitali Chakrabarti is an acclaimed scientist, teacher and mentor. She is currently Professor of the School of Electrical, Computer and Energy Engineering, Ira; A. Fulton Schools of Engineering, Arizona State University, Tempe, USA and Associate Director of ASU's Centre for Wireless Information Systems and Computational Architectures (WISCA). Prof. Chakrabarti received her B. Tech. in Electronics and Electrical Communication Engineering from IIT Kharagpur in 1984. She received her M. S. and PhD in Electrical Engineering from the University of Maryland in 1986 and 1990 respectively.

Prof. Narayan B. T. Mandayam [1989/B. Tech./EE/NH], Prof. Narayan B.T. Mandayam is a much-acclaimed scientist known for his contribution to wireless data communication. He is currently Distinguished Professor of Electrical & Computer Engineering and Associate Director, Wireless Information Network Laboratory (WINLAB), Rutgers

University, USA. Prof. Mandayam did his B. Tech. in Electrical Engineering from IIT Kharagpur in 1989 and earned the Institute Silver medal as department topper. He completed his M.S. in Electrical Engineering in 1991 and PhD in 1994 from Rice University, Houston, Texas.

RESEARCH AND DEVELOPMENT ACTIVITIES

I shall now outline some of the research and development activities various Departments, Schools and Centres are carrying out.

Aerospace Engineering

The Department is involved in various Sponsored project such as: Optimal design of thin-walled beam/plate structures for maximum elasto-plastic buckling load funded by Science and Engineering Research Board (SERB), DST, Govt. of India; An Investigation of the Unconventional Tandem Flapping Foil Propulsion Mechanism for Underwater Vehicles sponsored by Science and Engineering Research Board (SERB). Other Research Projects are: investigation on the propulsive performance of the tubercle flapping aerofoil, development of IB-LBM solver for the fluid-structure interaction and development of Robotic Jelly Fish.

Agriculture and Food Engineering

As one of the leading departments of the country in the field of agricultural research, the Department of Agriculture and Food Engineering has treaded new heights in the realm of Sensor-based technology interventions for precision farming; Solar energy operated farm machinery and micro-irrigation systems; Remote sensing and GIS applications for integrated watershed management; Soil and crop health monitoring; Simulation-optimization and climate modelling for holistic water management; High pressure processing of high-value perishables and nutraceuticals; Targeted metabolomics of floral scents for value-added products; Microalgal biofuel production; Waste utilization in aquaculture; Development of autonomous tractor; Organic farming; RTE-Health food for malnourished children; and Vacuum frying of food.

Architecture and Regional Planning

The Department of Architecture and Regional Planning IIT Kharagpur has made a very significant headway in front-line research collaboration with the Massachusetts Institute of Technology, USA, Ivy League Graduate school of Architecture, Planning and Preservation (GSAPP), Columbia University, NYC, USA, The School of Urban and Regional Planning, Georgia Tech, Atlanta, USA, Tokyo Metropolitan University, Japan and others and been accordingly earmarked as *NIRF RANKING ONE for two consecutive years: 2017-18 and 2018-19 as the top architectural school in the country*. The department has also organised several workshops and guest lectures by leading researchers in academia and industries from across the world.

Biotechnology

The Department has explored several research areas in the last years such as: Antimicrobial chemotherapy, bacterial morphology and biofilm formation, Bioremediation of heavy metals, radionuclides and organic pollutants, Molecular analysis of microbial community structure and function at contaminated sites, Molecular cloning, expression and characterization of E. invadens encystation specific proteins, Recombinant protein expression in plant, animal and microbial systems, Structural and functional studies of protein from M. tuberculosis and S. aureus aiming at drug and inhibitor design, Improvement of hydrogen production from industrial waste using hybrid bioreactor, Continuous hydrogen production by immobilized recombinant E. coli BL-21, Molecular analysis of cypovirus infecting tasar silkworm, Phytomedicine and molecular farming, Development of low fat content transgenic oilseed plant, Biomicrofluidics and Biochip development, Identification and characterization of immunomodulator from natural sources, Microbial fuel cell, Characterization of Antarctic microbiota, Probiotic based nutraceutical product development, Cellular microbiology and immnuobiology, Systems biology of genetic and nongenetic variations, Host-pathogen interactions, Green Process & Product Development in Microalgal-Microbial Biorefinery Models for anticancer lipopeptides, biosurfactants, biopolymers and bio oil & biofuels with carbon capture and waste valorization.

Chemical Engineering

The major areas of research in the Department includes Environmental Pollution Control, Polymer Processing and Composites, Plasma Engineering and Surface Science, Computational Materials Science, Colloid and Interface Engineering, Molecular Simulation, Computational Fluid Dynamics and Thermal Engineering, Catalysis and Reaction Engineering, Bioenergy, Coal Science and Engineering, Petroleum Production Engineering, Carbon Capture and Storage, Fine Particle Engineering, Crystallisation Engineering, Process Optimization, Dynamics and Control, Membrane Separation, Bio and Energy Materials, Soft Nanotechnology, Complex Fluids, Microfluidics and Microscale Transport Engineering, Porous Media and Structured Fluids and also Multiphase Flow.

Chemistry

The Department is engaged in frontier research embracing both basic and applied areas of Chemistry, such as, advanced materials, Synthetic Chemistry, Colloids and Macromolecules, Biomolecules and Biomimics and Theoretical and Computational Chemistry. The Department is equipped with state-of-the art experimental and computational facilities, namely, (only major equipments) Bruker APEX SMART CCD Single Crystal Diffractometer, Bruker 500 MHz NMR, Bruker AVANCE II 400 MHz and AVANCE II 200 MHz spectrometer, Shimadzu DT-40 model 883 IR Spectrometer, PW-17291710 X-Ray, Diffractometer, Cyclic Voltammeter Model P9001, Chrompac Gas Chromatograph and JASCO DIP 370 digital polarimeter, SpexFluorolog 3 fluorimeter, Time Resolved Fluorescence Measurements (TRFM), Fluorescence lifetime imaging microscopy (FLIM), Easy Life lifetime apparatus, BET Surface Area Analyser, Perkin Elmer C, H, N Analyser and CPU-GPU hybrid HPC cluster, and High Resolution Mass Spectrometer. Currently, the Department is handling a large number of sponsored projects from various agencies, including major research grants from DST as FIST level-II support and the Seed Grant for Research Infrastructure in an area of Emerging Thrust (SGDRI) of the Institute.

Civil Engineering

The Department is actively engaged in carrying out research in Structural Health Monitoring, Finite Element Model Updating, Reliability of Structures, Seismic Analysis of Dams, Recycled Construction Materials, Low Cost and Sustainable Housing, Biomechanics, Stability of Plates and Shells, Computational Nanostructures, Molecular Simulations, Fluid-structure Interaction, Soil-structure Interaction, Sustainable Ground Engineering, Erosion Control and Mechanical Stabilization of Soils using Natural Fibers, Geosynthetics, Industrial By-products, Ground Improvement, Soil-microbe Interaction, In-situ Testing, Geotechnical Earthquake Engineering, Landslides and Slope Stabilization, Tunnelling, Road Safety Analysis, Transport Economics, Sustainable Transport Planning, Traffic Engineering and Operations, Evaluation of Pavements, Pavement Materials, Pavement Analysis, Environmental Impact Assessment, Air Quality Management, Environmental Monitoring and Planning, Bio Electrochemical Processes, Integrated Waste Management, Life Cycle Analysis and Sustainable Engineering, Environmental Risk and Impact Assessment, MSW Management for Smart Cities, Water and Waste Water Treatment, Industrial Effluent Treatment and Reuse, Anaerobic Waste Water Treatment, Groundwater Hydrology, Analytical and Computational Hydrodynamics, Computational Fluid Dynamics, Flow on Turbulent Submerged Jets, River Hydraulics and Engineering, Urban Flood Monitoring and Management, Models for Flood Forecasting, Hydro Climatology and Water Resources Engineering, Climate Change Impacts on Water Resource, Recycling of Asphalt Pavements, Short panelled Concrete Pavements of high volume Roads, Evaluation of Pavement Surface characteristics for road safety and Development of High modulus of bituminous mixes for Indian highways.

Computer Science and Engineering

The Department is extensively working in the field of algorithms and theory that were derived on problems about bounding sizes of bisecting and separating families for set systems, approximation algorithms for vertex guarding for various classes of simple polygons, optimal-time combinatorial algorithms for computation of inner and isothetic polygons and polyhedra, orthogonal convex skulls and hulls, inner and outer triangular covers, and triangular hulls of point sets in the integer space and In the field of Artificial Intelligence and Machine Learning. The Department has also worked on Opinion Dynamics on Social Networks, representation learning for NLP and temporal, point-processes for computational advertising. In Cryptography and Security, we have been working on optimization of real-time encryption performance for high volume storage data, traffic and verification challenges in compression and cryptographic stacks in Quick Assist Technology. In the mobile context, the Department leverage on the user's smartphone engagement to recognize her physical activities, group activities as well as to detect the emotional state of the user. We also work on sensor networks and sensor systems converging to IoT. In visual information processing, some of the research problems that we have worked on include Automated Representation and Analysis and Interpretation of Indian Classical Dance (Bharatanatyam) using Multimedia Data.

Electrical Engineering

The Department is involved in two major activities: Hybrid Electrical Vehicle and Management and grid connectivity of solar PV units. The Department also has strong presence in Signal Processing and Machine Learning funded from some of the leading industries. Some of the research areas are AC and DC Microgrids, Biomedical Image Processing, Computer Vision, Control Allocation, Control of MIMO systems, Control of Power Converter Circuits, Converter design for solar PV, Cyber Physical and Human Systems, Cyber physical systems, Electric Vehicles, Powertrain & Battery Management, Energy Harvesting for Powering Microsys, Fractional order Circuits and Systems, FRA Diagnostics of Power Transformer, High Voltage AC/DC systems and FACTS, Hybrid AC-DC microgrids, Motor controller& battery charger for EV, Multilevel Converters, Networked Control, Optical Imaging and image processing, Pattern Recognition, Reconstruction of 3D architecture, Deep learning networks, Brain signal processing and brain mapping, Power Converters for DC micro grid, Power Management IC, Robust Control,

Contamination and environmental Sensor Development, Smart Grid and Renewable, Solar Photovoltaics, Solar PV Systems, Switched Mode Power Converters, Synchrophasor Technology, Wide Area Measurement Application and Converters for wind Power Generation.

Electronics and Electrical Communication Engineering

The Department is working on various topics like MEMS/NEMS based sensors, Medical Electronics, Nano Devices, Nanobio Electronics, Network/System on Chip, Adaptive Signal Processing, Biomedical Signal Processing, Medical Imaging, Deep Learning and Applications, Microwave and Millimetre-Wave Circuits, Miniaturized Antennas, Microwave Imaging, Metamaterials, Fibre optics and Nano Photonics, Quantum Communication, Computational Neuroscience, Systems Biology, Intelligent Internet of Things, Eye Movement Analysis, Ground Penetrating Radar, Low Power Digital Design and Testing, Low temperature and High Frequency Electronic Circuits, Gas sensor, Water contaminant sensor, Video Coding/QoE Aware Video Streaming, Super capacitor based energy device, VLSI and Embedded Systems, UAV networks, Thermal Aware Testing, Signal Conditioning & Mixed-Signal VLSI Design, Queuing theory and Computational Science, Synthetic Aperture Radar, Speech Processing, Structural Health Monitoring, Wireless Communication Networks, Network Security, 5G Network, MIMO Communication, Optical wireless communication.

Geology and Geophysics

The emerging areas of departmental research activities are application of fractals in earth science, Bengal Basin, Bone Histology, Cenozoic Himalaya, Computational Seismology, Cosmochemistry, Crustal deformation monitoring with GPS, Crustal Fluids, Earthquake forecasting, Electrical & Electromagnetic Geophysics, Engineering Geology, Engineering Seismology, Exploration, Geochemistry, Geochronology, Geomorphology, Geophysical optimizations, Geophysical signal processing, Gondwana Stratigraphy, Isotope Geology, Landslide Susceptibility, Slope Stability, Microtectonics, Mineral and Groundwater Exploration, Modeling and Simulation, Numerical Modeling, Ore Deposits, Palaeobiology, Pattern recognition in earth sciences, Petrology, Remote sensing and GIS, Rock Mechanics, Sedimentology, Seismic attenuation tomography, Seismic Hazard, Seismic Microzonation & Risk, Seismic Prospecting, Seismic wave propagation, Sequence Stratigraphy, Stable Isotope Geochemistry, Structural Geology and Vertebrate Palaeontology.

Humanities & Social Sciences

The Department is extensively involved in research areas: Quantitative economics and Financial economics; Economics of growth; Industrial economics; Development economics, Environmental and resource economics; Developing world bioethics; Gender and trade; financial institutions and markets; Sociology of health and medicine; Human resource development; Brain and behaviour; Interpersonal, intercultural and organizational communication; Visual aesthetics; Business ethics; Corporate social responsibility; Economics of biofuels; Bioethics and Public Health Ethics. The Department also conducts training and development programmes in the areas of Aesthetics, Interpersonal communication, Recent trends in human resource development, Strategic management, Emotional intelligence, Logic and applications of logic, Research methodology and data analysis, Financial modelling and risk management, Leadership and teambuilding, Language, cognition and communication, Understanding culture and practising cross-cultural communication, Creative writing, Critical thinking, reading and writing skills, Environmental humanities, Sanskrit and French. The Department also undertakes a number of projects addressing a wider range of research interests including socially inclusive and sustainable development, environmental and resource economics, HR, music perception, generosity, end of life care, environmental history, food security, and popular culture and literary theory.

Industrial & Systems Engineering

The Department is carrying out research in various areas of industrial & systems engineering, such as, Real Time Monitoring and Embedded Analytics for Quality Traceability on Cold Chains for Sea Export of Agricultural Produce (IMPRINT-2) Science and Engineering Research Board (SERB); Digital Manufacturing and Industrial Internet of Things for Enhanced Supply Chain Coordination, Quality and Maintenance sponsored by Department of Heavy Industries (DHI), Govt. of India and Consortium of Indian manufacturing industry; Manufacturing of Shells for Field Guns with Improved Design and Performance (IMPRINT -1) MHRD, Govt. of India; Safety analytics: save people at work from accidents and injuries data sponsored by MHRD, Ministry of Steel, and Tata Steel, Jamshedpur, under Uchhatar Avishkar Yojana (UAY); Development of Reinforcement Learning Methods for Cyber-security and Reliability for a Fleet of Remote Unmanned Mobile Units ISIRD, SRIC, IIT Kharagpur, Development of Large Scale Optimization Techniques to Study the Survivable Network Design for Digital Content Supply Chain ISIRD, SRIC, IIT Kharagpur, Data driven sustainable and resilient safety management system for Tata Steel, Jamshedpur TATA STEEL LIMITED and E Business Center of Excellence sponsored by MHRD, Govt. of India. The Department published eighty-one journal and eighteen conference publications in the year 2018-2019.

Mathematics

The Department of Mathematics is exploring research and development activities in the five major areas: Theoretical Computer Science, Operations Research, Pure Mathematics, Applied Mathematics and Statistics namely, TOPAS. In theoretical Computer Science major results are developed in the Graph Theory, Cryptography and Machine learning. In Optimization major thrust on Robust Optimization jointly with National University of Singapore. More computational works have been completed in Applied Mathematics. Finally, Statistics is very well used in Artificial Intelligence.

Mechanical Engineering

The Department has set up unique research facilities on microfluidics and nanofluidics towards developing ultra-low cost medical devices to perform on-spot diagnostics of diseases by testing one drop of blood, deploying technologies appropriate for resource-poor settings. These devices have been validated successfully under clinical settings and in extreme challenging conditions on-field. An elaborate research facility on this has also been established in the Department. Design and development of various types of intelligent and autonomous robots Mechanical and Metallurgical properties of the difficult-to-weld materials using electron beam welding.

Metallurgical and Materials Engineering

The R&D program of the Department encompasses various areas like Corrosion Science and Technology, Extractive Metallurgy, Mechanical Metallurgy, Melting, Casting and Solidification Processing, Modelling, Simulation, Physical Metallurgy, Powder Metallurgy, Surface Engineering, etc. Investigations related to structure-property relationship have been performed on various ceramic and metal-matrix composites, high temperature materials and advanced alloys. Further, activities involving development of newer grades of dual phase and micro alloyed steels, super alloys, high strength light weight alloys, and composites remained the quest areas of research. Moreover, studies related to the development of bulk nano-crystalline materials, severe plastic deformation process, metastable alloys through non-equilibrium processing, thin films and functionally graded materials, as well as studies emphasizing the principles of processing and correlation of structural defects with the macroscopic structural and functional properties have been carried out. Significant research has been conducted on modelling and simulation to elucidate various metallurgical aspects. Concepts of computational fluid dynamics, heat and mass transfer, thermodynamic modelling and dislocation dynamics have been applied successfully to model various complex metallurgical and materials phenomena. Further, atomistic simulation, molecular dynamic simulation, genetic algorithm, and neural networks have received significant attention.

Mining Engineering

Assessment and Implementation of Complex Image Co-registration and Phase unwrapping and Wavelet Based Phase Noise Reduction for Interferometric SAR Processing, Study of Blind Backfilling of Unapproachable Underground Mine Workings/Voids Using Suitable Mix of Fill Material and Method of Filling, Development of 3D Geomechanical Model for Stability Analysis of Production Bore well. Development of a Novel Underground Mining Method for Exploitation of Chromite Deposits from Friable Orebody and Host Rocks of Sukinda Valley, Odisha, Study of Effect of Pore Structure of Indian Gas Shales on its Methane and CO2 Adsorption Behaviour, Fault Mapping and Facies Prediction using BIG Data Analytics, Investigation on In Situ Leaching of Uranium, and Integrated Information System and Knowledge Discovery Platform for ONGC.

Ocean Engineering & Naval Architecture

The Department is actively involved in various research activities and industrial projects sponsored by government, research organizations, and industry. The academic and research programs are designed emphasizing on cutting edge knowledge in the subject areas such as ocean hydrodynamics, marine structures, ocean environment, hydro-elasticity, offshore technology, design of marine vehicles & systems, coastal engineering, marine production & planning, and other niche areas. Recently the Centre for Inland and Coastal Maritime Technology (CICMT) was established at our institute supported by the Sagarmala Cell, a flagship programme under the Ministry of Shipping, Government of India. Focus of the CICMT will be on key domain areas: Ship Design for Coastal/Inland waterways, Ship building Technology and Structural Design, Transport Systems & Logistics, Cryogenic Cargo Handling, Green/Renewable Energy harvesting from Coastal and Inland waters, Automation and AI for Maritime Operations. As a part of this major programme, the Infrastructure to be created are: Modern Shallow water seakeeping and Manoeuvring basin, Wave-Current Flume, Setup for studying sloshing characteristics in LNG Tanks. The Centre will provide innovative research and development for inland and coastal waterways.

Physics

Ultrafast Science (UFS) Laboratory of Physics Department produced a number of research papers in high quality journals in collaboration with several leading researchers from within and outside the country.

Advanced Technology Development Centre
This Centre of excellence is promoting MEMS and Biosensor activity that encompasses design, fabrication and engineering of biomedical & microfluidic devices for electro-physiological characterization of living cells and also Design, fabrication and characterization of Integrated-Optic, Waveguides and Devices on Silicon and Lithium Niobate substrates. Established a state of the art characterization set up for measurement of electrical characteristics of installed Solar PV installations, evaluation and modelling of various SPV module's real life performance, image analysis of drying patterns of blood as a diagnostic tool, modelling of ADVANCED MOSFET Devices, development of Junction less Solar photovoltaic device, studying the policy aspect of distributed solar PV plants, initiation of study on soiling characteristics of glass used in solar module, study on technical and social aspects of "Solar Dome" system, design and development of dynamic model and controllers for Automated Manual Transmission for xEVs.

Center for Excellence in Robotics
The Centre for Excellence has Designed and developed of various types of intelligent and autonomous robots.

Centre for Artificial Intelligence
The Centre has undertaken several major sponsored projects. The Centre has received funding from Capillary Technologies and TCG Foundations to set up infrastructure and for initiating various activities. The activities include use of AI in modelling and decision making task related to a chemical process plant. The Centre is running a project funded by ONGC to develop an integrated information system for ONGC to enable machine learning and knowledge discovery. The AI Centre is working to set up an AI resource platform in collaboration with the National Digital Library. It is working with Amazon AWS for some solutions related to making an AI platform.

Centre for Computational and Data Sciences
Professors and students of this centre are involved in various Research activities, such as, studying the driving forces underlying macromolecular crowding effects on biological processes using molecular simulations and optimizing the current computational methods to investigate such large-sized complex systems, and predicting the molecular properties, structure and dynamics of material interfaces using machine learning approaches.

Centre for Educational Technology
A major research agenda of the Centre for Educational Technology is to enhance and improve the teaching learning experience with technological aids. The focus of Centre for Educational Technology is on improving the Instructional Systems Design and to introduce ICT in Education to a larger community. The faculty members engage in research on Augmented Reality and Virtual Reality in education, Speech and Natural Language Processing, Educational Data analytics, Cognitive and physiological parameters in learning and problem solving, and the teaching learning processes for Special children with Dyslexia and Attention Deficit. In addition, several faculty members also work in structuring a formal framework for designing curricula and learning objectives. In collaboration with TCS Innovation Lab the Centre is focused on building high end Smart classrooms that shall address the individual needs of the learner in the ICT age. The Centre has also been actively involved in creating and generating Teaching Learning material for Science Maths and Languages for Secondary school level and development of automated assessment techniques using text processing. Another major research agenda of the department is to develop an efficient distributed search paradigm for very large volume of unstructured data using multicore processors.

Centre for Oceans, Rivers, Atmosphere and Land Sciences
The Centre is actively engaged in carrying out research in frontal areas of Atmospheric, Ocean, Cryosphere and Land System Studies. Approximately, sixty research publications have been published in international journals of repute by the faculty of CORAL, besides forty important conference publications. Seven Ph. D. degrees awarded to the students CORAL. Faculty members are actively working in the area of cyclone research and vulnerability area which are of national interests. Centre has also initiated discussions to offer an integrated M. Sc. programme of Climate Science in the coming year. Centre has received almost four crores EMR research grants from different research organizations.

Centre for Theoretical Studies
This Centre is involved in variety Research work such as in the areas of Astrophysics and Gravity, Condensed Matter Physics, Mathematics, Nonlinear Sciences, High Energy Physics, Dynamics and Control, Theoretical Chemistry, Quantum computation and Quantum information, Materials and Fluid Mechanics.

Cryogenic Engineering Centre
The Centre is actively engaged in carrying out research in Cryogenic two phase flow, Cryogenic fluid management systems for space propulsion, Cryogenic turbo expander, Cryocooler for HTS applications, Space applications of metal foam, Cryogenic compact and miniaturized heat exchangers, LNG technologies, High temperature

superconductivity applications, HTS Cables for power applications, Cryogenic air separation, Cryogenic bubble cooling, Thermo acoustic coolers and wave expanders, Developed Cryosorption pump for scanning probe microscope and Superconductivity based cryogenic liquid level sensor developed and submitted for patent.

Deysarkar Centre of Excellence in Petroleum Engineering

Research activities of the Centre include projects, invited talks and publishing the research articles in Journal/conference. The Centre has also invited the faculty and industry persons to improve the research activities.

Materials Science Centre

The Centre is engaged in the development and application of novel polymers, ceramics, and semiconductor materials. Currently, major research and development activities carried out at the Centre include the following: Nanostructured and bulk materials for energy (Li-ion batteries, fuel cells, supercapacitors, thermoelectrics, photovoltaics, and photocatalytic H2 generation) and environment (degradation of organic pollutants), Synthesis of new polymers and composites, polymer membrane for fuel cells and also Materials for gas sensors, cement, and concrete.

Rekhi Centre of Excellence for the Science of Happiness

The Centre has a multi-disciplinary team of faculty members and students drawn from various disciplines and specializations and is actively involved in research from biological, social, behavioural, and ecological orientations. Optimism and Nudge Creating Happiness through Technologies, Measurement of Happiness, Happiness and Wellbeing through GNH, Relationship and Values, Resilience and Failure Management, Self-improvement, Generosity and Compassion, Cultures and Traditions in Happiness, Practice of Happiness: Mindfulness and Meditation, Happiness Analytics, Culture, Community and Positive Relationships. MoUs and Partnership for training and collaborative activities with: Zurich University of Applied Science, Switzerland, SEED, University of Waterloo, SAIL India, and CRPF India.

Subir Chowdhury School of Quality and Reliability

The faculty members have brought large research projects under IMPRINT-2, published 24 papers in International Journals and 13 conference papers. Three research scholars have joined Curtin University under the dual Ph. D. program (DDDP). All regular M. Tech. students are placed in reputed industries and students of the current batch are hired as interns. The new course curriculum under the aegis of School banner has started from the academic year 2018-19. A micro-specialization in Quality Engineering for the UG students of other departments of the Institute has also been offered. A customized reliability engineering training programs, consisting of four modules, and tailored to the TVSE Motor Company, Hossur to train their 30-40 engineers. Another course RAMS for railway systems has also been running successfully.

Rubber Technology Centre

Research at the Centre focuses on: Design of rubber products, like tire, seal etc.; Rubber composites and nano-composites; Development of polymers for, biomedical and electronic applications; Polymer foam and microcellular rubber composite for various critical and industrial applications; Polymer nano-composites for food packaging; Controlled radical polymerization; Green tire technology; Rheology and process ability of rubber compounds and polymer blends; Conductive rubber composites for electrical and electronics application; Smart and Stimuli responsive flexible materials; and Block copolymers in drug delivery.

Rural Development Centre

The research and development of this school mainly focused on two aspects: Research Collaborations and Research projects. The centre is actively engaged in research collaboration with leading researchers from across the world. Various research projects are also carried out of by this department, e.g., Adoption of Technology - Oriented Drinking Water Facilities in Rural India, Drinking Water Purification System for Rural People by Using Readily Available Products and Open Engineering Techniques in Dakshin Arashini Village (funded by TATA Steel), Development of Digital Platform for Financial Inclusion and Rural Women Empowerment, and Strengthening the Marketing and Credit Linkage for small and Marginal Vegetable Farmers in West Medinipur District of West Bengal.

School of Bioscience

The School presently has 29 Ph. D. students; one student has completed Ph. D. in 2018-19 academic year. The School has enrolled its 4th batch of students of Integrated M. Sc. - Ph. D. program in Chemical and Molecular Biology. Our professors have been awarded with DST Early Career Research Awards, DST BRICS multinational projects and DBT extramural projects. Our students attended various International Conferences.

Energy Science and Engineering

The Department has established a state of the art characterization set up for measurement of electrical characteristics of installed Solar PV installations and carried out evaluation and modelling of various SPV module's real life performance, Modelling of ADVANCED MOSFET Devices, Development of Junction less Solar photovoltaic device, studied the policy aspect of distributed solar PV plants, Initiation study on soiling characteristics of glass used in solar module and Study on technical and social aspects of "Solar Dome" system, Simulations to demonstrate structuration effect in nano- confinements under shear (paper published in RSC Nanoscale), modelling of dual-axis sensor less solar cooker (Patent submitted to IPR office), study of molecular mechanism of heat transport in nanofluids, restored the wind tunnel facility that was stationed in the school, study on the aspects of desalination and water purification using low grade energy and study on ion concentration polarization in membranes to explore its impact on energy conversion at nanoscales.

G. S. Sanyal School of Telecommunications

G. S. Sanyal School of Telecommunication is doing cutting edge research in 5G and associated areas. Few areas where the school is currently focusing are in the areas of: Millimetre Wave Communications, Massive MIMO Systems, C-RAN, Visible Light Communication (VLC), High Speed Vehicular Communication Network, Techno-economic Analysis of Wireless and Optical Access Networks, Flexible and Secure Optical Access Network Design, Design and Performance Analysis of Elastic Optical Network Simulation Environment using NKN Infrastructure in India, Performance Analysis of Wireless Communication System, Energy harvesting based communications, Physical Layer Based Secret Key Generation under User Anonymity, Self-Similar Traffic in disruption tolerant vehicular networks and Network Function Virtualization for 5G. Further, the School has developed a Mobile App NerQuake for Telecommunication mobile tower locations under danger due to natural disaster in North-East India. Recently a modification of the Contact Graph Routing (CGR) for Deep Space Inter-Planetary Networks named fragmentation Aware CGR has been published in CCSDS.

Rajiv Gandhi School of Intellectual Property Law

The research and development of this School is mainly focused on Sustainable development and legal aspects of Climate change, Contract theories and their application in Indian mercantile laws, IP licensing: Intricacies and legal dimensions, IP Management, Environmental Law, Policy and Governance, Sexual and Gender based Violence and Victims of Crimes, Internet Governance, Direct and Indirect Taxation, Corporate & International Taxation, Procedural Laws & Land Laws, Corporate Law & Governance, Competition Policy & Law, Recombinant Drug Regulation, Implementation of IP Laws, Biodiversity Law Implementation, International Economic and Trade Law, Copyright Infringement and Liability, International Investment Law aspects, International Commercial Arbitration, International Human Rights Law, Municipal Governance, Socio-Economic Rights, Energy Law, Bioenergy-IP and commercialization and Labour and Industrial Law.

Ranbir and Chitra Gupta School of Infrastructure Design and Management

The School has developed an integrated land use transport emissions model utilizing emerging big data sources for quantifying energy and environmental impacts of ridesharing services, with University of Leeds, supported by MHRD/SPARC. Faculty member of this school involved in various research and grant like Assessment of emissions from thermal power plants due to energy demand from electric vehicles: policy recommendations for renewable energy integration, ICCSR/IMPRESS, Promoting stronger road safety regulations in India with an emphasis on safe speed, speed management, enforcement, and public Awareness, IFRC Switzerland, Developing a spatial data infrastructure with application in Urban Transport, NRDMS, DST, GoI., Transit oriented development (tod): Developing an integrated, Housing and transport model with Queens University, UK, MHRD and UKERI, Technology innovations and pilot projects for alternatives to HMA in Road construction, Kolkata Municipal Corporation, 2019-2020: A pilot study for Design, Construction and Performance Evaluation, PWD, Govt. of West Bengal with Ultratech Cement Ltd. 2018-2020.

Rajendra Mishra School of Engineering Entrepreneurship

The School has focused research areas like Health care service delivery, Digital Technology applications, Smart-Grid and energy management, Manufacturing &System Design, Grass-roots innovation, and Entrepreneurship. Energy Lab initiated research project on alternative design of the safest and the most reliable mode of energy storage, that is, the lead acid battery to decrease the dead weight of the conventional battery thereby making it more efficient in terms of specific energy and power. The Analytics Lab advanced research on Behaviour Monitoring and Analysis for Personalized Preventive Care, Application of Visual-Inertial Fusion for Large-Scale Scene Reconstruction, Resource Allocation and Scheduling in Emergency Medical Services, Planning Interventions for Cardiovascular Disease Prevention. The Products Analytics and Modelling lab initiated research on Design and

development of transmission and control system for Hybrid electric vehicle (HEV) and Imaging and Rapid Prototyping based Product Engineering.

The Agri-preneurship Lab inducted research in Insecticidal Formulation development from locally available indigenous Plant materials, Development of Nutraceutical and cosmeceuticals products and processing of Non-edible oil seeds for production of bio Diesel, Bio-lubricants and Oleo chemicals. The Social Research Group also progressed with the importance and knowledge of understanding grass-root innovation and use of appropriate technology in Indian context, research on agricultural extension.

The Centre has a multi-disciplinary team of faculty members and students drawn from various disciplines and specializations and is actively involved in research from biological, social, behavioural, and ecological orientations. Optimism and Nudge Creating Happiness through Technologies, Measurement of Happiness, Happiness and Wellbeing through GNH, Relationship and Values, Resilience and Failure Management, Self-improvement, Generosity and Compassion, Cultures and Traditions in Happiness, Practice of Happiness: Mindfulness and Meditation, Happiness Analytics, Culture, Community and Positive Relationships. MoUs and Partnership for training and collaborative activities with: Zurich University of Applied Science, Switzerland, SEED, University of Waterloo, SAIL India, and CRPF India.

Kalpana Chawla Space Technology Cell

The Cell carries out collaborative research projects in the following broad areas: Liquid Combustion, Propulsion and Cryogenics; Space Communications and EMI/EMC; Micro-machine Sensors; Control, Navigation and Guidance; Embedded Systems and IP-Cores; Cryptography and Security; Remote Sensing; Life Support Engineering; Smart Materials & Exotic Materials; Power Electronics; Space Education; Electronics Devices; Cryogenics; and Quantum Communication. As an outcome of the research work, approximately forty one papers have been published in reputed national and international journals and conferences. The cell has offered two courses on ‘Fundamental Concepts of Digital Image Processing for Interpretation of Remote Sensing Data’ & ‘Special Topics on Antenna Theory & Practice’ in the academic year of 2018-2019.

School of Medical Science and Technology

The School is engaged in interdisciplinary teaching, research and development in medical science and technology. MOU between Institute and TMC Kolkata was signed to carry out collaborative academic and medical research activities & spearheaded by SMST. SMST launched three Joint M. Sc. - Ph. D. program and successfully completed first year of new academic collaboration with Tata Medical Center, Kolkata and the second batch of students are currently being admitted via JAM exam. SMST and TMC Kolkata have jointly initiated Advance Research Certificate Program for clinical oncologists. The school has begun the exercise to face-lift the existing MMST program to adjust according to the current global requirements. Significant number of scholars (>85) are pursuing fundamental and translational research in the areas of cancer biology and early diagnostics, wound healing, regenerative medicine, biomaterials, tissue engineering, neuro-rehabilitation prostheses, epidemiology, proteomic/ metabolomic dimensions of health and disease, reproductive health, herbal medicine, medical informatics, MEMS and microfluidics-based biosensors, immunology and cardiovascular diseases. Several R&D projects are being supported by West Bengal Govt. and Govt. of India (e.g., MHRD, DBT, DST, ICMR, CSIR, IMPRINT, DRDO) and other funding agencies. Students of this school have received awards with various international scholarships (e.g., DAAD, Khorana, and Fulbright Fellowships).

School of Nanoscience and Technology

The School of Nano-Science and Technology is involved in diverse research activities of interdisciplinary nature, such as, Group-IV and III-V semiconductor nanostructures for electronic and photonic devices, MEMS and microsystems, Nano-electronics, Nano-scale biosystems engineering, GMR & magneto-electric and magnetocaloric materials, Polymer and rubber based nanocomposites, Polymer thin film instability, self-organization and meso-mechanics, Carbon nanotubes, graphene, metallic nanowires, and nano-particles, Biocompatible nanostructures for bioimaging & diagnostics, drug delivery, biosensor, Intermetallics, bulk amorphous alloys and nanocomposites, Nanostructured or nanocomposite thin films and coatings, Oxide gas sensors, Lithium ion rechargeable batteries, and Computational nanostructure.

School of Water Resources

The School has set up eco-friendly treatment systems for reuse of greywater, Leak detection and urban water supply network management, Pathway identification & toxicity analysis of electrochemical oxidation of methyl orange and also developed various approaches for real-time short-to-medium range streamflow and reservoir inflow forecasting with a maximum lead-time of 7-days, a stream-aquifer interaction model under sparse data-availability scenarios to estimate the exchange flux and a technique for daily-scale monitoring of river pollution using remote

sensing data by Bathymetric survey and water quality and sediment quantity analysis in Tilaiya Dam, Land surface process modeling using JULES in Krishna River basin and Sediment characterization using sediment finger printing approaches in the Konar Dam Catchment.

Vinod Gupta School of Management

VGSoM Faculty have been quite productive with their research and development activities. They have collectively published over 45 papers in SCOPUS indexed Journals and Journals listed through the Australian Business Deans Council, with about 25% of their publications featuring in the top ranked Journals (A and A*). Three Current and one past faculty at VGSoM have earned the sponsorship of a total of 2 projects through the coveted IMPRESS initiative of ICSSR with a consolidated budget of Rs. 26 Lacs. The School has also re-designed the MBA Curriculum, which was approved by the Senate in spring 2019, and is being implemented for the 2019-21 batch of MBA students. The new curriculum has been designed futuristically to include a diverse basket of elective courses, and a number of micro-specializations in areas that are increasingly becoming an integral part of management education in top business schools worldwide. Since July 2018, VGSoM has inducted 5 new faculty members in various functional areas to cope with this additional teaching load. The faculty at VGSoM are also routinely offering courses through the NOC portal of NPTEL. Seven (7) of these courses are being re-run regularly, and some more are in various stages of development.

INFRASTUCTURE DEVELOPMENT

As a modern technological institution, we constantly upgrade our existing infrastructure to accommodate growing number of campus residents and to facilitate state-of-the art methods of teaching and research. Listed below are some recent additions and development.

Aerospace Engineering

The Department has developed various experimental setup like low speed tandem bladed axial flow compressor, low speed nozzle turbine blade linear cascade tunnel, pressure probe calibration facility, cobra shaped 3 hole probes, Characterization and Mitigation of Boundary Layer in Convergent Flow Passage and variety of Spares of spectrometer: Time Correlated Single Photon Counting (TCSPC) Electronics, Emission detector (Peltier cooled Photo-multiplier (PMT) and EasyTau 2-Fluorescence Spectrometer Control and Data analysis software Make: M/S PicoQuant GmbH. Beside the above facilities Department possessed Optical filter: UVFS reflective Neutral Density filter (Make: Thorlabs) Optical filter: UV-VIS band pass filter (Supplier: Edmund optics),Lens: Visible Achromatic Doublet lens (Supplier: M/S Advanced Photonics,) and Laser energy meter, energy sensor(Make: Ophir Optronics). A state of the art recirculating water tunnel facility in the Department has been built for low speed aerodynamics experimental studies. Department has recently procured Miniature wire hot wire probes, Pitot static tube-4 mm dia, NI based data acquisition system and Pressure pump for pressure scanner calibration.

Architecture and Regional Planning

The School has updated its Geo-Informatics Lab, Transportation engineering and Innovative communication Lab, and a Digital Iconographic Lab. The presence of a senior Fulbright fellow Prof. Amita Sinha from the School of Planning, University of Illinois, Urbana Champagne, USA (2018-19) had great impact on Cultural mapping exercises on Santiniketan to be earmarked as UNESCO world heritage site. State-of-the art software and advanced Simulation/computing/digital Adobe systems have been procured to advance the laboratory activities.

Biotechnology

The Department has set up facilities like Real-time PCR (BioRad), Floor Model High Speed Centrifuge (Beckmann Coulter India Pvt. Ltd.), Fermenter with sophisticated process control and accessories (Biojenik Engineering), Multiparameter controlled refrigerated shaker incubator (Scigenic Biotech Pvt. Ltd.), Ultrasonic Sonicator (Indo Scientific & Surgical Pvt. Ltd.), Laminar Hood (Lab Solution),(Packed bed reactors (K C Engineers Ltd.) and Continuous Stirred Tank Reactors (Creative Lab).

Chemical Engineering

The Department has recently acquired facilities like High Performance Computing Server, COMSOL Software, Direct Mercury Analyser, Rheometer and also Time-resolved Micro PIV.

Chemistry

The Department has enhanced the facilities by acquiring Agilent High-Resolution Mass Spectrometer, Bruker Auto-sampler and Bruker Cooling Unit for 500 MHz NMR spectrometer, and Bruker Single Crystal X-Ray Diffractometer.

Civil Engineering

The Department has installed variety of facilities like 1000 kN Creep Testing RIG, 400 litre Carbonation Test Chamber for accelerated ageing tests of concrete, 400 litre steam curing humidity test chamber, Accelerometers for

high frequency impact testing, Rapid Chloride penetration test equipment for concrete, Digital Flat Jack testing equipment for strength evaluation of masonry and stone structures, Light Weight Accelerometers for 6 degrees of freedom shake table and also Heat Source Modulated Halogen Lamp for IT Thermography. The department has also upgraded and installed some facilities like 60t Tinius Olsen UTM, Models to serve as Teaching Aids for undergraduate Structural Engineering Courses, Concrete Test Hammer and UPV Meter, Hydrocarbon Fire Furnace, Pressure Sensor for Shock Waves, Data Acquisition systems (DAQ), Accessories and Sensors, SARA (Saturates, Asphaltenes, Resins and Aromatics) Analyzer, Video Based Contact Angle Meter/ Goniometer and also Accelerated Polishing Stone Testing Machine.

Computer Science and Engineering
The Department installed a new GPU-based server cluster with one master node and ten computation nodes. Each server has 2 no. Xeon Gold 5118 CPUs, 128 GB RAM, 4TB hard disk, and either dual NVIDIA Tesla P-100 or NVIDIA Quadro P4000 GPU cards.

Electrical Engineering
The Department upgraded the laboratory by installing a Solar PV system lab and Hardware in loop.

Electronics and Electrical Communication Engineering
Magnetron Reactive Co-suttering System, Electron Beam Evaporation System, Furnace, Tip Enhanced Raman Spectroscopy, Electrochemical Workstation (Bi-potentiostat/Galvanostat), Bench Top Centrifuge, UV VIS Spectrophotometer, Steady State Fluorescence Spectrometer (PL), Humidity Control Probe Station, Frequency Converter ACP series for Load lock Pump of D.R.I.E., Biological Safety Cabinet and Wafer Cleaning System, Nano IR spectroscopy; Tunable femto-second laser; Quantum communication setup; Microscope enabled FTIR; High-resolution digital microscope; Rack-based EDFA.

Geology and Geophysics
The Department has recently set up a High Pressure Experimental Petrology Laboratory, simulating conditions deep within the earth's mantle and also recently procured a state-of-the-art Digital Polarizing Microscopy facility.

Humanities & Social Sciences
The Department is now equipped with CANTAB for Cognitive Assessment. It has bought Eye-tracker and Polygraph for conducting intensive behavioural research.

Industrial and Systems Engineering
The Department has installed software ANYLOGIC and STATA for simulation and data analysis to the department laboratory.

Metallurgical and Materials Engineering
The Department upgraded the characterization laboratory by acquired facilities like, High resolution X-Ray Diffraction facility, Pin-on-disc and ball-on-disc Tribometer, High power ultrasonic testing instrument, Optical microscope and High temperature furnaces.

Mining Engineering
New Mining Engineering Annexe Building was completed and inaugurated.

Ocean Engineering and Naval Architecture
The Department has upgraded the laboratory facilities for the UG/PG and RS students. New software's are also procured for the ongoing R&D activities in the Department. Computational systems were upgraded and new servers were also acquired to enhance the computational skills.

Physics
The Department has excellent research facilities like a femto-second Laser with output power 2.5W at 800nm and 80MHz is procured in Ultrafast studies (UFS) laboratory for development of Up-conversion set-up with time correlated single photon counting system and an innovative laboratory is being developed for undergraduate students. It has already procured a 3D printer and a portable lathe machine.

Advanced Technology Development Centre
The Centre has various facilities like Optical Lithography System along with Mask Aligner and Precision Spin Coater, Diffusion Furnaces for Photonics, Inverted Microscope and Embedded Control System lab for M. Tech, ECS.

Center for Excellence in Robotics
The Centre has purchased two serial manipulators, one humanoid robot, one tracked vehicle, one drone, one 3D printer, a few workstations, and also developed set-up for orthotic and prosthetic devices.

Centre for Artificial Intelligence
The Centre has been set up at a temporary location in Nalanda Administrative Complex. Several computing servers and systems have been acquired. A GPU Cluster has been acquired with one master node, 2 compute nodes with 2 x NVIDIA QUADRO P4000 with 8 GB memory and 2 compute nodes with 2 x Nvidia Tesla P100 with 16 GB Memory, 2 x 2 TB 512n SATA HDD, 12 Gbps RAID controllers, 100 GBPS Infiniband Adapters, 18-port unmanaged 100 Gbps Infiniband switch and a server rack.

Centre For Computational and Data Sciences
The Centre has a few high-end GPU-based servers with hybrid 2CPU-1GPU architecture are being procured by the center. Each of the servers consists of two Intel Xeon-Gold 6126 (2.6GHz/12-core) CPU processors with one NVIDIA Tesla V100 PCIe 32 GB card, 256 GB memory and 40 TB of hard disk space. Each server is expected to have a computational performance of 7 TeraFLOPs. These servers will be dedicated for research activities of the center.

Centre for Educational Technology
The Centre for Educational Technology is in the process of developing an AR -VR Laboratory for Educational Technology. Specific research equipment such as EEG (32 channel), a mobile eye tracker and a Galvanic Skin Response Recorder with PPG settings have been purchased. The department has also developed a Cognitive, Language and Information Processing Lab (CLIP) equipped with explicit bio-markers like the 32 channel EEG machine and Tobii 120 Eye Tracker. For the development of improved content for Secondary education, the Centre has also further developed the state of art Mobile Studio.

Centre for Oceans, Rivers, Atmosphere and Land Science
The Centre has augmented video conference facility, reprography laboratory and seminar hall facilities. The Centre also initiated to establish a state of art Marine biogeochemistry Laboratory, Marine Seismograph Laboratory and Laboratory for Himalayan Research. A high quality camera for Digital hemispherical Photographs is another acquisition at the Centre.

Centre for Theoretical Studies
The Centre has Facility of Rack Mountable Computing Server (Intel® Xeon® Gold Series): PRIMERGY RX2540 M4.

Cryogenic Engineering
The Centre has recently equipped with Scanning probe microscopy (AFM, MFM, PFM) with high vacuum and low temperature capability

Deysarkar Centre of Excellence in Petroleum Engineering
The Department is now equipped with Drilling Fluid Lab Equipment Purchased through Diamond Jubilee Institute Funds Purchase of Approx. 20 lakhs along with existing equipment like Ageing cells, Digital viscometer, Digital Retort, Fluid mixer and LTLP filtration. Modernised the laboratory by acquiring Reservoir Simulation Lab Workstations through Diamond Jubilee Institute Funds Purchase of approx. 41.8 lakhs ($ 61,076). In this project 12 workstations were purchased and installed. The Department further enhance the research activities by procured advanced equipment like Fracturing Fluids Equipment through donation of PfP Technology of USA: Donation received of Rs. 11 lakhs from this fund department purchased and installed Oilfield viscometer & mixer. Additionally, three 2nd-hand HT viscometers were received as donation and installed.

Materials Science Centre
The Department has upgraded the laboratory by procurement of Field Emission Scanning Electron Microscope (DST FIST Grant).

Rekhi Centre of Excellence for the Science of Happiness
The Centre is in the process of setting up three laboratories focusing on: Psychometry and data analytics, Virtual reality and immersion, Physiological measures, Equipment and software: CANTAB, 64 Channel EEG, Wearable Eye-Tracker, 16 Channel Polygraph.

Rubber Technology Centre
The Department has procured Mooney viscometer DIN Abrader.

Rural Development
The Department enhanced the research activities by developing of Conference Room, Agripreneurship and Rural Development (ARD) Lab and GIS Lab.

School of Bioscience

The School has acquired Fluorescence microscope, Computer cluster and established fly genetics laboratory.

G.S. Sanyal School of Telecommunication

The School has recently acquired state of the art GPU servers and Work Stations, L2 and L3 switches, Routers for the development of Distributed Radio Access Network (DRoNA) with Wireless Access. The School has also procured USRP boards, Directional Antennas, Omni- directional Antennas. It will explore the Cloud Radio Access Network (C-RAN) and Fog-RAN concept. The School is in the process of acquiring infrastructure under IMPRINT to design and develop phased array antenna with beam-forming module for 5G communications. The School has procured Xilinx Vertex Ultra Scale plus evaluation kits for development of a test bed for passive optical network based cellular infrastructure. It is also in the process of acquiring AWG, Power Splitter, Optical Fibre cables, Measuring Instrument and Work Stations for optical back haul network.

Nano Science and Technology

The School now has Rack server system facilities like Intelligent gas sensing System, Screen printer, Nfapt- leap-apt accessed jointly with IITM, Chennai Remotely, Atomic Force Microscope, 3D-Confocal Raman Imaging System, CCR Based Cryogen free probe station, Semiconductor parameter analyser, DPSS laser, Data Acquisition System, Electron Beam Lithography, High Vacuum Dual Deposition System and Digital mass flow controller.

Rajiv Gandhi School of Intellectual Property Law

The School has established the Legal Aid and IP Facilitation Cell which was inaugurated by the Hon'ble Justice Aniruddha Bose, Judge, High Court at Calcutta and Executive Chairman, West Bengal State Legal Services Authority.

Ranbir & Chitra Gupta School of Infrastructure Design and Management

A new state of the art laboratory developed for Non-destructive Testing with 15 Basic and Advanced Equipment along with a new state of the art laboratory developed for Infrastructure Monitoring and Assessment with IOT Framework, sensor network, etc. for acquisition of temporal and spatial data from heterogeneous data sources and visualization of the data. The School has also acquired portable air quality monitoring system to measure the transport users' exposure to air quality while using various modes of transport, and assessing the impact pedestrianization has on the air quality of the street environment and Laser temperature sensor, for assessment of surface temperature.

Rajendra Mishra School of Engineering Entrepreneurship

The analytics lab at RMSoEE has augmented its computational resources with the help of SRIC project LRI_ICG_2017_SGSIS grant and other Institutional grants. It will be used for intensive data processing applications such as large collection of numerical, text, images and video data and implementation of various computer vision and machine learning based algorithms for 3D scene reconstruction project and healthcare data analytics applications. School are using Rotary Evaporator (Stuart) for separating solute from the solvent controlling temperature and pressure. Separation, Isolation and Characterization of phytochemicals and biocompounds is done by HPLC or High Pressure Liquid Chromatography (Agilent). In case of volatile compounds, Separation, Isolation and characterization is done by Gas Chromatography or GC (Thermo Fisher). Micro and histopathological examination for determination of bio-efficacy of phytocompound on plant or animal tissue is done by high resolution optical microscope with camera (Olympus). A peristaltic pump (Masterflex) is procured to test the efficiency of nanomaterial based bio-implants. Distilled and analytical grade water is obtained from Millipore water purification system (Merck Lifesciences) for chromatographic systems installed in the laboratory.

Kalpana Chawla Space Technology Cell

A number of software and hardware modules have been procured under KCSTC projects to enhance the research platform of KCSTC as well as different departmental laboratories: CST software for Electromagnetic simulation tool (2) GPU Computing Platform, (3) Map Downloader software (4) GPS L1 IF data recorder- cum – software (5) High voltage differential probe, 500MHz 12 BIT ADC Digital Storage Oscilloscope, Rogowski Coil Current Probe, 80V, 25A Regulated DC Power Supply (6) Potentiostat Galvanostat- Princeton Applied Research VersaSTAT4, Linear Micro/Nano Positioner-Smar Act SLC 2445 (7) FLOWNEX Software (8) GFSSP.

School of Medical Science and Technology

The School has acquired a new 4-laser Multicolour, Multiparameter flow cytometer and Mobile health care unit through institute funding for facilitated development of inter-departmental research facilities.

School of Water Resources

The School has developed an Acoustic Doppler Current Profiler (ADCP) for research.

Subir Chowdhury School of Quality and Reliability

The first phase of development of the Quality Engineering Lab is complete and next phase will have a focus on developing automated quality control systems.

School of Energy Science and Engineering

The School has installed a Solar Cooker in a village school for mid-day meal scheme. Improved version has been designed. It has conducted evaluation and modelling of various SPV modules' real life performance. Improvement of heat transfer of fluids mixed with nanoparticles for solar thermal applications and efficiency of a-Si solar cells are ensured. It has developed Dye Sensitized solar cell (DSSC) fabrication and characterization. A light-harvesting model to describe microalgal growth kinetics, a green-cathode for generation of bioelectricity using microalgae, an in-situ trans-esterification method for biodiesel production directly from yeast biomass, and the proof of the concept of a yeast bio refinery for deriving multiple products and benefits using yeast biomass as feedstock have been developed.

Vinod Gupta School of Management

VGSoM has focussed a majority of its efforts towards maintaining the existing infrastructure, and updating it to meet the evolving needs of the students and faculty. One of the MBA classrooms has undergone significant renovation with a new lectern, and updated projection and sound systems have been installed. A research scholars' room has been refurbished with cubicles along with computers and printing facilities for the Ph. D. students at various stages of their program.

INFRASTRUCTURE DEVELOPMENT IN THE INSTITUTE

The Civil Construction and Maintenance section has taken up several construction projects to cater to the infrastructural requirements of the Institute. Vikram Sarabhai residential accommodation with 164 rooms for Boys and 164 rooms for Girls has been completed and handed over. All 88 rooms of Nalanda class room complex have been handed over. In the J. C. Ghosh Science Block and P. C. Ray Laboratory Block, 16 Floors have been handed over to SIDM, CORAL, Petroleum Engineering and Department of Chemistry. Currently, HAVC work is in progress. For 100 units of post-doctoral accommodation and foreign visitor accommodation handing over is under progress. Out of 66 units of New Faculty Accommodation, 24 units have been handed over. RCC structural work is under progress for B-Type faculty accommodation.

Expansion of Aerospace Engineering building, new Annex Building in Mining Engineering Department and JC Bose Annex Laboratory building is completed and handed over. For the Super Speciality Hospital, main hospital building, Electrical substation, AC Plant room, and pump house and STP have been completed. MGMS, CSSD, Signage work, testing commissioning of lifts & HVAC work are in progress. The Institute has initiated the process of taking over of the facilities.

The Main Building including Auditorium and sub-station of IIT Kharagpur Research Park at Rajarhat has been completed. The testing commissioning of HVAC is in progress. The Acoustic work for Auditorium and Classrooms has been awarded by CPWD.

Under the new water supply project of the Institute, total pipe laying has been done for 11.04 km out of 12.60 km. The work is in progress in the SE Rly Goods yard Area where total of 5.316 km has been laid out of 5.50 km. Currently, Approach Bridge Fabrication and Erection is in progress.

For NANO CRF and Life Science Building of Diamond Jubilee Complex, the RCC Structure has been completed and handing over is under progress. Work has been completed for development of synthetic athletic track. Basketball, Volleyball and Tennis Court works are under progress.

Technology Telecom Centre

Technology Telecom Centre (TTC) provides the voice communication services to subscribers in the academic as well as in the residential campus on conventional copper wires as well VoIP and Digital Telephony and the value added services like Audio Conferencing bridge and mobile extensions etc. It is having the state of art Centralized EPABX at Technology Telecom Centre and a satellite exchange at New Guest House. It is also providing the centralized fax services to Institute community.

In the financial year (2018-2019) TTC completed the installation and commissioning of upgrading of existing MD-110 EPABX at JCB lab complex (Annex building) with server based system. Restructuring of telephone cables in Deptaerment of Agricultural and Food Engineering and BC Roy Technological Hospital was completed. The Renovation work of Pillar boxes (painting and repairing) in the Campus is also going on.

One major work that has been taken up is the voice communication in the upcoming “Dr. B. C. Roy Institute of Medical Science and Research”. TTC has planned to upgrade the present EPABX system so that it can take up the load of the massive (2000 lines in future) and important telephone connectivity of the super-speciality hospital. Already the upgradation of the system has been initiated and is waiting for approval of the concerned authority.

Estimation of telephone cabling work at admin block of Nalanda Class Room Complex is done and a composite work has been completed by CCM. In the same manner restructuring of telephone cables work also completed by CCM as composite work. In near future, telephone-cabling work at the newly constructed buildings like Diamond Jubilee Complex, New Faculty Accommodations (NFAs), International Guest House, etc. will be taken up with respective PMC.

Central Research Facility

Central Research Facility (CRF) aims to extend access to multi-material state-of-the-art micro and nanotechnologies for users from industry, R&D and academia, either national or international level; providing training to students at the UG/PG/RS level and organizing workshop/training program to the engineers outside Institute on specific equipment.

CRF is equipped with 36 laboratories with 30 associated faculty members and 30 technical staff. We are equipped with sophisticated instrumentations like: Field emission scanning electron microscopes; Dual beam FIB-FEG microscopes; Transmission electron microscopes; X-ray diffractometers; X-Ray Micro-CT; Scanning Auger Nanoprobe; Fourier Transform Infrared Spectrometer; Atomic Force Microscope; Nano- triboindenter; Raman Spectrometer; Thermal Analyzers; SQUID-VSM; Hall- effect measurement, MALDI, X-ray, ITC, FACS.

CRF organized various seminars, workshops, training in last academic year on topics such as: From 3D Images to Models - Introduction to Simple ware Software Workshop, Rietveld Analysis – Application Training, Advancement on High Resolution Transmission Electron Microscopy.

Alumni Affairs and Institutional Development (ID) Program

The Office of International Relations was set up in the year 2003. Since 2014, the Office has grown significantly with the range of activities with regards to the signing of international MoUs and collaborations, outreach programs, facilitation of faculty and students visits etc. The Office has also been made responsible for the Institute’s branding and corporate social responsibility program. Following are the major activities undertaken during 2018-19 by the Office of International Relations:

four international students were hosted for degree programs from Russia, Columbia and Bhutan, South Korea, and 29 international students for short-term programs. Funding opportunities were made available under Shri Gopal Rajgarhia International Program (SGRIP), Asoke Deysarkar International Program, ICCR and other funding programs. The flagship program of Office of International Relations, SGRIP supported 9 International Faculty, 2 International Research Scholars: 2, 3 scholarships for international students, 2 International Workshops and Meetings. International MoUs were signed with 35 foreign universities including with special emphasis on student exchange. Work is in progress for Multi-institutional Dual Degree programs with James Cook University, Australia, University of Auckland, University of Alberta, University of Massachusetts, Dartmouth, and Rutgers University. Apart from these, there were several inbound visits, the foreign training program was conducted for students of IIT Kharagpur, and e-newsletter was published for students and faculty for news dissemination.

Activities undertaken by Dean, International Relations for Branding and CSR include the following:

a) Launching the IIT Kharagpur news website, The KGP Chronicle, www.news.iitkgp.ac.in, relaunching R&D and alumni magazines, increasing the reach of social media through Facebook, LinkedIn and Twitter, making of IIT Kharagpur short film for the national television channel of Doordarshan, internationalization of the science and technology competition for school students, Young Innovators Program and offering a large range of brand memorabilia.
b) Raising CSR funding for merit scholarship from Tower Research Capital, innovation incubation from HDFC Bank, for Centre for Classical Arts from AKS System Pvt Ltd. and Magic Software.

Alumni Relations and Outreach

Close to 68% connectivity with the alumni has been achieved by the end of the financial year including registrations on the alumni website, during annual alumni meet, visits, social media platforms and other alumni engagement programs. Out of a total number of 64316 alumni, the Institute is connected with close to 43000 alumni and is able to network with them.

Alumni and Institute Events

Annual Alumni Meet

Students' Alumni Cell organized the 16th Annual Alumni Meet from 11th Jan to 13th Jan 2019. This year the batches of 1969, 1979 and 1994 were the special guests of honor. The meet was attended by 368 alumni including special guests. The Meet is now a major event anticipated by both the alumni and the students. As the years pass by and winds of change keep blowing, the Alumni Meet too shall keep evolving with the pace of time, hoping to bring to the alumni an experience that they may cherish all their lives.

Homecoming

The first ever edition of Homecoming from 17th-19th August 2018 saw 47 Alumni registered and a total of 90 people including the accompaniments occupied the Technology Guest House.

Alvida

The atmosphere was tinged with a bit of sadness at Alvida, the annual farewell dinner, this time for the Batch of 2019. The evening started off on an amazing note as the Director and Dean, Alumni Affairs, began addressing the students. This was followed by the eagerly awaited Batch awards which the passing batch thoroughly enjoyed. A lovely dinner followed soon after at the Vikramshila complex. A wave of nostalgia hit the diners as they discussed the unending memories this campus had given them. There was no better way to end the night than dancing to IITKGP's famous 'tempo', and signing off with love.

Convocation

The 64th Convocation of IIT Kharagpur brought together on stage several luminaries - Honourable President of India, Shri Ram Nath Kovind, the Honourable Governor of West Bengal, Shri Keshari Nath Tripathi, and the Honourable Chief Minister of West Bengal, Mamata Banerjee. Commending IIT Kharagpur for its pioneering role in engineering and technical education in the country, President Kovind said, "Over the years, IIT Kharagpur, and in fact the IIT network and community, has become an important window to the entire world." The Chief Minister of West Bengal, Mamata Banerjee, won a thundering applause from students when she announced that she believed IIT Kharagpur was the number one IIT in the country. IIT Kharagpur gave out degrees to 2616 students, 295 of them doctoral and joint Ph. D.

FoundationDay

The 68th Foundation Day of IIT Kharagpur saw the Young Alumni Achiever Award being conferred on 12 outstanding KGPians who are high achievers as professionals, academics, scientists, and mentors. Dr. Purnendu Chatterjee, Founder Chairman of The Chatterjee Group (TCJ) that runs Haldia Petrochemicals, was Chief Guest on the occasion. Three student awards and eight staff excellence awards were given away by the Director. The day saw the Nina Saxena Award being conferred upon the Founders of Pathshodh Healthcare Pvt Ltd, a medical device research and development company incubated at the Indian Institute of Science. Several staff were also honoured for completing 25 years of service at the Institute.

Fundraising Campaign

Under theInstitutional Development (ID) Program several alumni fundraising campaigns are being carried out to build corpus through endowment and gift mode to ensure self-sustainability in the long run. For FY 2018-19 Rs. 8.75 Crore was raised from the under mentioned various giving back initiative run by the ID Program.

Any batch together donating Rs. 50 Lakhs is recognized as **'Founding Batch of Endowment'** and a class-room in the newly built Nalanda Classroom complex is named after the batch with all the donor names displayed at the entrance. Grass-roots campaign contribution has long term impact as well as benefit KGP for years to come. Batch Endowment is ideal for both grass-roots and major donors as the principal would remain intact and only the interest generated would be used be for institute's growth.

1991 Batch has completed their journey of raising 50 Lakhs in a record breaking 3 months to become the first 'Founding Batch of Endowment' and then other grad batches successfully raised funds and they are - 1966, 1967, 1968, 1969, 1970, 1975, 1984, 1993, 1994 and 1997. Batches from different genres like 1962, 1963, 1964, 1965, 1987, 1988, 1989, 1996, 1990 are vying to be the next one. In 2018-19, the batch of 1969 and 1994 received endowed class rooms at the Nalanda Complex during "Annual Alumni Meet" January 2019.

Hall Gift is another campaign where alumni were appealed to donate for the development of their Halls. A primeval sense of loyalty binds KGP'ians to their respective Halls of Residence. This is where they spend their most joyous moments together with friends. The alumni are returning to care for these spaces as they would their family homes. Contribution for hall renovation has given way to an outpouring of grassroots involvement in reconstruction and

renovation drives. The donation drive for Radha Krishnan hall set the trend for giving back followed by Patel and Rajendra Prasad halls for their collective giving back. Alumni from various halls raised about Rs. 50 Lakh for hall development activities and the work is completed for Patel hall first phase, Nehru Hall model room pilot project, and others are underway.

IIT Kharagpur is helping students to learn without being unduly worried about expenses, shape their career and then give back to their Alma Mater through the grassroots campaign of **Learn-Earn-Return**. This scheme aims to create a financial support system for students so that they imbibe the culture of giving back. The awardees receive Rs. 10,000 per month for 4 years as cash award. At the end of the first semester of the 1st year, the award will be given out on the basis of JEE Advanced rank. From the second semester onward, the recipients of the award would have to maintain a CGPA of 9. LER helps students to study without worrying about financial burden. Three hundred alumni from various batches raised about Rs. 59 Lakh till FY 2018-19 under this initiative.

A new initiative which was started in 2018 to raise funds for various departmental events and campaigning, named as **"Alumni Department Engagement Program - ADEP"**, is aimed to reconnect alumni with their departments. This program facilitates alumni and dept: for initiatives like - visiting faculty, special lectures, workshops, foreign and industry collaboration, PG and RS placement, internships and live projects. Under this campaign for the first time in the history of the Institute, a Geoscience seminar was organized at the Geology and Geophysics Dept totally from the resources contributed by the alumni. A special volume of the Geoscientific magazine - GEOS was launched during the seminar. It had 28 technical articles from the IIT Kharagpur alumni from 1956 to 2009, with contribution from both India and abroad.

In an initiative to strengthen the health and wellness program of IIT KGP. The alumni of the Institute have helped design and customize ambulance for safeguarding dynamic patient requirements and gifted an **Ambulance to KGP** and putting more efforts for the wellness program. Several doctors and super specialty hospitals were consulted to ensure best-in-class emergency medical fittings and effective vehicle design for long-distance journey. Custom fittings were fabricated, such as medical equipments, upgrading internal panels, electrical wiring for fireproofing and fire retardant components etc.

Class Gift is another inspiring giving back program at IIT KGP, where a batch funds a special initiative to create a signature place at the Institute. The batch of 1970 is the first graduating class who has endow a lasting legacy at their beloved Institute. A uniquely structured garden beside Tikka circle, **ADDA** is represented as place for students, faculties and other campus staffs to contemplate, meditate and discuss in an open lush green space. One more such initiative is undertaken by the alumni specially, from the US side through IIT KGP US Foundation and driven by Distinguished Alumnus Vinod Gupta. This is to add one more signature place to the campus a **Clock Tower.**

Endowed Chair Professorships are also a great initiative where illustrious alumni contribute. Endowed Professorship is one of the highest honors awarded in the academic arena and is reserved for the best faculty members as an acknowledgement of their contributions to research and teaching. Endowed Chair also lends an additional prestige to the departments. Thus, it is both an honor to the named holder of the appointment and also an enduring tribute to the donor who establishes it. Distinguished Alumnus Vinod Gupta instituted "Prof A. S. Davis Chair", Shion Deysarkar [son of Dr. Asoke Deysarkar, Distinguished Alumnus of IIT KGP] instituted "Prof. P. K. Bhattacharya Chair" and also "Prof. N. K. Roy Chair".

Student Scholarships and Awards are also a great way to contribute to the institute. It often provides students a critical push in their academic career at different junctures, especially by giving them a much-needed financial cushion and support system while they pursue their goals, live their dreams and have a fulfilling career. Perhaps most importantly, scholarships make students aware of the importance of philanthropy or giving back. Under this initiative, **Karuturi Chakravarthy**, instituted the **"Shri Karuturi Ramamurty Endowment Award"** in the memory of his father. **The 1997 batch** of Mechanical Engineering (B. Tech.) instituted the **Ritesh Ranjan Memorial Scholarship** in the memory of their batch mate, late Ritesh Ranjan. Institute visiting Professor and alumnae, Amita Sinha and her batch mates instituted "Prakasham Gupta Best Thesis Award" in memory of their friend and fellow batch mate Late Prakasham Gupta.

Distinguished alumnus Partha Ghosh made contributions for a pioneering project launched by the Institute - **Partha Ghosh Leadership Academy** (with an endowment fund of 1 million USD). Distinguished alumnus Shri Arjun Malhotra is driving the campaign for the **Center for Classical Arts** and made a contribution and also, a grassroots campaign has been launched for the alumni to contribute towards this Center.

In the unique ecosystem of IIT KGP, senior classes play a role not commonly seen in any other institution of higher learning. **"My Imprint"** initiative is actually a "By the Students, for the Students" giving back initiative where

graduating batches are given the chance to contribute their caution money deposits to the welfare of the Institute. Graduating students thus get a head start in contribution to their alma mater almost from the moment they step out into the world as IIT KGP alumni. 300+ graduating students donated their caution money under the My Imprint campaign which amounted close to Rs. 18 Lakh for building bus stands in the campus.

IIT Kharagpur is on a mission to help people reap the benefits of several of its research outcomes through its newly launched **Corporate Social Responsibility (CSR)** program. The Institute is gearing up to partner with corporate houses and NGOs to help people to have a better life. The Institute received CSR funding through IDP from HDFC Bank Ltd and Tower Research Capital. HDFC Bank Ltd., a leading private bank in India has instituted a fund of Rs. 60 Lakh for supporting start-up and incubation at the IIT KGP in the area of sustainable development, community empowerment and clean/renewable energy. Whereas Tower Research Capital, the renowned financial services firm, has instituted a fund of Rs. 60 Lakh over two years for the "TRCI Meritorious Scholarships" for eight students of 2nd or 3rd year B. Tech. of Computer Sciences and Engineering.

International Relations, Branding and CSR

The Office of International Relations was set up in the year 2003. Since 2014, the Office has grown significantly with the range of activities with regards to the signing of international MoUs and collaborations, outreach programs, facilitation of faculty and students visits etc. The Office has also been made responsible for the Institute's branding and corporate social responsibility program. Following are the major activities undertaken during 2018-19 by the Office of International Relations:

four international students were hosted for degree programs from Russia, Columbia and Bhutan, South Korea, and 29 international students for short-term programs. Funding opportunities were made available under Shri Gopal Rajgarhia International Program (SGRIP), Asoke Deysarkar International Program, ICCR and other funding programs. The flagship program of Office of International Relations, SGRIP supported 9 International Faculty, 2 International Research Scholars 3 scholarships for international students, 2 International Workshops and Meetings. International MoUs were signed with 35 foreign universities including with special emphasis on student exchange. Work is in progress for Multi-institutional Dual Degree programs with James Cook University, Australia, University of Auckland, University of Alberta, University of Massachusetts, Dartmouth, and Rutgers University. Apart from these, there were several inbound visits, the foreign training program was conducted for students of IIT Kharagpur, and e-newsletter was published for students and faculty for news dissemination.

Activities undertaken by Dean, International Relations for Branding and CSR include the following:

(a) Launching of the IIT Kharagpur news website, *TheKgp Chronicle*, www.news.iitkgp.ac.in, relaunching R&D and alumni magazines, increasing the reach of social media through Facebook, LinkedIn and Twitter, making of IIT Kharagpur short film for the national television channel of Doordarshan, internationalization of the science and technology competition for school students, Young Innovators Program and offering a large range of brand memorabilia.

(b) Raising CSR funding for merit scholarship from Tower Research Capital, innovation incubation from HDFC Bank, for Centre for Classical Arts from AKS System Pvt Ltd. and Magic Software.

Sponsored Research & Industrial Consultancy (SRIC)

The Sponsored Research and Industrial Consultancy (SRIC) Cell is the primary conduit for all sponsored research and consultancy in the institute. It also plays a pivotal role in the preparation and execution of the research roadmap of the institute, and in managing the internal mechanism of the institute for disbursement of its research funds. As research is one of the key indicators of institutional excellence, and as the government increasingly leans towards the IITs to infuse its technology towards industrial application and social responsibilities, SRIC has become primary handle for a wide variety of technology interventions.

The huge diversity of engineering and science disciplines at IIT Kharagpur offers a single window for all types of educational and research service required by the industry. The diversity of in-house expertise at IIT Kharagpur has also catalyzed the development of a healthy ecosystem for large-scale industrial collaborations in multi-disciplinary areas including AI, Advanced Manufacturing Technology, Intelligent Transportation Technology, and Affordable Healthcare Technology, Geosciences for the Future of Earth, Innovative Infrastructure Design, Industrial Internet of Things, and Industrial Robotics etc.

SRIC played a key role in catalyzing the submission of a large number of proposals from IIT Kharagpur under the Uchchatar Avishkar Yojana (UAY), IMPRINT, and Swachh Bharat Abhiyan and worked with the other IITs in carrying out the selection process. Under UAY-I (2016-2017), the institute has received funding to the tune of INR

66 crores spread over 12 projects. In the year 2017-2018, under UAY-II, 14 projects were submitted and 7 were selected, total amount being INR 11.85 crores. Under IMPRINT-1 and IMPRINT-2, the Institute has already received a fund-commitment in the tune of INR 123 crores spread over 27 projects and INR 9 crores spread over 12 projects. The Institute has also received a fund-commitment of INR 251.09 crores under SPARC Programme.

Since inception of Global Initiative of Academic Networks (GIAN) program in 2015-16, IIT Kharagpur is coordinating this program nationwide. Aimed at tapping the talent pool of scientists and entrepreneurs worldwide and garnering the best international experience into our systems of education, the GIAN initiative has attracted an astonishing 18 advanced courses involving international experts in 2018-2019. These courses have been made available online for attendees across the nation.

Additional educational initiatives under the leadership of IIT Kharagpur include the National Digital Library initiative, the National Initiative for Design Innovation, the Teaching Learning Center for Pedagogy Design & Research, and the MOOC compliant e-content creation initiative. Major MHRD supported initiatives include the E-Business Centre of Excellence, Virtual Labs, and Real Time Virtual Labs.

During the year 2018-2019 the Institute received 257 research projects from the Government, private and international funding agencies/enterprises for a total value of INR 493.34 crores and 154 consultancy projects worth 30.56 crores. This includes a number of high-value and flagship projects from the government and the industry, such as:

1. Development of Filament Wound Type 3 Composite Cylinder for the Storage of Compressed Hydrogen Gas
2. Road Safety Audit on Five (5) State Highways in the State of West Bengal
3. A Formal Coverage Management Framework for AMS Design Verification (GRC Proposal ID: P32524)
4. LUDCP for Newly Added Haldia Planning Area (Phase 1)
5. Health Study of Main and Annex Building of Honourable High Court, Kolkata
6. Scientific Study Related to 04 Zones of Handidhua Colliery
7. Cryptography and Cryptanalysis
8. Preparation of Human Resources (HR) Plan of SECL Including Executives for Next Five Years taking into Consideration the Man-Machine Combination, Training Needs for Different Disciplines to Augment the Production and Productivity for the Next 05 (five) Years
9. Study to Assess Stability for an Unstable Part of NH-2 Bypass near Dalmia under the Jurisdiction of Salanpur Area of ECL for Implementation of Raniganj Master Plan
10. Specifications for Design of De-dusting System for 1X800 T. P. D. Calcined Petroleum Coke Rotary Kiln at Paradeep, Orissa.

The Intellectual Property Rights and Industrial Relations (IPR & IR) Cell under SRIC is responsible for the filing and maintenance of Intellectual Property Rights, and also for licensing and the transfer of technologies developed by researchers at IIT Kharagpur to the commercial sector. In the financial year 2018-19, a total number of 63 intellectual properties (national and international) have been filed and a total of 5 intellectual properties were granted. Several technologies have been transferred to industries.

A two day IPR Workshop on 'Innovation, Invention and Creativity – Roadmap for Patent Creation' was organized on 25th August and 5th September 2018 by IPR & IR Cell, SRIC, in association with RGSoIPL, IIT Kharagpur. An IPR Special Lecture on "The multiple facets of IPR: An Engineers's Perspective" was delivered by Prof. Ravinder David Koilpillai, Qualcomm Institute Chair Professor, Department of Electrical Engineering, IIT Chennai, on 26th of February, 2019 which enriched the students and faculties of IIT Kharagpur at large. An Institute lecture on "Commercializing Innovations – why do inventors patent their invention?" and a one day Workshop on "IP Powerhouse: the fuel for startups" was organized on 1st March 2019 and 2nd March 2019 respectively, by IPR & IR Cell, SRIC, in association with RGSoIPL, IIT Kharagpur. The world Intellectual Property day was celebrated on 26th April 2019, raising IP awareness among students and researchers and felicitating the inventors whose patent has been granted. The world Intellectual Property day was celebrated on 26th April 2018 with the theme "Powering change: Women in innovation and creativity" encouraging more women inventors of the Institute. The IP day celebration started with the inauguration of the Technology Transfer Brochure of the Institute.

The Entrepreneur Cell under SRIC supports a variety of incubation programs funded by the Government.

Various student activities are encouraged and supported through SRIC. Notable activities include the following:

- Design and implementation of autonomous ground vehicles. The team has designed, fabricated and operated autonomous vehicle with multiple sensors data processing and fusion incorporating sophisticated control steps to participate in various competitions in India and abroad. It is indeed is a matter of pride to note that Team AGV, IIT Kharagpur has secured second position in 26th International Ground Vehicle Competition (IGVC) held at Oakland University in Rochester, Michigan on June 1 - June 4, 2018, organized by the Association for unmanned vehicle system international (AUVSI).
- TeamKART designs and manufactures formula style racing cars. The team has successfully made 6 cars and is on its way to make the 7th car. The team bagged 9th position out of 74 teams in the Formula Bharat rulebook quiz. The team was one of the 16 teams out of 77 teams that participated, to clear the Mechanical Scrutiny, tilt and the noise test in Formula Bharat 2019. Also for the first time team participated in the 3rd FSEV Concept Challenge and bagged overall 4th rank.
- RoboSoccer activity for design and implementation of a team of soccer playing robots. This activity is coordinated under a students' group named "Kharagpur Robosoccer Students' Group" (KRSSG). It regularly organizes robo-soccer competition during the techno-management fest "Kshitij". KRSSG qualified for RoboCup SSL 2019 and Humanoid Simulation League held in Sydney, Australia. In July 2018, KRSSG won the second place in Goalie Skills Challenge of Humanoid Simulation League, in Montreal, Canada.
- Swarm Robotics IIT Kharagpur took part in DRDO's DRUSE 2018 (DRDO Robotics & Unmanned Systems Exposition) which was held in Pune from 23rd May to 25th May 2018 and won the First Runners Up position to win a cash prize of 1 Lakh Rupees for further research and implementation. This was the culmination of the national level challenge which had over 1000 entries out of which 164 qualified for the Zonals on 28th March 2018, where they were crowned the runners-up in the 30 teams selected for the finals.
- Aerial Robotics Kharagpur (ARK) is a students' group working for building autonomous aerial vehicles. The group was formed in February 2015. They are developing a system for flight control of a drone for participating in International Aerial Robotics Competition (IARC).
- TeamAUV activity for design and implementation of autonomous underwater vehicle. The team has designed and operated an upgraded underwater vehicle with multiple sensors and sophisticated control computers to participate in various competitions in India and abroad.
- Signals and systems for Life Science, a thrust area of Research at IIT Kharagpur, organized a one week long orientation programme during May 8-12, 2017 at IIT Kharagpur for selected ICMR-IITKGP MedTech interns of this year. In the 8 week long internship, 2 ICMR Scientists and 4 medical college students from 3 different AIIMS worked at IIT Kharagpur laboratories while 7 IIT Kharagpur engineering students reported to different centers of ICMR namely, NCDIR, Bangalore, NIRRH, Mumbai, NARI, Belgavi, RMRC, Bhubaneswar.

Computer and Informatics Centre

CIC has extended the existing private cloud computing infrastructure by building a new OpenStack based cloud system (Meghamala-II). Wi-Fi infrastructures at Nehru, Patel, Azad, LLR, RK and RP halls have been upgraded. CIC has connected the Institute to eduroam, a global service that enables students, researchers and staff from participating institutions to obtain Internet connectivity across campus and when visiting other participating institutions by simply opening their laptop or activating their smartphone or other portable device through Wi-Fi. CIC has started Internet access without proxy servers from the residential area and Technology Guest House. The centre has completed the extension of Institute networking facility to various laboratories of different departments, newly constructed Annex Buildings (Annex of JCB Lab Complex, Annex Building of the Department of Aerospace Engineering, and Extension of Mining Engineering), hall of residences (VSRC G+7 blocks for Boys and Girls) and buildings (4 nos. NFA Blocks), new centers (Centre for Artificial Intelligence, Rekhi Centre of Excellence for the Science of Happiness). In addition to these the existing network infrastructure has been upgraded at Central Library and IIT Kharagpur extension centre Kolkata for NDLI project. CIC has laid the underground cable duct to connect Dr. B. C. Institute of Medical Science & Research through OFC with redundant path. Considering the availability of dark fiber in the existing OFC cable plant, CIC has also laid the additional cable duct to setup OFC links for J. C. Ghosh and P. C. Roy Science Block, Diamond Jubilee Complex, VSRC (G+7) blocks, Nalanda Class Room Complex, Sir J. C. Bose Laboratory Complex, Department of E&ECE, Central Library, RMSoE, Department of Mining Engineering and Halls of Residence. CIC also provided temporary IT infrastructure during several events like SIH2019 software and hardware editions, Spring Fest, Kshitij, Alumni meet, Convocation and different

national/international academic conferences. The laboratories in CIC (5 Nos) have been utilized for Institute academic activities like conducting lab classes along with various online tests like GATE/JAM, JEE-Main, JEE (advanced), NPTEL, UGC NET, Moodle based online class tests, ACM-ICPC Asia Regionals 2018 Kharagpur and online examinations conducted during placement.

Science and Technology Entrepreneurship Park (STEP)

STEP, IIT Kharagpur is one of the oldest and most successful innovation and incubation Centre in the country, having supported the entrepreneurship endeavour of our graduates and others in establishing the start-ups for over three decades. During year 2018-19, five new companies were inducted. During the year, three Committee Meetings for Incubation and Seed Loan, 14 workshops and outreach camps have been conducted. Among the major activities, a shed area at STEP Gopali Campus has been renovated for civil works, water connection, electrification to provide better facilities to incubates, Phase-II boundary wall in Gopali mouza is being constructed to improve security measures of STEP Gopali campus, Animal Cell Culture Based Testing Laboratory is ready for operation, Ultra High Temperature furnace (3000 ^{0}C) for mono-atomic layer graphene (first in the country), Raman Spectrometer and Universal Testing Machine are in the process of installation, Infrastructure for internship program for students from textile colleges is ready. The tissue cultured pineapple and banana plantation will now be expanded to 40 acres and development of natural fibre based clothes and footwear (bonded with graphene-derivatives) will be undertaken.

Rajbhasha Vibhag

The Rajbhasha Vibhag translates all Institute documents and correspondence including Institute's Annual Report and Annual Accounts statement along with the routine translation of various technical / non-technical documents, administrative orders, RTI and letters from English to Hindi and vice versa. In addition to the translation of documents, the Vibhag ensures the bilingual display of different nameplates, notice boards, rubber stamps, and preparation of Degrees / Diplomas certificates awarded by the Institute. Rajbhasha Vibhag has initiated Hindi Training to Institute employees for Praveen, Pragya and Parangat course under Hindi Teaching Scheme. In the last academic year, the department has trained 76 employees in Praveen, Prgaya and Parangat with 15 employees trained in Hindi typing.

Hindi workshops and HR Training were organized for the Officers and employees of the Institute on 14 Sep 2018, 18-22 Jun 2018, and 05-11 March 2019. The Institute celebrated "Hindi Divas" on 14th Sep 2018. Several programmes and competitions in Hindi were organised for employees and students of the Institute as well as for the students of nearby schools. Rajbhasha Vibhag publishes a monthly News Magazine "Jharokha" in Hindi covering all the academic, cultural, extra-curricular activities of the institute with the rules, regulations, and policy matters related to Rajbhasha. Rajbhasha Vibhag has several Hindi Software like i-leap, ISM Publisher, ISM Office, Leap Office etc. Vibhag also uses the tools, PARIVARTAK, MANTRA, TRANSLITERATION, etc. developed by Department of Official Language, MHA, Government of India, C-DAC and other agencies. Recently ISM V.6 was procured which is Unicode compatible. The Vibhag has activated UNICODE in all the computers of departments and trained the employees to work in Hindi. The Rajbhasha Vibhag has made its website bilingual. The Rajbhasha Vibhag has also made the Institute's website bilingual and efforts are being made to make the contents of the website bilingual. The Institute has constituted Official Language Implementation Committee (OLIC) for the implementation of Rajbhasha Policies and to monitor the progressive use of Hindi in the Institute in day-to-day work. In addition to this, Rajbhasha Vibhag, IIT Kharagpur plays a vital role in co-ordination for implementing the Official Language policy in the town. As the Director of the Institute is the senior most officer of the Central government posted in Kharagpur, Rajbhasha Vibhag, Ministry of Home Affairs, Government of India has nominated him as Chairman of Town Official Language Implementation Committee (TOLIC). In the last academic year two meetings were held on 13 Aug 2018 and 10 Jan 2019.

Conferences, Seminars, Symposia and Workshops

Listed below department wise are the conferences, seminars, symposia and workshops organized by the Institute.

Aerospace Engineering

- National Conference on: National Aerospace Propulsion Conference, December 17-19, 2018.
- Symposium on: Aero elasticity and Unsteady Aerodynamics in Turbomachinery, May 06-10, 2019.
- Workshop on: Applications of gradient grating period guided mode resonance filter by Prof. Cheng Sheng Huang from the Department of Mechanical Engineering, NCTU Taiwan, November 27, 2018.

- Seminar on: MEMS Logic Gate by Prof. Tsung Lin Chen from the Department of Mechanical Engineering, NCTU Taiwan, November 27, 2018.
- Seminar on: “Experimental work on insect aerodynamics and flight”, March 15, 2019.
- Workshop on: Experimental Flow Visualisation and Measurement Techniques for both Incompressible and Compressible Flow Regimes, March 12-15, 2019.

Agricultural & Food Engineering

- Workshop on: Prakriti-2019: “Sustainability”, March 15-17, 2019.
- Workshop on: Agricultural Watersheds: Hydrologic and water quality data collection and analysis, December 10-14, 2018.
- Workshop on: Micro-irrigation and Fertigation, January 21-22, 2019.
- Symposium on: Technology Demonstration Mela under Unnat Bharat Abhiyan, February 16, 2019.
- Workshop on: Advanced Training in Agricultural Engineering, June 03-21, 2019.
- Workshop on: Organic Farming for Sustainable Agricultural Production, August 06-30, 2019.

Biotechnology

- Conference on: 2nd International Conference on Contemporary Antimicrobial Research (ICCAR-2018), December 15-17, 2018.
- Conference on: 6th Molecular Virology Meeting, March 01-02, 2019.

Chemical Engineering

- Workshop on: International Workshop on Rural Water Quality and Management (in association with Global Challenge Research of University of Edinburgh), May 14-16,2019
- Workshop on: Heterogeneous Catalysis for Chemical Engineers (TEQIP Short), December 10-14, 2018.
- Workshop on: Pollution Prevention in Process Industries, May 05-12 2018.
- Workshop on: Modeling and Computational Techniques for Multiphase Systems (AICTE QIP Short), April 30-May 06, 2018.

Chemistry

- Sir J. C. Ghosh Memorial Lecture 2019 by Bernard L Feringa, Nobel Laureate, Chemistry 2016 on March 18, 2019.
- Workshop on: Towards Smart Functional Materials: An Interdisciplinary Approach, March 19, 2019.
- Conference on: Chemistry Alumni Meet 2019, March 30, 2019.

CivilEngineering

- Conference on: Session on Hydrologic Extremes in a Changing Climate in 15th Annual Meeting of Asia Oceania Geosciences Society (AOGS 2018), June 03-08, 2018.
- Workshop on: A general guideline for preparation and management of a sustainable water supply system with special emphasis on DPR preparation, tendering, execution and operation/maintenance of the project, August 23-26, 2018.
- Workshop on: A sustainable water supply system with special emphasis on DPR preparation, tendering, execution and operation/maintenance of the project, February 04-07, 2019.
- Workshop on: Design and maintenance of sewerage network and sewage treatment plant: special emphasis on recycle and reuse perspective, April 23-25, 2018.
- Workshop on: Practical hydraulics: Applications in free surface and pressurized flows, February 04-16, 2019.
- Workshop on: Recent Trends in Industrial Pollution Control and Regulation, November 19-23, 2018.

Computer Science & Engineering

- Conference on: 5th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2019), February 14-16, 2019.
- Workshop on: CALDAM Indo- Italian Pre- Conference School on Algorithms and Combinatorics, February 11-12, 2019.

Electrical Engineering

- Workshop on: Workshop on Machine learning for Medical Image Analysis, September 17-21, 2018.

Energy Science and Engineering

- Workshop on: International course on “Bioproduction in Photosynthetic Microbes” under the GIAN program of MHRD, India, May 21-25, 2018.

Geology & Geophysics

- Conference on: Climate Change Impacts, Vulnerabilities, and Adaptation, February 26-March 02, 2019.

Humanities and Social Science

- International workshop on Landscape Urbanism: From Adi Ganga to Tolly’s Nullah, December 21-22, 2018.
- GIAN: Managing and Governing Resource in the Anthropocene: Political Ecological Explorations from South Asia, November 26-28, 2018.
- Symposium for Development of Shared Knowledge on Inclusive Development and Growth Dynamics, February 14-15, 2019.
- TEQIP Training Program, July 01-05 2019.
- International Workshop on Rural Water Quality and Management, May 14-15, 2019.

Industrial & Systems Engineering

- Workshop on: Environmental performance of manufacturing system: Modelling and Application, March 25-29, 2019.
- Workshop on: Quality Engineering in Products and processes for Ordnance factory officials, June 17-28, 2019.
- Workshop on: Sustainable production management: Concept and practices, May 13-24, 2019.

Mathematics

- International Conference on Computational Fluid Mechanics, November 23-25, 2018.

Metallurgical and Materials Engineering

- Conference on: Congress of Metallurgical Professionals involving Students, Industry and Teachers, March 16-17, 2019.
- Workshop on: Fracture, Fatigue and Failure of Materials, June 16-22, 2019.
- Workshop on: Rietveld Analysis -Application Training, March 14-15, 2019.
- Workshop on: Non-destructive Testing for Failure Analysis and Prevention, May 20-22, 2019.

Nano Science and Technology

- Workshop on: Laser-Assisted Atom Probe Tomography, July 10, 2019.

Ocean Engineering & Naval Architecture

- Workshop on: Analysis and Design of Coastal Structures, December 10-14, 2018.
- Workshop on: High Fidelity Computational Fluid Dynamics Simulations for Marine Applications, December 10-15, 2018.
- Workshop on: Large Eddy Simulations (LES) for Ship research, December 17-26, 2018.

Centre for Educational Technology

- International workshop on Technology Enhanced Learning, February 28 - March 1, 2019.
- Workshop on Argument Driven Inquiry, November 11-18, 2018.
- Workshop on Understanding Concepts in Mathematics through Origami, March 18-20, 2019.
- Pedagogy Innovation Workshop for In Service Teachers, July 21-25, 2019.

Centre for Oceans, Rivers, Atmosphere and Land Sciences

- Workshop on: Analysis and Design of Coastal Structures, December 10-14, 2018.
- Workshop on: High Fidelity Computational Fluid Dynamics Simulations for Marine Applications, December 10-15, 2018.
- Workshop on: Large Eddy Simulations (LES) for Ship research, December 17-26, 2018.

Centre for Theoretical Studies

- Seminar on: Lecture series on combinatorial commutative algebra (Mathematics), July 02-06, 2018.
- Seminar on: An Hour with Leonhard Euler, The Music of the Primes by Prof. A. K. Mallik, July 17-18, 2018.
- Seminar on: Effect of flexibility in fish- type propulsion by Prof. Jaywant H Arakeri, March 08, 2019.
- Seminar on: 17th S. Datta Majumdar Memorial Lecture by Prof. Raghavendra, Gadagkar, October 25, 2018.
- Symposium on: Frontiers of Fluid Mechanics 2019, March 16, 2019.
- Seminar on: The Bicycle: A Technological Marvel and Great Social Reformer by Prof. Amitabha Ghosh, March 27, 2019.

Cryogenic Engineering

- Conference on: ICEC27-ICMC 2018, September 03-07, 2018.
- Conference on: International Conference on Cryogenic and Refrigeration (ICCR18), April 12-14, 2018.
- Conference on: International Conference on Computational Methods, Simulation and Optimization (ICCMSO-2018), June 22-24, 2018.

Deysarkar Centre of Excellence in Petroleum Engineering

- Conference on: Energy Resources: Advances in Technology and Future Outlook, November 24-25, 2018.
- Workshop on: Data Driven Digital Twin for Asset Integrity Management, March 22-24, 2019.
- Seminar on: Climate Change, the Transitional Role of Fossil Fuels and Geopolitics, January 31, 2019.

G. S. Sanyal School of Telecommunication

- Seminar on: Efficient Detection of OTFS Modulation by Prof. Emanuele Viterbo, fellow IEEE, Monash University, Melbourne, Australia, May 16-18,2019.
- Seminar on: 5G Communications by Dr. Subhas Mondal Chief Architect – 5G, CTO Team, WIPRO Ltd., January 11, 2019.
- Seminar on: 5G Networks by Mr. Indrajit Sanyal, Senior Director, Ericson, Kolkata, January 11, 2019.

Rural Development Centre

- Seminar on: Contribution of Prof. Probodh Kumar Bhowmick in the field of Action and Applied Anthropology, December 06-07, 2018.
- Conference on: 4th International Conference on Public Policy, June 25-28, 2019.
- Workshop on: Arsenic in the Food Chain, June 25-28, 2019.
- Workshop on: Rural Drinking Water Technology Hackathon 2019, May 13-14, 2019.
- Workshop on: International Workshop on Rural Water Quality and Management, May 13-14, 2019.
- Conference on: Climate Change Impacts, Vulnerabilities, and Adaptation: Emphasis on India and Neighbourhood (CCIVA 2019, February 26-May 14, 2019.
- Conference on: Sustainability of Smallholder Agriculture in Developing Countries under changing Climatic Scenario, February 14-May 14, 2019.

Bio Science

- Conference on: 6th Molecular Virology Meeting, February 28-March 02, 2019.

Rajendra Mishra School of Engineering Entrepreneurship

- Workshop on: Entrepreneurship Awareness Program (PMY MSDE, GOI), July 30, 2018-July 09, 2019.
- Workshop on: Mentoring student entrepreneurs at IIT Kharagpur, July 30, 2018-July 09, 2019.
- Workshop on: PRISM workshop organized at Techno India, July 30, 2018-July 09, 2019.

Rajiv Gandhi School of Intellectual Property Law

- Workshop on: 4th National Moot Court Competition, August 31-Septmber 02, 2018.
- Conference on: National Colloquium on Legal Research, March 15-16, 2019.
- Workshop on: Research Scholars Day, March 15, 2019.
- Workshop on: AICTE Workshop on Biotechnology and Intellectual Property Rights, February 04-March 09, 2019.

- Workshop on: The Multiple Facet of IPR: An Engineering's Perspective with collaboration with IPR Cell, February 26, 2019.
- Workshop on: Patent drafting workshop – Mr. Dipan Banerjee, Lakshmikumaran and Sridharan Attorneys, February 02, 2019.
- Workshop on: IP Power house: Fuel for start-ups, Dr. Malath Lakshmikumaran, March 01, 2019.
- Conference on: Industrial relations, Make in India and Skills and Skill India, May 27-31, 2018.
- Conference on: GIAN course on 'Law and Policy on Renewable energy', May 07-18, 2018.
- Symposium on: International IP Symposium October 3-6, 2018.
- Workshop on: Roadmap for Patent Creation, August 25, 2018.
- Workshop on: Roadmap for Patent Creation, August 25, 2018.
- Workshop on: Road Map for Patent creation, September 08, 2018.

Ranbir and Chitra Gupta School of Infrastructure Design and Management

- Workshop on: Sustainable Cities: Planning & Designing for Green Urban Mobility, October 12, 2018-July 19, 2019.
- Workshop on: GIAN course on Information Technology Applications in Transportation Planning and Management, March 11-15, 2019.
- Workshop on: Smart Infrastructure Planning to Connect People and Jobs, March 18-22, 2019.
- Workshop on: GIAN course on Smart Urban Multimodal Transport Planning, Operations and Management, July 08-12, 2019.
- Workshop on: AICTE Course on Using Free and Open Source Geospatial (FOSS4G) Tools in Urban management, February 28-March 03, 2019.
- Workshop on: GIAN course on Land Cover Land Use change and its Impacts on Climate with Prof. Atul Jain, University of Illinois, USA, October 29-November 02, 2018.
- Workshop on: TEQIP Course on Sustainable Urban Transport: Design of Road infrastructure and Facilities, February 15-17, 2018.
- Workshop on: Latest Trends in Structural Repairs and Retrofits by Dr. Mangesh Joshi, CEO, Sanrachana Structural Strengthening Pvt. Ltd, Mumbai, March 18, 2019.
- Workshop on: Communication by Commander Veerendra Jaitly, two day course, February 14-15, 2019.
- Workshop on: GIAN course on Space is the Machine: SPACE SYNTAX METHODOLOG Y, October 19-23, 2018.
- Symposium on: Curtin University- IIT Kharagpur Joint Symposium, December 12-14, 2018.
- Symposium on: Infrastructure Development and Management in Future Cities, April 17-18, 2019.

School of Medical Science and Technology

- Seminar on: Research Scholars Day cum Visiting Seminar, December 11, 2018.
- Seminar on: Medical Device Regulation: How and Why, December 21, 2018.

Continuing Education Program

The Continuing Education Programme is a significant academic activity of the Institute. Over the years, it has diversified in terms of variety of programmes, coverage of disciplines, mode of teaching, duration, and the range of industries and academia served. The activities includes providing continuing education and training to professionals from industries, R&D organisations and academia, providing opportunities to teachers and students of Engineering Colleges to update their knowledge through short term courses and for pursuing M. Tech. and Ph. D. programme under Quality Improvement Programme (QIP) of MHRD. Facilities provided by the Office of Continuing Education include Video Conferencing Studios at Kolkata, Bhubaneswar and Kharagpur.

During 2018-2019 the Office of Continuing Education organised 14 QIP short term courses with 312 participants, 13TEQIP-III sponsored courses with 419 participants; while the number of sponsored and self-sponsored short term courses conducted were 93 with as many as 2412 participants. Also, during this period 26 conferences/workshops were conducted with 1476 participants. The three year executive E MBA programme organised by the unit had 28 students in its Kolkata centre. During this year 9 QIP scholars were awarded Ph. D. degrees.

Under the scheme TEQIP- III, four Faculty Induction Workshops were conducted with 241 faculty participants. Additionally UG and PG students from CANADA are also trained under the MITACs programme of TEQIP-III, MHRD. *GIAN Courses:* A flagship programme of the Govt. of India. These courses of 2 weeks or 10 working days duration were designed around current and multidisciplinary themes of Science, Engineering, Management and Law with a judicious blend of lectures and tutorials per day. A total of 577 national and international participants from the academia and industry participated in the 24 GIAN courses during 2018-2019. The GIAN courses provide an excellent platform to our students, faculty and industry professionals to seek knowledge and experience from international faculty. It also provided them an opportunity to interact and learn subjects in niche areas through collaborative learning process. High quality course material, both through print and video are developed under the GIAN programme so as to be used by a larger body of students and teachers.

One credit courses on micro specializations are being conducted successfully for the last few years. 15 micro credit courses were conducted during 2018-2019. Recently a six month certificate course on Foundations of Artificial Intelligence and Machine Learning has been launched in March 2019. Live, interactive classroom sessions are conducted simultaneously from Kolkata, Bangalore, Hyderabad and Kharagpur.

Laurels and Distinctions Awarded to Faculty

Last year, like every other year, faculty members and students of the Institute received a number of awards and honours, laurels and distinctions in recognition to their excellence. Faculty members were honoured with prestigious awards and elected as Fellows of the National Science and Engineering Academies. The students were rewarded with various scholarships and their excellent contributions were acknowledged in various conferences, symposia etc.

Fellowships

Prof. Nirupama Mallick, Department of Agricultural and Food Engineering	Fellow, National Academy of Sciences (NASI), India.
Prof. Adinpunya Mitra, Department of Agricultural and Food Engineering	Fellow, West Bengal Academy of Science and Technology, West Bengal.
Prof. D. K. Pratihar, Department of Mechanical Engineering	Shastri Fellowship (Indo-Canadian) to work on Humanoid Robots.
Prof. Nilmoni Sarkar, Department of Chemistry	Fellow of the National Academy of Sciences, India (NASI) 2018.
Prof. Niloy Ganguly, Department of Computer Science and Engineering	Fellow of Indian National Academy of Engineers (INAE).
Prof. Shamik Sural, Department of Computer Science and Engineering	Fulbright Nehru Academic and Professional Excellence Fellowship (FNAPE).
Prof. Sudip Misra, Department of Computer Science and Engineering	Fellow of Abdul Kalam Technology Innovation National Fellowship by Indian National Academy of Engineers (INAE).
Prof. Dewashish Upadhyay, Department of Geology and Geophysics	Fellow of Alexander von Humboldt.
Prof. Santanu Bhowmick, Department of Geology and Geophysics	Fellow of the Indian Academy of Sciences.
Prof. Ayan Roy Chaudhuri, Materials Science Centre	Fellow of Alexander von Humboldt fellowship (Alumni program) 2018.
Prof. Suman Chakraborty, Department of Mechanical	Sir J. C. Bose National Fellowship, by the Department

Engineering	of Science and Technology, Government of India.
Prof. D. K. Pratihar, Department of Mechanical Engineering	Fellow of Shashtri (Indo-Canadian Research Fellowship).
Dr. Indrani Sen, Department of Metallurgical and Materials Engineering	Fellow of Alexander von Humboldt Fellowship for renewed research stay.
Dr. Somjeet Biswas, Department of Metallurgical and Materials Engineering	Fellow of Alexander von Humboldt Fellowship for renewed research stay.
Dr. Swati Maitra, School of Ranbir and Chitra Gupta School of Infrastructure Design and Mngt.	Fellow of Bilateral Exchange of Academics, for the visit to Technical University, Darmstadt, Germany for research, funded by German Academic Exchange Service, 2019.
Prof. Mahitosh Mandal, School of Medical Science and Technology	Fellow of Indian National Academy of Science, New Delhi (FNA).
Prof. Ashok K. Gupta, School of Water Resources	Fellow of Indian National Academy of Engineers.
Prof. Mahitosh Mandal, School of Medical Science and Technology	Sir J. C. Bose Fellowship, Science & Engineering Research Board, Department of Science and Technology, Government of India.

Awards

Prof. Partha Pratim Chakrabarti Professor, Department of Computer Science & Engineering and our Director	Honored with D. Sc. (Honoris Causa) by University of Kalyani, West Bengal in their 29th Annual Convocation of the University.
Prof. J. N. Roy, Advanced Technology Development Centre	Selected one of the INAE Sectional committee members and member of Scientific Committee of EUPVSEC-2018.
Dr. Joydeep Banerjee, Department of Agricultural and Food Engineering	Young Scientist Award, Crop and Weed Science Society (CWSS), Bidhan Chandra Krishi Viswavidyalay, Mohanpur, Nadia, West Bengal.
Prof. Ramkrishna Sen, Department of Biotechnology	Received Shastri Indo-Canada Institute Award.
Prof. Sirshendu De, Department of Chemical Engineering	NRDC National Societal Innovation Award - 2018, for invention of “Low Cost Arsenic Removal Filter for Drinking Water”
Prof. Ian Griffiths, Prof. Sirshendu De, Dr. Sourav Mondal, Dr. Raka Mandal, and Mrs. K V Krishnasri, Department of Chemical Engineering	University of Oxford Vice-Chancellor’s Innovation Award for Team Work on modeling of upscaled arsenic filter.
Prof. N. D. Pradeep Singh, Department of Chemistry	Selected for the membership of the National Academy of Sciences, India.
Prof. Pratim K. Chattaraj, Department of Chemistry	Selected as Distinguished Visiting Professor at the Department of Chemistry, IIT Bombay.
Prof. N. D. Pradeep Singh, Department of Chemistry	Received the SERB Distinguished Investigator Award
Prof. Dibakar Dhara, Department of Chemistry	Received the Challenge Grant on Collaborative International Research of IIT Kharagpur.

Prof. Pratim K. Chattaraj, Department of Chemistry	Nominated as “Bentham Ambassador” by the Bentham Publication group.
Prof. Pratim K. Chattaraj, Department of Chemistry	Awarded the Acharya P. C. Ray Memorial Award of the Indian Chemical Society 2017.
Prof. Swagata Dasgupta, Department of Chemistry	Awarded Dr. Basudev Banerjee Memorial Award 2017 by the Indian Chemical Society.
Prof. Srabani TaraPh. D.er, Department of Chemistry	Awarded the INSA Teachers Award 2018.
Prof. B. B. Pandey (Late), Department of Civil Engineering	Received IRC Life Time Achievement Award for the year 2018.
Prof. Subhasish Dey, Department of Civil Engineering	J. C. Bose Fellowship.
Dr. Rajib Maity, Department of Civil Engineering	Received Faculty Excellence Award 2018.
Dr. Debarghya Chakraborty, Department of Civil Engineering	Received IEI Young Engineers Award 2018-19 of The Institution of Engineers (India) in Civil Engineering Discipline.
Prof. Bhargab Bhattacharya, Department of Computer Science and Engineering	Received the 2018 IEI-IEEE Joint Award for Engineering Excellence.
Prof. Aritra Hazra, Department of Computer Science and Engineering	Received the IEI Young Engineers Award 2018-19.
Prof. Chandan Chakrabarty, Department of Electrical Engineering	Received IEEE Bimal Bose Award.
Prof. J N Roy, School of Energy Science and Engineering	Moderated a workshop on “Clean and Renewable Energies” at Taj Bengal Kolkata on Oct. 3, 2018 organized by French Embassy under their Academic-Industry Partnership Program.
Prof. J. N. Roy, School of Energy Science and Engineering	Chaired a technical session on “National Workshop on Photovoltaic Modul Reliability” Organised by IIEST-Shibpur on Mar. 28, 2019 at Hotel Hindustan International- Kolkata,
Prof. J. N. Roy, School of Energy Science and Engineering	Engaged in consultancy with SM technologies-Kolkata.
Dr. Amit Ghosh, School of Energy Science and Engineering	Invited speaker for Synthetic Biology Workshop at Institute of Bioinformatics and Applied Biotechnology (IBAB), Bengaluru under Building Bharat-Boston Biosciences (B4) Program, funded by Department of Biotechnology (DBT).
Dr. Amit Ghosh, School of Energy Science and Engineering	Invited Speaker at Symposium on Metabolic Bioengineering for production of small molecules during 16-17 November 2018 at NIPER Kolkata.
Prof. P. K. Ray, Department of Industrial and Systems Engineering	Received P C Mahalanobis Award given by Operational Research Society, India
Prof. Indranil Manna, Department of Metallurgical and Materials Engineering	Selected as Institute Chair Professor
Prof. Manoj Kumar Tiwari, Department of Industrial and Systems Engineering	Selected as Institute Chair Professor
Prof. S. P. Sarmah, Department of Industrial and Systems Engineering	Received 2018 IEOM outstanding researcher award in the field of IE and Operations Management in 8th IEOM conference held

	in Malaysia in March 7, 2018 by IEOM Society International.
Prof. Indranil Manna, Department of Metallurgical and Materials Engineering	Selected for the National Metallurgist Award 2018 of the Ministry of Steel, Government of India.
Dr. Indrani Sen, Department of Metallurgical and Materials Engineering	Awarded with Venus International Women.
Dr. Chandra Sekhar Tiwary, Department of Metallurgical and Materials Engineering	Received the Alain Reza Yavari - ISMANAM Junior Researcher Award in recognition of the promising research contributions at the 26th International Symposium on Metastable, Amorphous and Nanostructured Materials (ISMANAM-2019).
Prof. Trilochan Sahoo, Department of Ocean Engg and Naval Architecture	Outstanding Reviewer: JFS, EABE.
Dr. Gouri, School of Rajiv Gandhi School of Intellectual Property Law	Awarded the Y. V. Chandrachud Award, by Yashwantrao Chavan Pratisthan, Mumbai, December 15, 2018.
Dr. Arkopal K Goswami, Ranbir and Chitra Gupta School of Infrastructure Design and Mngt.	Received Springer Best Paper Presentation Award at International Conference on Transportation Infrastructure Projects Conception to Execution (TIPCE), along with Anand, S., and Kavita, K. for the paper titled “Predicting Trends in Roadway Crashes and Forecasting Crash Frequency in Developing Countries: A Case of Mumbai-Pune Expressway”, IIT Roorkee, January 2019.
Dr. Bharath H Aithal, School of Ranbir and Chitra Gupta School of Infrastructure Design and Mngt.	Received Best Paper award, International Conference on Smart Cities along with Nimish Gupta and Sudeep Banad for the paper titled “Spatial-temporal impacts of urban land use land cover on land surface temperature: Coimbatore” at Jamia Milia Islamia, March 2019.
Prof. Mahitosh Mandal, School of Medical Science and Technology	Received Prof. S. S. Katiyar Endowment Lecture - Indian Science Congress.
Prof. V. N. A. Naikan, Subir Chowdhury School of Quality and Reliability	Awarded the Certificate of outstanding contribution in reviewing by Elsevier Publisher (2018).
Prof. R. N. Rai, Subir Chowdhury School of Quality and Reliability	Awarded Certificate of Outstanding contribution in reviewing by the International Journal of Reliability Engineering and System Safety (RESS), Elsevier in 2019.
Prof. Susmita Mukhopadhyay, Vinod Gupta School of Management	World Human Resource Development Congress, Mumbai–Best Professor Award (Human Resource Management) (2019).
Prof. Subhashish Tripathy, Department of Geology & Geophysics	Samanta Chandra Sekhar Award of the Odisha Bigyan Academy 2019.
Dr. Puneet Kumar Patra, Department of Civil Engineering	Awarded the INSA Medal for Young Scientists for 2019.
Prof. Saibal Gupta, Department of Geology & Geophysics	Awarded the INSA Teachers Award for 2019.
Prof. Debabrata Pradhan, Centre of Materials Science Centre	MRSI Medal 2019.

Membership of Editorial Boards and Professional Bodies

Prof. Suneel Kumar Srivastava, Department of Chemistry	Member of Editorial Board Scientific Reports.
Prof. Swagata Dasgupta, Department of Chemistry	Appointed Associate Editor of the journal ACS Omega.

Prof. Pratim K. Chattaraj, Department of Chemistry	Selected to feature in ACS Editors' Choice.
Prof. V. Vasudeva Rao, Centre of Cryogenic Engineering	Member of Board of Research of Siksha 'O' Anusandhan (Deemed to be a University).
Prof. Chandan Chakrabarty, Department of Electrical Engineering	Appointed as Chief Editor of IEEE Journal of Emerging and Selected Topic in Industrial Electronics.
Prof. J. N. Roy, School of Energy Science and Engineering	Member of Scientific Committee of EUPVSEC-2018 and INAE Sectional committee.
Prof. J. Maiti, Department of Industrial and Systems Engineering	Elected as Editorial Board member of Safety and Health at Work and International Journal of Injury Control and Safety Promotion.
Prof. J. Thakkar, Department of Industrial and Systems Engineering	Elected as Editorial Board Member of Journal of Manufacturing and Technology Management and Associate Editor of OPSEARCH.
Prof. J. K. Jha, Department of Industrial and Systems	Elected as Editorial Board member of International journal of Industrial Engineering, Theory and application.
Prof. Nirupam Chakraborti, Department of Metallurgical and Materials Engineering	Invited to serve as a Member of Editorial Board of Taylor and Francis.
Prof. Prodip Kumar Sen, Department of Metallurgical and Materials Engineering	Invited to serve as a Member of Editorial board of Steel Tech Journal.
Prof. Shiv Brat Singh, Department of Metallurgical and Materials Engineering	Invited to serve as a Member of the Editorial board of Taylor and Francis.
Dr. Tapas Kumar Bandyopadhyay, Department of Metallurgical and Materials Engineering	Invited to serve as a Member in the Editorial Board of Bentham Science.
Prof. Prasad Kumar Bhaskaran, Department of Ocean Engg and Naval Architecture	Expert Panel Member, NRB, DRDO.
Prof. Prasad Kumar Bhaskaran, Department of Ocean Engg and Naval Architecture	Expert Panel Member, PMRF.
Prof. Prasad Kumar Bhaskaran, Department of Ocean Engg and Naval Architecture	Expert Panel Member, PAMC, DST.
Prof. Prasad Kumar Bhaskaran, Department of Ocean Engg and Naval Architecture	Research Advisor, NAS Singapore.
Prof. P Ganguli, School of Rajiv Gandhi School of Intellectual Property Law	Selected as Chairman of the Jury of Screening-cum-Selection Committee (SSC) Atal Innovation Mission, Niti Aayog.
Dr. Uday Shankar, School of Rajiv Gandhi School of Intellectual Property Law	Max Planck Alumni Ambassador, Ad Hoc Committee of Max Planck Alumni Association.
Dr. Balraj K. Sidhu, School of Rajiv Gandhi School of Intellectual Property Law	Inducted as editorial board member of the Journal - Environmental Policy and Law published by IOS Press (The Netherlands).
Prof. M. Padmavati, School of Rajiv Gandhi School of Intellectual Property Law	Scientific Panel on Labelling and Claims/Advertising, FSSAI, GOI.

Prof. Soumen Das, School of Medical Science and Technology	Member of associate editorial board of Nanobiotechnology journal, Published by IET
Prof. Santanu Dhara, School of Medical Science and Technology	Member of American Chemical Society.
Dr. Nishant Chakravorty, School of Medical Science and Technology	Member of Royal Society of Biology, UK.
Prof. S. K. Chaturvedi, Subir Chowdhury School of Quality and Reliability	Nominated as the member, Specialist National Committee for defining the Certification Mechanism for Gaganyaan, ISRO (2019).
Dr. A. Ayyappan, Department of Chemistry	Elected as Member, The National Academy of Sciences India in 2019.
Dr. A. Rajakumar, Department of Chemistry	Elected as Member, The National Academy of Sciences India in 2019.
Dr. S. K. Srivastava, Department of Physics	Elected as Member, The National Academy of Sciences India in 2019.
Prof. Suman Chakraborty, Department of Mechanical Engineering	Commended by the Royal Society of Chemistry for being in top 10% of their highly cited authors in the Physical Portfolio Journals.
Dr. Chandra Sekhar Tiwary, Metallurgical & Materials Engineering	Selected for "ASM-IIM Visiting Lecture" jointly by the Indian Institute of Metals (IIM) and American Society of Materials International (ASM International) for the year 2019.
Prof. Siddhartha Das, Department of Metallurgical and Materials Engineering	Selected by the Indian Institute of Metals for delivering the prestigious A. K. Seal Memorial Lecture on the topic "Next Generation Energy Storage Devices: A metallurgist's perspective".

Achievements by the Students

Laurels

Dash SM, Chavda S, Lua KB, Department of Aerospace Engineering	Received Best Conference Paper award for the following paper in the Fluid Mechanics session in the conference International Conference on Recent Innovations & Developments in Mechanical Engineering-2018, Shillong, Meghalaya, India.
Manojit Ray, School of Rajendra Mishra School of Engg.	Accorded the prestigious RISE Worldwide Research Host for the year 2017-18 by The RISE Worldwide, DAAD, Germany. Selection is based on a global competition with most awardees located in top Universities and Research Centers of Developed Countries. A German Scholar would soon be joining Manojit for research on Cryptocurrency Anchored Distributed Energy Transaction Platform.
Ms. Akanksha Jaiswal, School of Rajendra Mishra School of Engg.Entrepreneurship	Awarded the Mitacs Globalink Research Award - To Canada to participate in the SFU-IIT India initiative in the summer of 2019, three months internship offer from Beedie School of Business, Simon Fraser University, Canada.
Sourabh Arora and Sangeeta Sahney, School of Vinod Gupta School of Management	Best Paper award for paper titled “Applying Push-Pull-Mooring Framework to Investigate Consumers’ Webrooming Behavior: An Empirical Investigation”, Colloquium on European Research in Retailing 2018, held at the University of Surrey, UK from the 11th July- 13th July 2018.
Sadrita Deb and Abhijeet Chandra, School of Vinod Gupta School of Management	Best Paper award for paper titled "Corporate Governance Mechanism in India: Thematic Analysis of the Recent Developments", at the "Qualitative Research in Financial Markets (QRFM) Conference” held in June 2019 at University of Dundee, Scotland (with a cash prize of £100 prize.
Mr. Arijit Mitra,	Selected for the Best prize for poster presentation in “Advances in Materials

Department of Metallurgical and Materials Engineering	Science" division at the 72nd Annual Technical Meeting of the Indian Institute of Metals held during 15-16 November, 2018 at Kolkata. The title of his presentation was, "Effect of microstructure and bulk macro-texture on the electrical resistivity of electrodeposited Pb-free Sn-Cu solder films".
Mr. Sudipta Patra, Department of Metallurgical and Materials Engineering	Selected for the Best prize for oral presentation in "Product" division at the 72nd Annual Technical Meeting of the Indian Institute of Metals held during 15-16 November, 2018 at Kolkata. The title of his presentation was, "Development of high strength high toughness alloy steel for defence application".
Ms. Anwesha Basu, Department of Physics	Received best experimental poster award in a conference "Shapes and Symmetries in Nuclei: from Experiment to Theory" (SSNET'18) held in Gif-Sur-Yvette, France, from November 5th to 9th, 2018.
Ms. Shreya Mukherjee, Department of Metallurgical and Materials Engineering	Selected for the for the 3rd prize in Metallography Contest under the category of SEM/SPM division at the 72nd Annual Technical Meeting of the Indian Institute of Metals held during 15-16 November, 2018 at Kolkata. The caption of her micrograph-poster was, "In-situ Tensile Deformation".
Mr. Debabrata Ganguly, Center for Rubber Technology	Has received one of the best posters award in the National Rubber Conference 2018 held at Kolkata at The Lalit Great Eastern Hotel (27-28 November 2018). The conference was organized by the All India Rubber Industries Association, Eastern Region. The title of the poster was "Smart Stimuli-responsive cement-rubber composites". His Supervisor is Prof. Santanu Chattopadhyay, Rubber Technology Center.
Mr. Amartya Pani, Department of Humanities and Social Science	Selected as an Early Carrier Scientist (ECS) for the Science Forum, 2018 on "Win more, lose less: Capturing synergies between SDGs through agricultural research". The event was organized by the FAO-CGIAR'S Independent Science and Partnership Council (ISPC) and co-hosted by the South African Agricultural Research Council during 10-12 October 2018 in Stellenbosch, South Africa. He was also a recipient of funding granted by Tata-Cornell Institute, Cornell University, USA and Food and Agriculture Organization (FAO) of the United Nations for attending the Forum. In addition, he received prize money of USD 152 from the FAO. His Supervisor is Prof. Pulak Mishra, Dept. of HSS.
Ms. Reddhy Mahle, Department of Agricultural & Food Engineering	Received the Best Young Researchers Presentation (YRP) Award for the paper entitled "Impact of microbial consortia on CdS nanoparticle synthesis for Bio-energy generation" in the category of Energy and Environmental Biotechnology (EEB) at International Conference on Biotechnological Research and Innovation for Sustainable Development (BioSD-2018), organized by CSIR-Indian Institute of Chemical Technology, Hyderabad, India in association with The Biotech Research Society, India (BRSI) and IBA-International Forum for Industrial Bioprocesses (IBA-IFIBiop), Franch from November 22-25, 2018. Her Supervisor is Professor Rintu Banerjee, Dept. of AgFE.
Ms. Akanksha Rastogi, Department of Agricultural & Food Engineering	Received the Best Young Researchers Presentation (YRP) Award for the paper entitled "In silico microbial cellulose synthesis: an existing global wonders" in the category of Food, Agriculture and Medical Biotechnology (FAMB) at International Conference on Biotechnological Research and Innovation for Sustainable Development (BioSD-2018), organized by CSIR-Indian Institute of Chemical Technology, Hyderabad, India in association with The Biotech Research Society, India (BRSI) and IBA-International Forum for Industrial Bioprocesses (IBA-IFIBiop), Franch from November 22-25, 2018. Her Supervisor is Professor Rintu Banerjee, Dept. of AgFE.
Mr. Ayon Karmakar, Department of Chemistry.	Received 2nd Best oral presentation award at the International Conference on Materials for Energy Applications (ICME-2018) held during 6-8th December, 2018 at Jaipur. The title of his presentation was, "Hydrated Nickel Cobalt Molybdate Nanorods as Superior Positive Electrode Material for Supercapacitors". His Ph.D supervisor is Prof. S.K. Srivastava.

Mr. Utsav Ghosh, Department of Chemistry.	Awarded one of the best three oral presentations in RDC-2018 conference (Recent Developments in Chemistry) held at NIT Duragpur (17-19 Dec, 2018).
Mrs. Lakshmi E Jayachadran, Department of Agricultural & Food Engineering	Received best oral presentation award (First and Best) during 12th International Working Conference on Stored Product Protection held during 6-11, October, 2018 at Berlin Germany.
Mr. Shyam Kumar Singh, Department of Agricultural & Food Engineering	Awarded third prize in "Process Engineering & Optimization" category for the Poster entitled "Solar Pasteurization of Milk". Title: 11th National Convention and Seminar on Dairy Process Engineering from Farm to Table. Organized by: Indian Dairy Engineers Association (IDEA) Venue: Labh Ganga Convention centre Indore (Madhya Pradesh) Date: 21-22 oct 2018.
Mr. Rajdeep Mondal, Department of Metallurgical and Materials Engineering	Awarded the A.K. Bose Memorial Award for the Best M.Tech thesis in 2018 during the 56th National Metallurgists' Day celebration on 14th November, 2018 held at Kolkata. Mr. Rajdeep Mandal completed his M.Tech thesis under the guidance of Prof. S.B. Singh in May, 2018, and received his degree in 64th Annual Convocation 2018.
Mr. Pratap Pal, Department of Physics	Received the following best poster awards in two conferences that he has attended in the month of December, 2018. (1) Best Poster Award in International Conference on Complex and Functional Materials (ICCFM 2018) organized by S.N.Bose National Center for Basic Sciences. (2) C.V.Raman Prize (Innovation in Experiment) in National Conference on Electronic Structuress (NCES 2018) organized by SRM Institute of Science and Technology for best poster presentation. This award includes a certificate, 50gm gold plated silver medal and a memento.
Mr. Sujit Sharma, Center for Rubber Technology	Received the best paper award in the IRMRA's 23rd Rubber Conference and International Workshops on Emerging Trends in Rubber Materials, Technology, Testing and Analysis for Future Generation held at the Lalit Great, Mumbai during December 14-15, 2018. The title of the poster was "Simulation of Extrusion Dies for Rubber Profiles" His Supervisor is Dr. Santanu Chattopadhyay, Rubber Technology Center.
Mr. Sukanta Chakrabarty, Department of Chemistry.	Received Best Paper Award (II Prize) in the recently held International Symposium on Advances in Electrochemical Science and Technology held during January 8-10, 2019 at Hotel Trident, Chennai, Tamil Nadu, India. His Supervisor is Prof. C. R. Raj, Dept. of Chemistry.
Mr. Lakhinder Marandi, Dept. of Metallurgical and Materials Engineering	Awarded 2nd prize for poster presentation at the "Indo-German Bilateral Workshop on Additive Manufacturing of Metals" held on 05-02-2019 at NML, Jamshedpur. The topic of his poster presentation was "Microstructure-property correlation of Laser Engineered Net Shaping (LENS) processed NiTi". The certificate is attached herewith. His Ph. D. Supervisor is Dr. Indrani Sen.
Mr Sankalp Arpit, School of Energy Science and Engineering	Selected for best paper award on work entitled "Thermodynamic Analysis of GT Cycle with Naphtha or Natural Gas as the Fuel: A Thermodynamic Comparison" in International Conference on Energy, Environment and Sustainable Development, Paris. This work has been carried out under the supervision of Prof. P. K. Das and Prof. S. K. Dash of Mechanical Engineering Department.
Mr. Mopidevi Manikanta Kumar, Department of Chemistry	Awarded Best Poster Prize in the CRSI National Symposium in Chemistry held during February 7-10, 2019 at CSIR-CLRI, Chennai. The Poster is entitled "Nitrogen-Doped Carbon Embedded Cobalt phosphide Nanostructure for Oxygen Electrocatalysis". His Supervisor is Prof. C. Retna Raj, Deptartment of Chemistry.
Ms. Ramya Veerubbotla, Dept. of Biotechnology	Received the Best paper presentation award in the 8th International Conference on Clean and Green Energy (ICCGE 2019) held at Milan, Italy on February 13-15, 2019. Her Supervisor is Prof. Debabrata Das, Deptartment of Biotechnology.
Mr. Vikash Sharma, Department of Physics	Awarded the Best Oral Presentation Award at "5th International Conference on Nanoscience and Nanotechnology (ICONN-2019)" held from January 28-30, 2019

	and organized by SRM Institute of Science and Technology in association with Shizuoka University-Japan, NCTU-Taiwan, GNS-New Zealand, ACCMS, CSIR-NPL-India and IET. Title of the paper: Porous nanospheres of Cu2O supported by redox additive modified electrolytes to achieve high performance supercapacitors in the temperature window 25 to 65 oC. Authors: Mr. Vikas Sharma and Prof. Amreesh Chandra. His Supervisor is Prof. Amreesh Chandra, Department of Physics.
Ms Snigdha Maiti, School of Bioscience	Won the Best Student Poster Award on work entitled "Identification of structurally rigid segments with important biological functions in intrinsically disordered regions of HOX transcription factors by solution NMR spectroscopy" at National Magnetic Resonance Society (NMRS) Silver Jubilee Conference held at AIIMS New Delhi, Feb 13 to 16 2019.
Dr Subhrajit Mukherjee, Dept. of Physics	Research Associate has received the Excellent Poster Award in The International Conference in Fiber Optics and Photonics (Photonics-2018), held at IIT Delhi during December 12-15, 2018. This is a part of his Ph. D. work carried out at ATDC under the joint supervision of Professor Samit Kumar Ray, Department of Physics and Professor Soumen Das, School of Medical Science & Technology.
Mr. Mrinmoy Mondal, Department of Chemical Engineering.	Awarded for best poster presentation in Indo-German Joint Scientific Workshop on Membranes for Water and Energy held during February 18-20, 2019 organized by CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujrat, India, Sponsored by Indo-German Science & Technology Centre. His Supervisor was Professor Sirshendu De, Department of Chemical Engineering.
Mr. Sumanta Kumar Karan, Materials Science Center	Awarded a Certificate and a Cash Prize of INR 2000 for Best Oral Presentation in the "International Conference on Frontiers in Materials from Basic Science to Real-time Applications" (F2DM-2019) held during March 13-16, 2019 at Center for Nano and Material Sciences (CNMS), JAIN University, Ramanagra, Bangalore Rural, India. The title of his Oral Presentation was "Bio-waste materials based piezoelectric nanogenerator for green energy harvesting applications". His Supervisor is Professor Bhanu Bhusan Khatua, Materials Science Center.
Mr. Raktim Bhattacharya Department of Agricultural and Food Engineering	Conferred the "BEST INTERACTIVER POSTER AWARD" at the International Conference on Trends in Plant and Agrobiotechnology 2019 held during February 14-16, 2019 at IIT Guwahati. His Supervisor is Professor Adinpunya Mitra, Dept. of Agricultural and food Engineering.
Mr. Arnab Acharya and Mr. Hariharan K. Department of Electrical Engineering	Awarded Best Presentation Awards in Applied Power Electronics Conference and Exposition (APEC) 2019 which is in top ten conference list of Electrical Engineering Department. The Supervisor of Mr. Acharya is Professor Santanu Kapat, Dept. of Electrical Engineering and the Supervisors of Mr. Hariharan are Professor Santanu Kapat and Professor Siddhartha Mukhopadhyay, Dept. of Electrical Engineering.
Ms. Manisha Kahar Department of Electronics and Electrical Communication Engineering	Awarded "Dr. NNSSRK Prasad Award for Best Female Student Paper" for the paper titled "A Compact Circularly Polarized Annular Ring Antenna with Wide Effective Bandwidth" presented at 2018 IEEE Indian Conference on Antennas & Propagation (InCAP 2018) Hyderabad held during December 16-19, 2018. Her Supervisor is Professor Mrinal Kanti Mandal, Dept. of E & ECE.
Ms. Manikuntala Mukhopadhyay	Received the Gandhian Young Technological Innovation (GYTI) Award/Appreciation 2019, for her work on "Image Analyzing Drying Patterns of Blood and Plasma Droplets for the Rapid Detection of Thalassaemia Carriers". Her Supervisor is Prof. Sunando Dasgupata, Dept. of Chemical Engineering.
Ms. Ellora Padhi, Department of Civil Engineering	Won the best paper presentation award in the XXXVII International School of Hydraulics held in Poland (21-24th May 2019). The Award Certificate is attached. Her Supervisor is Prof. Subhasish Dey and Joint Supervisor is Prof. Venkappayya R. Desai, Dept. of Civil Engineering.
Ms. Sumita Sahoo,	Selected for the "European School on Nano Science & Nano Technology" to be

Department of Chemical Engineering	held in Grenobel, France in August 2019. She has also been offered complete fee waiver of the tune of Euro 2400, which will be borne by CEFIPRA. Her Supervisor is Prof. Rabibrata Mukherjee, Dept. of Chemical Engineering.
Mr. Imon Kalyan School of Nanoscience and Technology	Won prize for the best Poster (No.P.2.15) presentation on Symposium P titled "Soft-template mediated silver nanoparticles formation via galvanic replacement reaction of As(0) and its catalytic application" at EMRS 2019 in Nice, France during May 26-31, 2019 and will receive a Certificate and a contribution of 270€. His Supervisors are Prof. Anjali Pal (Dept. of Civil Engineering) and Prof. Tarasankar Pal (Dept. of Chemistry).
Dr. Narendra Singh Chandel, Dept. of Agricultural and Food Engineering	Ex-Research Scholar Dr. Narendra Singh Chandel (Roll No. 09AG9701) has received the following two awards: (1) Jawaharlal Nehru Award for P.G. Outstanding Doctoral Thesis Research in Agricultural and Allied Sciences 2018 – Agricultural Engineering. (2) NASI-ICAR Award for Innovation and Research on Farm Implements-2018. His Supervisor was Prof. Virendra Kumar Tewari, Department of Agricultural and Food Engineering.
Ms. Gayatri Mishra, Ms. Ranjana Rani, Ms. Shubhangi Goswami, Mr. C. G. Dalbhagat, Ms. Jayshree Majumdar, Ms. Anjali Thakur and Ms. Pooja Pandey, Dept. of Agricultural and Food Engineering	Ms. Gayatri Mishra (14AG92R04), Ms. Ranjana Rani (13AG32005) and Ms. Shubhangi Goswami (16HS91R01) have been awarded Gandhian Young Technological Innovation Award 2019. The name of the research project carried in the Food Chemistry and Technology Laboratory was “Sensor for detecting infestation in food grains” under Professor Hari Niwas Mishra, Department of Agricultural and Food Engineering. Mr. C. G. Dalbhagat (15AG92P05), Ms. Jayshree Majumdar (16AG92P05), have been awarded Gandhian Young Technological Innovation Appreciation Award 2019. The name of the research project carried in the Food Chemistry and Technology Laboratory was “Fortified rice manufacturing technology” under Professor Hari Niwas Mishra, Department of Agricultural and Food Engineering. Ms. Anjali Thakur (18AG90J02) and Ms. Pooja Pandey (17AG91P01) have been awarded Gandhian Young Technological Innovation Appreciation Award 2019. The name of the research project carried in the Food Chemistry and Technology Laboratory was “Carbonated grain beverage premix manufacturing technology” under Professor Hari Niwas Mishra, Department of Agricultural and Food Engineering.
Mr. Sankha Karmakar and Mr. Debashis Roy, Department of Chemical Engineering Mr. Vishu Sidana, Mr. Kapgate Nitin Chopram,	Won “DST-Lockheed Martin-Tata Trusts IIGP 2.0 - University Challenge 2019 Award” in the consecutive year (Prize Money 10 Lakhs). Their Supervisor is Prof. Sirshendu De, Dept. of Chemical Engineering.
Mrs. Bijaylaxmi Das, Ms. Pranjali Khandekar, Mr. Karale Vikrant Anilrao, Mr. Saikat Sahoo, Department of Electronics and Electrical Communication	The team has won “DST-Lockheed Martin-Tata Trusts IIGP 2.0 - University Challenge 2019” for their innovation of “Real Time Glare and Shadow Removal Algorithm for Image and Video Enhancement”. The India Innovation Growth Programme (IIGP) 2.0 is a unique tripartite initiative of the Department of Science and Technology (DST), Government of India, Lockheed Martin and Tata Trusts. The award ceremony for the same was held at New Delhi on 17th of July 2019 and was attended by esteemed guests from the government, IIGP partners, and the Indian start-up and innovation ecosystem. The work on the idea was initiated by Mr. Vishu Sidana (14EC35024) The team was represented by Mr. Kapgate Nitin Chopram (18EC65R04) at the screening and down-select event held at IIT Bombay during 28-29 June 2019. As one of the winners of IIGP2.0 University Challenge 2019, the team will be provided with up to INR 10 Lacs for developing a concept/prototype, opportunities to participate in a Design Thinking workshop, mentorship and periodic feedback through monthly/quarterly reviews. Their Supervisor is Professor Sudipta Mukhopadhyay, Dept. of E & ECE.

List of Scholarships availed by students in 2018-19 session

Sl No.	Awarding organization/Institute endowment scholarships
1	ABS Scholarship
2	American Business List Humanities Scholarship
3	Arjun Das Datta Memorial MCM Endowment Scholarship
4	B. P. Poddar Scholarship
5	Batch of ’85 Scholarship (2nd Year)
6	Batch of ’85 Scholarship (3rd Year)
7	Devi Mahamaya Mallick Memorial Scholarship
8	Dr. Arunabha Chatterjee Memorial Scholarship
9	Dr. J. C. Ghosh Memorial Scholarship
10	Gora Lal Syngal Memorial Scholarship
11	Gour Chandra Saha Memorial Scholarship
12	Guru Kripa Educational Loan Scholarship
13	Hem Chandra Raut Scholarship
14	Hindustan Petroleum Corporation (HPCL) Start-Up Scholarship
15	Indian Women’s Association, BONN Scholarship
16	Institute MCM Scholarship
17	K. K. Agrawal Memorial Scholarship
18	Kumud Monoroma Scholarship
19	M. K. Sircar Memorial Scholarship
20	Madan Sundar Sahu Memorial Scholarship
21	MB Scholarship
22	Ministry of Steel Scholarship
23	Mrinal Chandra Basu Memorial Scholarship
24	Mrs. Minoti Bagchi Scholarship
25	Partha Roy Choudhury Memorial Scholarship
26	Prova Basu Memorial Scholarship
27	Puri Memorial Scholarship
28	Rajendranath Das Memorial Award
29	Rajeshwari Sahu Memorial Scholarship
30	Ritesh Ranjan Memorial Scholarship
31	Shyamal Ghosh and Sunanda Ghosh Endowment Scholarship
32	Sushma Mukhija Memorial Scholarship
33	Swapan Gupta Memorial Scholarship
34	Technology Alumni Association (Calcutta Chapter) Scholarship
35	Technology Alumni Association (Kharagpur Chapter) Scholarship
36	Vinod Gupta Leadership Scholarship
37	Inspire Scholarship Awarded by Department of Science & Technology, Govt. of India, New Delhi to the Students of 5-Yr. Integrated M. Sc. Course (Science Stream Only)
38	Rajarshee Shahu Maharaj Merit Scholarship, Director of Social Welfare, Mahararashtra State, Pune
39	Sail Scholarship Being Awarded by Steel Authority of India Ltd. Through Vishakhapatnam Steel Plant
40	Aditya Birla Scholarship, Aaditya Birla Group, Aditya Birla Management Corporation, Mumbai
41	Boeing Scholarship to the Students of Aero Space Engg. Department from the ongoing Research Project “Boeing University Relations”(Bur) Sponsored by Boeing Company, U.S.A
42	Scholarship Under Scheme (Trust Fund) for Differently Abled Students Being Awarded by National Handicapped Finance & Development Corporation, (NHFDC), Faridabad
43	KVPY Scholarship, IISC, Bangalore
44	FAEA Scholarship to BPL Cat. SC/ST Students Being Awarded by Foundation for Academic Excellence & Access, New Delhi
45	Post Matric Scholarship to SC/ST Students, Awarded Through Different District Welfare Officers in A.P. State, Govt. of Anhdra Pradesh
46	Directorate of Technical Education, Chattisgarh

47	ST Scholarship Awarded by Singapore Technologies Eng. Ltd., to Students of Computer Science Engg. and Ocean Engineering & Naval Arch.
48	NTPC Scholarship
49	ONGC Scholarship
50	EIL Scholarship, Engineers India Ltd., HRD, New Delhi
51	STEEL Scholarship
52	Post-Matric Scholarship, Bihar
53	Central Sector Scholarship for ST
54	Mukhyamantri Medhavi Vidyarthi Yojana
55	AICTE Jammu and Kashmir Scholarship
56	SCICSR Scholarship (Shipping Corporation of India - for Naval Student)
57	DRDO Scholarship for Girl Through AR&DB
58	Swamy Vivakananda MCM Scholarship
59	Dr. B. R. Ambedker Merit Scholarship
60	Samsung Star Scholarship
61	Ishan Uday Scholarship

Central Library

The Central Library, IIT Kharagpur is one of the largest technical libraries in Asia. It is fully automated and air-conditioned library with an aim to serve more than 12,000 students and 1600 number of employee of the institute. The Library has its dynamic website (http://www.library.iitkgp.ac.in) with rich content. The Central Library is having two buldings (main and annex) internally connected with a carpet area of about 8000 sq.m. The Central Library houses and maintains nearly 4.2 lakh print documents comprising of books and bound volume journals. As far as e-resources are concerned, there are huge collection of e-resources comprising of full text e-journals, e-books, online databases (full text and bibliographic) etc. As far as facilities are concerned, the Central Library has ten air-conditioned reading halls with 1500 seating capacity for the users. Moreover, the Central Library is ISO 9001:2015 certified library.

The Central Library has developed an Institutional Digital Repository (IDR) using open source software namely DSpace. The IDR collects, preserves and disseminates in digital format of the research output (Ph. D. theses, Technical Reports, Faculty Publications, etc.) within IIT Kharagpur Research Community. It enables the Institute community to deposit (self-archiving) their pre-prints, post prints and other scholarly publications using a web interface and organize these publications for easy retrieval. We are having 4010 Ph. D. thesis both full text and abstract level uploaded in our IDR which is rapidly growing day by day. The Institute research scholars are also using the IDR regularly. The Library also gets many requests from other universities to provide access to full text content of Ph. D. thesis. The present URL of the IDR is http://www.idr.iitkgp.ac.in/xmlui/. Web Scale Discovery Service: It is being introduced in our library where the users can search and browse the full text subscribed e-resources using open source software VuFind integrated with Summon Solution from ProQuest.

MHRD, under its NMEICT mission, has entrusted IIT Kharagpur to host, coordinate and set-up National Digital Library (NDL) towards building a national asset. The objective of the project is to integrate all the existing digitized and digital contents across educational institutions of the nation to provide a single-window access with e-learning facility to different groups of users ranging from primary level to higher education level of our county. NDL will harvest metadata and contents from all the Institutional Digital Repositories (IDR) of Universities and Institutions, all other digital library initiatives, and NMEICT projects and index in the National Digital Library Server so that all the e-contents can be searched and accessed in the full-text by the users through a single window. The NDL project workstation is situated in the Central Library, Annex Building. For details, visit NDL website: ndl.iitkgp.ac.in

Career Development Centre

The Career Development Centre (CDC) is responsible for arranging Industrial training for 3rd year B. Tech., 4th year Dual Degree and 4th year Integrated M. Sc. degree students as part of their curriculum. CDC also facilitates the job placement of final year students graduating from the Institute including Ph. D. students. The Centre is actively engaged in forging synergistic relationships between the Institute and various industries. Based on these interactions, CDC gives feedback to the Institute on the academic programmes.

Summer Training Details

Eight weeks of summer Internship at the end of 3rd year B. Tech., 4th year Dual Degree and 4th year Integrated M. Sc. degree is a compulsory part of the 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 Internship through Career Development Centre with the support of departments/ schools/ centres of IIT Kharagpur. An emergent trend is that more and more students are seeking summer Internship abroad. Also students utilize opportunities various Universities with which IIT Kharagpur had signed MoU. These include S. N. Bose Scholar's Program, Viterbi-India Program, Khurana Program for Scholars, DAAD Scholarship Program, MITACS and NTU-Singapore.

For the current summer internships of our students during May- July 2019, 93 companies either visited the campus or conducted interviews through telephonic, Skype interviews and companies allotted seats after seeking nominations. The details of internship are as follows.

Period of Internship	Nos. of students enlisted for Internship	Nos. attending Internship in India			Internship at foreign Univ./Org.
		Selected by various companies	Nominations accepted by the companies	Self-arranged	
May-July 2019	1232	461	26	644	101

Placement Details

In the placement year 2018-19 more than 230 companies visited the campus and offered employment. The details of number of the students who had registered for placement and those actually placed through campus interviews are as follows:

Sl. No.	Department	Registered	Placed	Percentage Placed
1	B. Arch.	34	31	91
2	B. Tech.	463	397	86
3	Dual Degree	457	432	95
4	M. Sc. (5Yr Integrated)	139	119	86
5	LLB	17	14	82
6	Joint M. Tech. - Ph. D. (2yr)	523	287	55
7	Joint M. Sc. - Ph. D.	89	7	8
8	MCP	21	1	5
9	MS	6	6	100*
10	Ph. D.	23	23	100*
	Total	1772	1317	74

(*For Sl. No: 9 and 10 only placed students are shown as registered)

This year the students of the Institute have been able to fetch 261 PPOs, out of which 213 PPOs have been accepted. The overall placement percentage across all branches stands at 74%.

Student Participation

Career Development Centre at IIT Kharagpur has taken an initiative to harness the students' management skills through a formal system during the placement season since 2005-2006. The system has progressed extremely well and from year 2010 onwards, the CDC has immensely benefitted from students participating in placement process. CDC also conducts an in-house pre assessment test to prepare the students for the placement season. This test score is also used by some of the recruiters as one of their short listing criteria.

The organizational skill of students has helped CDC to host 30-35 companies on campus on a given day during the initial days and round the clock. During the placement season, students and CDC staffs play an active role from contacting the companies to the final selection at campus by providing complete logistic support with a close coordination from all the divisions of the Institute.

New Initiatives

In addition to the existing roles, Career Development Centre at IIT Kharagpur has taken some initiatives to help student take up a better career and also to strengthen the relation with the recruiters. These are

1. Faculty/ Corporate & Alumni interactions on various career options
2. CDC has introduced the Corporate Relationship Index (CRI) which reflects the relationship of CDC with a company based on certain parameters, like number of offers in internship, PPOs, offers during placement, International offers etc. for providing better slots to them
3. From this year CDC has established M. Tech. Desk which will specifically work for enhancing the PG placement index.

Achievements

1. Continuously achieved more than 1300 placements for the last three years.
2. Crossed the number of Internship offers as compared to last year.
3. Surpassed the number of Pre placement offers in comparison to previous year.
4. 1000 offers in day 6 of placement season making fastest 1000.

Nehru Museum of Science and Technology

The Nehru Museum of Science & Technology is the only museum of its kind in the entire IIT System. Located in the historic Hijli Shaheed Bhavan Building, it preserves the rich heritage of its association with the Indian freedom struggle movement and subsequently the journey of the Institute from its inception in 1951. The museum has several galleries on various themes of science and technology and historical facts related to the freedom struggle of India and the developmental history of the Institute. Recently, 'Exploration Hub', intended mainly for school children has been added. The facility contains mechanical, electrical, electronics, chemistry, and basic physics and mathematics setups for hands-on experiments. After the renovation with the financial assistance from the Ministry of Culture, Government of India, the footfall of the museum has increased significantly in recent times. Various participants of the short-term courses and seminars, the students and their guardians, along with the visitors from the local community and many schools and colleges visit the museum regularly. The documentary movie on the history of the IIT Old Building is screened regularly in the audio-visual room of the museum. The history galleries and the ladies jail gallery of the museum are under renovation and will be reopened soon. The museum also organises training programmes and workshops for the school and college students. As a part of the outreach programme, last year the museum has organised Summer Camp in association with the 'Midnapur Science Center' and two days of Winter Workshops for the students of the various school of Kharagpur and Midnapur in association with our B.Tech. NSS volunteers. The 'Exploration Hub', located on the 1st floor of the museum with facilities containing mechanical, electrical, electronics, chemistry, and basic physics and mathematics setups for hands-on experiments provides great support for the training and motivational programmes organised by the museum. The documentary movie on the history of the Hijli Shaheed Bhavan is screened regularly in the audio-visual room of the museum, which is appreciated by the visitors. Like every year the museum observes the Hijli Martyrs' Day on 16th September to commemorate the great sacrifices of our patriots' roles for the freedom struggle of India. The museum published its thematic calendar like previous years and the current year's theme was "The seasons' colour on campus canvas". During the time span on Kshitij to Spring Fest, the museum conducted a photo exhibition on campus photography in association with the 'ClickKgp' photographic group of the students' community.

Technology Students' Gymkhana

Students' Affairs

Technology Students' Gymkhana is the hub of the numerous extra-curricular and co-curricular activities in IIT Kharagpur ranging from Sports, Socio-Cultural to Technology. From its inception in 1952, the Gymkhana has played a key role in the everyday lives of Kgpians cultivating and nurturing their extra-curricular talents. The students under the auspices of TSG participated in a variety of activities during their leisure time for fun,

fitness, enjoyment and reviving their energy after academic workload and also for their overall development. The highlights of the year 2018-19 are as follows:

Inter-IIT Meet

The 34th Inter IIT Aquatics Meet and 53rd Inter-IIT Sports Meet held at IIT Guwahati during 03-07 October 2018 and 13-21 December 2018, respectively. The participating students of the Institute in the Inter IIT Aquatic Meet exhibited great performance with 2 gold medals, 7 silver medals and 2 bronze medals for men and 2 silver medals and 1 bronze medal for women's team of IIT Kharagpur, leading IIT Kharagpur to finish at 2nd in Overall G.C for swimming. Indresh Performed exceptionally well by bagging 4 silver medals. Water Polo team has also brought us glory by securing 1st Position. Amlan Sil has been awarded with best player of the tournament and Raj Prabhu has been awarded with best scorer of the tournament.

In 53rd Inter-IIT Sports Meet, IIT Kharagpur secured 3rd position in March past, Badminton (Men) won Gold medal. Athletics (Boys & Girls), Badminton (girls), Chess, Squash, Table Tennis (Boys) won Silver medals. Tennis (Men) won Bronze medal.

IIT Kharagpur Cultural team secured 3rd Position in the 3rd Inter-IIT Cultural Meet which was held at IIT Roorkee in December 2018. IIT Kharagpur team bagged overall trophies in Music Cup- Band Performance, Dramatics- Monologue, Quiz- Business, India, Mela, Film Making-Online Film Making and Literary-Parliamentary Debate. Team secured silver medal in Music- Pair on Stage, Dance- Street Battle, FAD-Charcoal Art, Quiz- Scitech, Sports, Culinary- Cook off, Literary- English Poetry Slam and story writing, Word Games. Team also secured bronze medal in Quiz- Mela, Culinary- Tag Team, Literary- Online Hindi Writing.

The 7th Inter-IIT Tech Meet was hosted by IIT Bombay in Jan 2019. After five successful Inter-IIT Tech meets, IIT Kharagpur continued the winning spirit and secured 3rd position in this Tech meet bringing out the best in each category. With 21 participating IITs competing in ten events, this meet was grander in scale, higher in quality and tougher in competition than ever before where a total of 1465 points were scored by IIT Kharagpur with 3 Gold medals (Case Study, BETiC Medical Innovation Challenge and TV Audience Measurement) & 1 bronze medal (Campus Sustainability Challenge).

Institute Awards and Medals

Event	Inst. Blue/ Order of Merit	Honorable Mention	Special Mention	Alumni Cup
Sports & Games	22	20	09	02
Social & Cultural	06	11	13	01
Technology	12	11	-	01

Bhandarkar Cup was awarded to Abin Devassia Poovathottathil (14NA30029) (Athletics). Shrimati Chandiramani Cup was awarded to Arkapravo Saha (14ME33029) for Soc. and Cult. G.S. Sanyal Cup was awarded to Harsh Agarwal (15NA10001) for Technology. Amrit Barman Memorial Award as cash prize of Rs. 15000 was awarded to Vishal Kumar Singh.

Overall General Championship Results

Sports and Games	Social and Cultural	Technology
Azad Hall of Residence (Men) and Mother Teresa Hall of Residence (Women)	Rajendra Prasad Hall of Residence	Rajendra Prasad Hall of Residence

Alumni Cup

ALUMNI CUP in sports was awarded to Eslavath Jagadeesh in Athletics and Devanuj Deka in Badminton.

ALUMNI CUP in Social and Cultural was awarded to Utkarsh Sinha.

ALUMNI CUP in Technology was awarded to TYSS Santosh.

Major Events

Like every year, the TSG organized National Yoga Day on 21 June 2019 which was conducted by Mr. Sudhir Kumar. Yogathan has also been organized at TSG premises. Quiz on Yoga, Health & Fitness was organized on the pre International Yoga Day Program. TSG has organized two EK BHARAT SHRESTH BHARAT program an initiative by MHRD govt. of India. In this program Cultural Exchange Activities, Food Festival and Merchandise Sell were initiated. The different paired states are Arunachal Pradesh, Meghalaya and Uttar Pradesh and Jharkhand and Goa. TSG has successfully organized Kharagpur Open in Tennis, Training Program on Life saving skills in water, Navneet Memorial Tournament, Fancy Football Tournament on Foundation day in Football, Annual children's Aquatics meet. TSG successfully organized Run for unity on 31st October 2018, 26th January, 15th August, World Environment day and Vigilance awareness week with South Eastern Railway. Mir Ranjan Negi (Former Captain Indian Field Hockey Team) delivered a motivational lecture during Freshmen induction at IIT Kharagpur. Technology Adventure society, TSG has organized adventure events and trekking trips. Kshitij, Spring Fest, Robotix events, Robosoccer, in-house workshops, Indian case challenge 2018, TSG elections were successfully conducted throughout the year. Rangoli and Illumination was celebrated on 8th November 2018 where different Halls of Residence participated for a month to get their hostels illuminated on the day of Diwali along with the signature Rangolis created in the Halls of Residence.

Extra Academic Activities

The extra academic activity (EAA) at the Institute involves undergraduate students in the National Service Scheme (NSS), National Cadet Corps (NCC) and sports and fitness activities over four semesters. In each semester, students get involved in approximately 45 hours of field work in EAA. Specific Highlights of the EAA program in the year are as follows:

National Service Scheme of EAA covered about 1000 students in this year. The students typically spent three hours per week over entire semesters working on social issues in the nearby villages and slums in and around Kharagpur. They participated in facilitating education for the underprivileged school children by organizing scholarships, prizes, study materials, stationery, bicycles and utensils. They monitored drinking water quality at villages and provided nutritional supplements to primary school children to ameliorate endemic malnutrition among tribal population. They also organized blood donation and medical camps and awareness programs on issues such as substance abuse, health and hygiene and nutrition. They planted and maintained saplings and participated in facility and infrastructure maintenance, e.g., repair of rural roads, painting and maintaining school buildings and furniture.

Both 3 Bengal Tech Air Sqn NCC and one Bengal EME Coy NCC units are dedicated NCC units designed to impart NCC training to students of the Institute as an allotted EAA subject for undergraduate students (1st & 2nd Year). During the training year 2018-19 a total number of 186 students were enrolled in 3 Bengal Tech Air Sqn NCC and 181 cadets in one Bengal EME coy NCC.

Considering their importance and requirement various training activities were conducted by this unit for first and second year cadets. All these activities include Drill; NCC & Aircraft Technical subjects; Aeromodelling; Independence Day parade; Rastriya Ekta Diwas; Combined Annual Training Camp; Republic Day Parade; Range Firing (22" Rifle) and 'B' Certificate examination. This unit also conducted various social and community development activities, such as Blood Donation Camp; Tree Plantation; Swachh Bharat Abhiyaan; Sadbhavana Run; and World AIDS Day.

The NSO (Health and Fitness) program served 890 UG students in the year 2018-2019 as a part of Institute's mandatory extra academic activity. The program was supervised by ten faculty members who serve as program officers of individual units comprising of about 100 students each, and another faculty as program coordinator. Every Wednesday and Saturday, the students assembled in the Jnan Ghosh stadium / Tata Sports Complex at sunrise for workout sessions. In this, physical training was conducted under strict supervision of qualified physical training instructors drawn from Students' Gymkhana. Apart from routine activities, the students took part in several special activities: Foundation Day Programme (18th August 2018, conducted for 890 students); Cleanliness drive for plastic waste removal in the campus area as a part of Gandhi Jayanti (2nd October 2018, conducted for 890 students); Art of Living Yoga Programme conducted by Prof. Suman Kalyan Samanta, Dept. of Chemistry (16th March 2019, conducted for 456 students); Disaster Management Training Programme by Sri Sathya Sai Seva Organisation, West Bengal (16th March

2019, conducted for 434 students); Heartfulness Meditation (9th and 10th March 2019, conducted for 890 students); Anapana Meditation (31st March 2019, conducted for 100 students)

In addition to these, to serve a greater cause of spreading the message of health and fitness beyond the physical reach of the Institute, a blog with URL: http://healthandfitnessiitkgp.blogspot.in/ is maintained under this program.

GRADUATES OF THE YEAR

In this Convocation, we are going to confer degrees on outgoing students. I am very glad to announce that the following students are recipients of Institute Gold Medals for their academic excellence and all round performance in the year 2017-2018.

- **Shri Abhishek Panigrahi** of the Department of Computer Science and Engineering is the recipient of the President of India Gold Medal 2017- 2018 for the best academic performance among the outgoing B. Tech. (Hons.) and B. Arch. (Hons.) students.
- **Miss Soumya Dubey** of the Department of Mechanical Engineering has won the Dr Bidhan Chandra Roy Memorial Gold Medal 2017- 2018 for the best all-round performance among the B. Tech. (Hons.) and B. Arch. (Hons.) outgoing students.
- **Shri Jeenu Grover** of the Department of Computer Science and Engineering has been awarded The Prime Minister of India Gold Medal 2017-2018 for the best academic performance among the Dual Degree and Integrated M. Sc. outgoing students.
- **Shri Rishabh Kumar Shrivastava** of the Department of Electrical Engineering has been awarded the Dr Jnan Chandra Ghosh Memorial Gold Medal 2017-2018 for the best all-round performance among the outgoing Dual Degree and Integrated M. Sc. students.
- **Miss Parnashree Ghosh** of the Department of Mathematics has been awarded the Professor Jagadish Chandra Bose Memorial Gold Medal 2017-2018 for the best academic performance among the outgoing students of all 2-year M. Sc. courses in the Science Disciplines.
- **Shri Pramod Kumar Jangir** of the Centre for Oceans, Rivers, Atmosphere and Land Sciences and **Shri Mohammad Luqman** of the Department of Computer Science and Engineering are the joint recipients of The Director's Gold Medal 2017-2018 for the best academic performance among the students completing M. Tech. and MCP courses.
- **Shri Sandeep Rana** of the Department of Industrial and Systems Engineering has been awarded the Dr Shankar Dayal Sharma Gold Medal 2017-2018 for the best all-round performance among the M. Tech. and MCP outgoing students.

I offer my heartiest congratulations to all the Medal Winners and the graduating students.

Wisdom is not a product of schooling, *but the product of a lifelong attempt to acquire it,* therefore, my friends, while you go out and conquer the world; *motivated by an irresistible longing to understand the secrets of nature,* please do so with tender care for our fellow countrymen who have supported your education in the sincere hope that you will make their world better. Please try your best to ensure a smile in the face of fellow citizens through social justice, societal sustainability with due respect to the *indianness,* which is our great culture. Let's *live our lives to the fullest and die empty.*

Jai Hind

Kharagpur
July 20, 2018

Professor Partha Pratim Chakrabarti
Director, IIT Kharagpur

Courses of Study

Department of Aerospace Engineering

- B.Tech in Aerospace Engineering
- Dual Degree - B.Tech and M.Tech in Aerospace Engineering
- Dual Degree - B.Tech in Aerospace Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Aerospace Engineering and M.Tech in Financial Engineering
- M.Tech. in Aerospace Engineering

Department of Agricultural and Food Engineering

- B.Tech..in Agricultural and Food Engineering
- Dual Degree - B.Tech in Agricultural and Food Engineering and M.Tech in Farm Machinery and Power
- Dual Degree - B.Tech in Agricultural and Food Engineering and M.Tech in Food Process Engineering
- Dual Degree - B.Tech in Agricultural and Food Engineering and M.Tech in Land and Water Resources Engineering
- Dual Degree - B.Tech in Agricultural and Food Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Agricultural and Food Engineering and M.Tech in Financial Engineering
- M. Tech. in Farm Machinery and Power
- M. Tech. in Land and Water Resources Engineering
- M. Tech. in Food Process Engineering
- M. Tech. in Agricultural Biotechnology
- M. Tech. in Aquacultural Engineering
- M. Tech. in Agricultural Systems and Management

Department of Architecture and Regional Planning

- Bachelor of Architecture (B.Arch)
- Master of City Planning (MCP)

Department of Biotechnology

- B.Tech .in Biotechnology and Biochemical Engineering
- Dual Degree - B.Tech and M.Tech in Biotechnology and Biochemical Engineering
- Dual Degree - B.Tech in Biotechnology and Biochemical Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Biotechnology and Biochemical Engineering and M.Tech in Financial Engineering
- M. Tech. in Biotechnology and Biochemical Engineering

Department of Chemical Engineering

- B.Tech. in Chemical Engineering
- Dual Degree - B.Tech and M.Tech in Chemical Engineering
- Dual Degree - B.Tech in Chemical Engineering and M.Tech in Petroleum Engineering
- Dual Degree - B.Tech in Chemical Engineering and M.Tech in Financial Engineering
- M. Tech. in Chemical Engineering

Department of Chemistry

- M.Sc. in Chemistry (2 Years.)
- Integrated M.Sc. in Chemistry (5 Years.)

Department of Civil Engineering

- B.Tech .in Civil Engineering
- Dual Degree - B.Tech in Civil Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Civil Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Civil Engineering and M.Tech in Structural Engineering
- Dual Degree - B.Tech in Civil Engineering and M.Tech in Environmental Engineering and Management

- Dual Degree - B.Tech in Civil Engineering and M.Tech in Transportation Engineering
- M. Tech. in Hydraulic and Water Resources Engineering
- M. Tech. in Transportation Engineering
- M. Tech in Environmental Engineering and Management
- M. Tech. in Geotechnical Engineering
- M. Tech. in Structural Engineering
- M.Tech in Railway Engineering (Mechanical)
- M.Tech in Railway Engineering (Civil)
- M.Tech in Railway Engineering (Electrical)

Department of Computer Science and Engineering

- B.Tech in Computer Science and Engineering
- Dual Degree - B.Tech and M.Tech in Computer Science and Engineering
- Dual Degree - B.Tech in Computer Science and Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Computer Science and Engineering and M.Tech in Financial Engineering
- M. Tech. in Computer Science and Engineering

Department of Electrical Engineering

- B.Tech .in Electrical Engineering
- B.Tech..in Instrumentation Engineering
- Dual Degree - B .Tech in Electrical Engineering and M.Tech in Machine Drives and Power Electronics
- Dual Degree - B.Tech in Electrical Engineering and M.Tech in Control System Engineering
- Dual Degree - B.Tech in Electrical Engineering and M.Tech in Power and Energy Systems Engineering
- Dual Degree - B.Tech in Electrical Engineering and M.Tech in Instrumentation Engineering
- Dual Degree - B.Tech in Electrical Engineering and M.Tech in Instrumentation and Signal Processing Engineering
- Dual Degree - B.Tech in Instrumentation Engineering and M.Tech in Instrumentation and Signal Processing Engineering
- Dual Degree - B.Tech in Instrumentation Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Instrumentation Engineering and M.Tech in Control System Engineering
- M. Tech.in Machine Drives and Power Electronics
- M. Tech. in Control System Engineering
- M. Tech. in Power and Energy Systems
- M. Tech. in Instrumentation and Signal Processing

Department of Electronics and Electrical Communication Engineering

- B.Tech in Electronics and Electrical Communication Engineering
- Dual Degree - B.Tech in Electronics and Electrical Communication Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B .Tech in Electronics and Electrical Communication Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Electronics Electrical Communication Engineering and M.Tech in Microelectronics and VLSI Design
- Dual Degree - B.Tech in Electronics and Electrical Communication Engineering and M.Tech in RF and Microwave Engineering
- Dual Degree - B.Tech in Electronics and Electrical Communication Engineering and M.Tech in Visual Information and Embedded Systems
- Dual Degree - B.Tech in Electronics and Electrical Communication Engineering and M.Tech in Telecommunications System Engineering
- M. Tech. in Microelectronics and VLSI Design
- M. Tech. in RF and Microwave Engineering
- M. Tech. in Telecommunication Systems Engineering
- M. Tech. in Visual Information and Embedded Systems Engineering

Department of Geology and Geophysics

- Integrated M.Sc. in Exploration Geophysics (5 Years)
- Integrated M.Sc. in Applied Geology (5 Years)
- M.Sc. in Geophysics (2 Years.)
- M.Sc. in Geology (2 Years.)
- Integrated M.Sc. in Applied Geology and M.Tech in Petroleum Engineering (6 Years)
- Integrated M.Sc. in Exploration Geology and M.Tech in Petroleum Engineering (6 Years)
- M. Tech. in Exploration Geosciences

Department of Humanities and Social Sciences

- Integrated M.Sc. in Economics (5 Years)
- Master of Human Resource Management

Department of Industrial and Systems Engineering

- B.Tech in Industrial Engineering
- Dual Degree - B.Tech and M.Tech in Industrial Engineering and Management
- Dual Degree - B.Tech in Engineering Product Design and Manufacturing and M.Tech in Design and Quality Engineering (Industrial Electronics)
- Dual Degree - B.Tech in Engineering Product Design and Manufacturing and M.Tech in Design and Quality Engineering (Mechanical Engineering)
- Dual Degree - B.Tech in Industrial Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Industrial Engineering and M.Tech in Industrial Engineering and Management
- M. Tech. in Industrial Engineering and Management

Department of Mathematics

- Integrated M.Sc. in Mathematics and Computing (5 Years)
- M.Sc. in Mathematics (2 Years.)
- M. Tech. in Computer Science and Data Processing

Department of Mechanical Engineering

- B.Tech .in Mechanical Engineering
- B.Tech .in Manufacturing Science and Engineering
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Manufacturing Science and Engineering
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Thermal Science and Engineering
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Mechanical Systems Design
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Mechanical Engineering and M.Tech in Petroleum Engineering
- Dual Degree - B.Tech in Manufacturing Science and Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Manufacturing Science and Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Manufacturing Science and Engineering and M.Tech in Industrial Engineering and Management
- M. Tech in Manufacturing Science and Engineering
- M. Tech. in Thermal Science and Engineering
- M. Tech. in Mechanical Systems Design

Department of Metallurgical and Materials Engineering

- B.Tech in Metallurgical and Materials Engineering
- Dual Degree - B.Tech and M.Tech in Metallurgical and Materials Engineering
- Dual Degree - B.Tech in Metallurgical and Materials Engineering and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Metallurgical and Materials Engineering and M.Tech in Financial Engineering
- M. Tech. in Metallurgical and Materials Engineering

Department of Mining Engineering

- B.Tech .in Mining Engineering
- Dual Degree - B.Tech and M.Tech in Mining Engineering
- Dual Degree - B.Tech in Mining Engineering and M.Tech in Safety Engineering
- Dual Degree - B.Tech in Mining Engineering and M.Tech in Financial Engineering
- Dual Degree - B.Tech in Mining Engineering and M.Tech in Petroleum Engineering
- M. Tech. in Mining Engineering

Department of Ocean Engineering and Naval Architecture

- B.Tech.in Ocean Engineering and Naval Architecture
- Dual Degree - B.Tech and M.Tech in Ocean Engineering and Naval Architecture
- Dual Degree - B.Tech in Ocean Engineering and Naval Architecture and M.Tech in Engineering Entrepreneurship
- Dual Degree - B.Tech in Ocean Engineering and Naval Architecture and M.Tech in Financial Engineering
- M.Tech.in Ocean Engineering and Naval Architecture

Department of Physics

- Integrated M.Sc. in Physics (5 Years.)
- M.Sc. in Physics (2 Years)
- M.Tech.in Solid State Technology

Advance Technology Development Centre

- M.Tech.in Embedded Controls and Software

Centre for Educational Technology

- M.Tech.in Multimedia Information Processing

Centre for Oceans, Rivers, Atmosphere and Land Sciences

- M.Tech in Earth System Science and Technology

Cryogenic Engineering Centre

- M.Tech in Cryogenic Engineering

Materials Science Centre

- M. Tech. in Materials Science and Engineering.

Rubber Technology Centre

- M. Tech. in Rubber Technology

Rajendra Mishra School of Engineering Entrepreneurship

- Dual Degree - B.Tech. in Parent Dept and M.Tech in Entrepreneurship Engineering

Rajiv Gandhi School of Intellectual Property Law

- Bachelor of Laws with Honours in Intellectual Property Law (LLB) (3 Years)
- Master of Laws (LLM) (2 Years)

Ranbir and Chitra Gupta School of Infrastructure Design and Management

- M.Tech. in Infrastructure Design and Management

School of Bioscience

- M.Sc. in Chemical and Molecular Biology (Jointly Offered by IIT Kharagpur and IACS Kolkata)

Subir Chowdhury School of Quality and Reliability

- M. Tech. in Reliability Engineering

School of Energy Science and Engineering

- M.Tech in Energy Science and Engineering

School of Medical Science and Technology

- Master of Medical Science and Technology (3 Years)
- M.Tech in Medical Imaging and Informatics (2 Years)

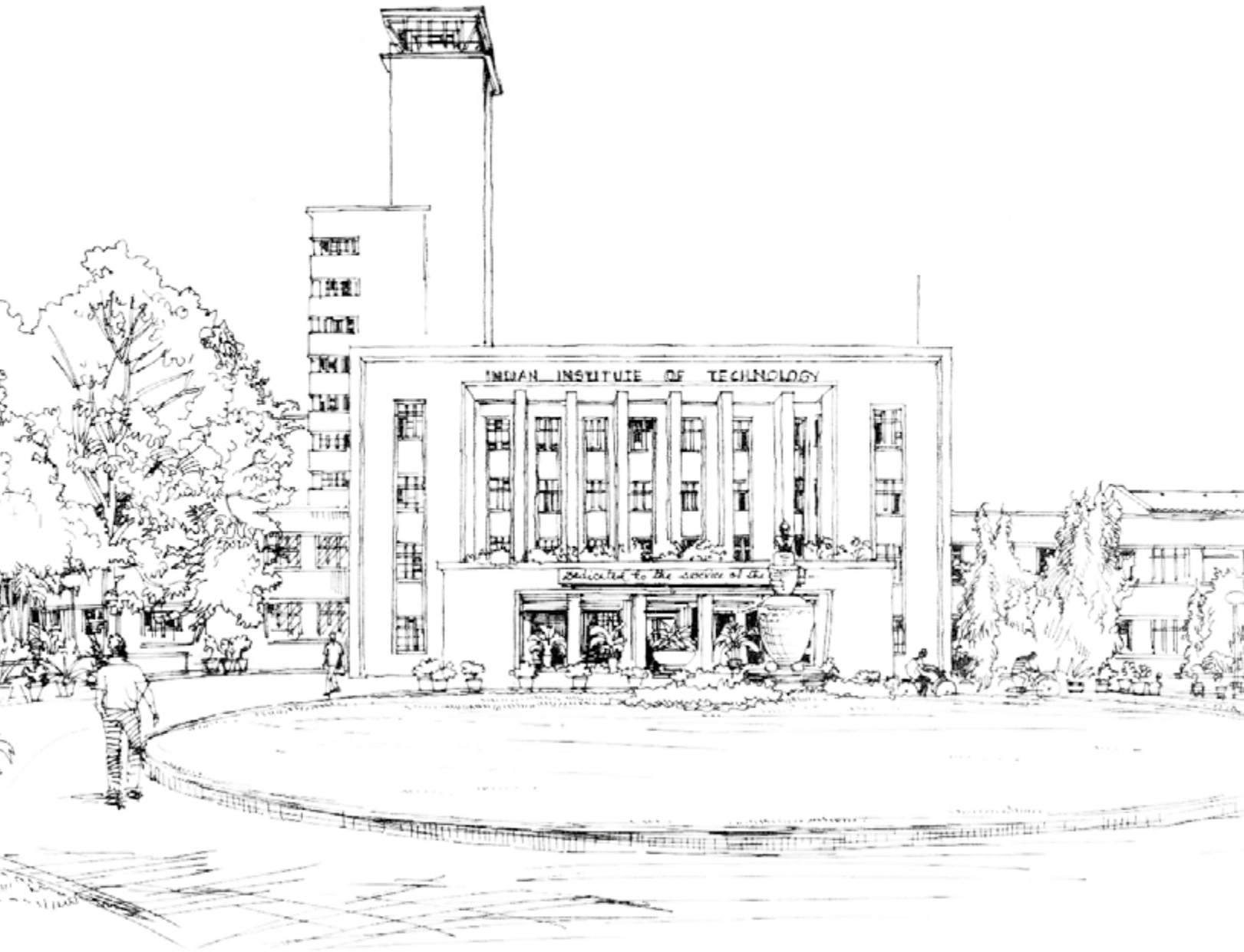
School of Water Resources

- M. Tech. in Water Engineering and Management

Vinod Gupta School of Management

- Master of Business Administration (2 Years)
- Master of Business Administration in the Executive MBA Programme (3 Years)
- Post Graduate Diploma in Business Analytics (2 Years) [Jointly offered by IIT Kharagpur, IIM Calcutta and ISI]

ACADEMIC DEPARTMENT



Aerospace Engineering

Head of the Department : Dipak Kumar Maiti

Professors

Name	Highest Degree	Research Areas
Bhrigu Nath Singh	Ph.D.	Smart and Composite Structures; Uncertainty quantification; Dynamics and Aeroelasticity; Mechanics of Composites; Structural Health Monitoring
Dipak Kumar Maiti	Ph.D.	Aerospace Structures; Composite and Smart Structures; Structural Dynamics and Aeroelasticity; Structural Health Monitoring
Kalyan Prasad Sinhamahapatra	Ph.D.	Computational Fluid Dynamics; DNS and LES; Fluid Structure Interaction; Jet Control and Aeroacoustics; Low Reynolds No. Aerodynamics
Manoranjan Sinha	Ph.D.	
	Ph.D.	
Associate Professors	Ph.D.	
Arnab Roy	Ph.D.	Computational Fluid Dynamics; DNS and LES; Low Reynolds No. Aerodynamics; Single and Multiphase Fluid Dynamics; Jet Control and Aeroacoustics
Manas Kumar Laha	Ph.D.	
Mira Mitra	Ph.D.	
Ratan Joarder	Ph.D.	Chemically Reacting flows; Droplet and Spray Combustion; Single and Multiphase Fluid Dynamics; Heat Transfer; Computational Fluid Dynamics
Somnath Ghosh	Ph.D.	DNS and LES; Computational Fluid Dynamics
Srinibas Karmakar	Ph.D., Louisiana Sate University	Droplet and Spray Combustion; Combustion of solid fuels and propellant; Experimental methods in combustion
Suresh Chandra Pradhan		
Assistant Professors		
Akshay Prakash	Ph.D.	
Amardip Ghosh	Ph.D.	
Anup Ghosh	Ph.D.	Aircraft Structures; Composite and Smart Structures; Micro Air Vehicle; UAV
Chetankumar Sureshbhai Mistry	Ph.D., IIT Bombay	Design of Turbomachines; Turbomachines performance augmentation; Experimental & CFD study of turbomachine; Fluid mechanic and Heat transfer; Experimental aerodynamics
Mohammed Rabius Sunny	Ph.D.	Fluid Structure Interaction; Dynamics and Aeroelasticity; Structural Health Monitoring; Smart Materials and Structures; Tensegrity Structures
Mrinal Kaushik	Ph.D., IIT Kanpur	Shock-Boundary Layer Interactions; Active and Passive Control of Jets; Aerothermodynamics of Hypersonic Flows; Hydrodynamics of Hydrofoils
Naba Kumar Peyada	Ph.D.	
Prasun Jana	Ph.D.	Aerospace Structures; Computational Solid Mechanics; Composite & Functionally Graded Material; Vibration Damping; Elastic Stability
Sandeep Saha	Ph.D.	Hydrodynamics Stability; Low Reynolds No. Aerodynamics; Chemically Reacting flows; Theoretical & Computational Differential Equations; Solar and Wind Energy Conversion

Sikha Hota	Ph.D.	Path planning of unmanned vehicles; optimal trajectory planning; Collision avoidances; Obstacle avoidances; Three dimensional path generations
Sunil Manohar Dash	Ph.D.	Low Reynolds No. Aerodynamics; Fluid Structure Interaction; Computational Fluid Dynamics; Lattice Boltzmann Method; Flapping Aerodynamics
Susmita Bhattacharyya	Ph.D.	Satellite Navigation Systems; Fault detection; Sensor fusion

New Faculty Appointment

Name	Designation	Research Areas
Prasun Jana	Assistant Professor	Aerospace Structures; Computational Solid Mechanics; Composite & Functionally Graded Material; Vibration Damping; Elastic Stability
Sunil Manohar Dash	Assistant Professor	Low Reynolds No. Aerodynamics; Fluid Structure Interaction; Computational Fluid Dynamics; Lattice Boltzmann Method; Flapping Aerodynamics

Promotion

Akshay Prakash	Assistant Professor	
Prasun Jana		Aerospace Structures; Computational Solid Mechanics; Composite & Functionally Graded Material; Vibration Damping; Elastic Stability
Susmita Bhattacharyya	Assistant Professor	Satellite Navigation Systems; Fault detection; Sensor fusion

Re Appointment

Navtej Singh	Professor

Retirement

Navtej Singh	Professor

Brief Description of on-going activities

1. Sponsored project title: Optimal design of thin-walled beam/plate structures for maximum elasto-plastic buckling load. Sponsoring agency: SERB, DST, Govt. of India. Project value: 20.08 Lakhs
2. An Investigation of the Unconventional Tandem Flapping Foil Propulsion Mechanism for Underwater Vehicles. Science and Engineering Research Board (SERB)

Other Research Projects
a) Investigation on the propulsive performance of the tubercle flapping aerofoil.
b) Development of IB-LBM solver for the fluid-structure interaction.
c) Development of Robotic Jelly Fish.

Research Areas

Active and Passive Control of Jets; Aerospace Structures; Aerothermodynamics of Hypersonic Flows; Aircraft Structures; Chemically Reacting flows; Collision avoidances; Combustion of solid fuels and propellant; Composite and Smart Structures; Composite & Functionally Graded Material; Computational Fluid Dynamics; Computational Solid Mechanics; Design of Turbomachines; DNS and LES; Droplet and Spray Combustion; Dynamics and Aeroelasticity; Elastic Stability; Experimental aerodynamics; Experimental & CFD study of turbomachine; Experimental methods in combustion; Fault detection; Flapping Aerodynamics; Fluid mechanic and Heat transfer; Fluid Structure Interaction; Heat Transfer; Hydrodynamics of Hydrofoils; Hydrodynamics Stability; Jet Control and Aeroacoustics; Lattice Boltzmann Method; Low Reynolds No. Aerodynamics; Mechanics of Composites; Micro Air Vehicle; Obstacle avoidances; optimal trajectory planning; Path planning of unmanned vehicles; Satellite Navigation Systems; Sensor fusion; Shock-Boundary Layer Interactions; Single and Multiphase Fluid Dynamics; Smart and Composite Structures; Smart

Materials and Structures; Solar and Wind Energy Conversion; Structural Dynamics and Aeroelasticity; Structural Health Monitoring; Tensegrity Structures; Theoretical & Computational Differential Equations; Three dimensional path generations; Turbomachines performance augmentation; UAV; Uncertainty quantification; Vibration Damping;

Academic Performance

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Papers Published in Journals	40
Papers Presented in Conferences	30

Agricultural and Food Engineering

Head of the Department *:* Nirupama Mallick

Professors

Name	Highest Degree	Research Areas
Adinpunya Mitra	Ph.D.	Biochemistry of floral scent volatiles; Natural products from root cultures; Secondary metabolism - molecular biology; Physiology of plant volatilome; Histochemistry of plant metabolites
Ashis Kumar Datta	Ph.D.	Computational Fluid Dynamics; Process Simulation, Optimization & Control; Bio-energy & Development of Relevant Materials; Thermoelectric materials; Extractive metallurgy
Ashok Mishra	Ph.D.	Hydrological Modelling & Watershed Manag; Crop Yield Modelling; Climate Change & Adaptation Analysis
Bhabani Sankar Das	Ph.D.	Soil Physics; Unsaturated flow and transport; Hyperspectral Sensing; Solute Transport
Chandranath Chatterjee	Ph.D.	Flood hazard and risk analysis; Flood forecasting; Impact of climate change on flood risk; Design flood estimation; Application of UAV and Geo-informatics
Dillip Kumar Swain	Ph.D.	Sustainable Production Agriculture; Climate Change Adaptation & Mitigation; Crop Modeling and Simulation; Organic Farming & Crop Quality
Hari Niwas Mishra	Ph.D.	RTE Health Foods & Nutraceuticals; Food Storage & Shelf Life Extension; Novel Food Product & Process Development; Food Fortification & Bioactives; Food Safety & Quality Control
Hifjur Raheman	Ph.D.	Renewable energy operated agri-machinery; Combination offset disc harrow; Rubber tracks for walking tractor; Use of robotic arm for transplanting
Kamlesh Narayan Tiwari	Ph.D.	Micro Irrigation; Protected Cultivation Technology; RS & GIS Applications in Water Resources; Hydrology of Horticultural Plantations; Solar PV Operated Irrigation Systems
Madan Kumar Jha	Ph.D.	Basin-wide Groundwater Modeling; Water Harvesting and Artificial Recharge; GW Management using RS, GIS and MCDA; Field Investigation & Seawater Intrusion; Goundwater-Surface Water Interaction
Narendra Singh Raghuwanshi	Ph.D.	
Nirupama Mallick	Ph.D.	Microalgal Biofuels; Biodegradable films from cyanobacteria; Bioactives from microalgae; Algal Refinery; Climate Change and Soil Health
P Srinivasa Rao	Ph.D.	Nonthermal method of food processing; Process Equipment Design and Development; Post Harvest Engineering; Innovation and Business Incubation
Rabindra Kumar Panda	Ph.D.	
Rajendra Singh	Ph.D.	
Rintu Banerjee	Ph.D.	
Snehasish Dutta Gupta	Ph.D.	
Sudhindra Nath Panda	Ph.D.	
Thomas E V	Ph.D.	Rice transplanter and sowing equipments; Tea processing; Harvesting of rice and wheat
Tridib Kumar Goswami	Ph.D.	
Virendra Kumar Tewari	Ph.D.	Farm Machinery Systems Design; Ergonomics & Industrial

		Safety; Precision Agriculture
Associate Professors		
Arunabha Mitra	Ph.D.	
Peeyush Soni	Ph.D.	Sustainable Agricultural Mechanization; Soil Tillage and Traction Research; Precision Agriculture; Management of Mechanized Agriculture; Automation in Protected Cultivation
Prem Prakash Srivastav	Ph.D.	Fuctional Food Development; Herbal Neutaceuticals Extraction; Design of food processing machineries
Proshanta Guha	Ph.D.	Agronomy; Post-harvest Technology
Shanker Lal Shrivastava	Ph.D.	Dairy & Food Process Engineering; Post Harvest Engineering; Low cost food processing equipment
Assistant Professors		
Amey Pathak	Ph.D.	Eco-Hydro-Climatology; Indian Monsoon Rainfall, Extreme Events; Precipitation Recycling; Ocean–Land–Atmosphere Interactions
Chanchal Kumar Mukherjee		
Damodhara Rao Mailapalli	Ph.D.	
Jayeeta Mitra	Ph.D., IIT Kharagpur	Food Packaging and Storage; Mathematical Modeling and Simulation; Equipment for Rural Food Processing; Microwave Extraction; pesticide residue determination in food
Joydeep Banerjee	Ph.D.	Plant Molecular Biology; Signal transduction and gene expression; Promoter Characterization; Abiotic Stress in Plants; Nutritional Quality
Kanishka Bhunia	Ph.D.	Functional Food Packaging; Food Safety and Risk Assessment; Nonthermal Surface Sanitization of Food; Food Stability and Shelf life; Process Modeling and Simulation
Poulomi Ganguli	Ph.D.	Hydroclimatology and Water Resources Eng; hydrological extremes; Statistical hydrology
Punyadarshini Punam Tripathy	Ph.D.	
Rajendra Machavaram	Ph.D.	Machine Design and Design Optimization; Structural Health Monitoring; Artificial Intelligence; Renewable energy operated agri-machinery; Numerical Optimization in Non-linear problems
Somsubhra Chakraborty	Ph.D., Louisiana State University, USA	Hyperspectral Proximal Soil Sensors; Portable XRF Applications in Soil; Digital Soil Mapping; Data Mining; Non-invasive Sensors

Name	**Highest Degree**	**Research Areas**
Promotion		
Ashok Mishra	Professor	Hydrological Modelling & Watershed Manag; Crop Yield Modelling; Climate Change & Adaptation Analysis
Dillip Kumar Swain	Professor	Sustainable Production Agriculture; Climate Change Adaptation & Mitigation; Crop Modeling and Simulation; Organic Farming & Crop Quality
P Srinivasa Rao	Assistant Professor	Nonthermal method of food processing; Process Equipment Design and Development; Post Harvest

		Engineering; Innovation and Business Incubation
Peeyush Soni	Assistant Professor	Sustainable Agricultural Mechanization; Soil Tillage and Traction Research; Precision Agriculture; Management of Mechanized Agriculture; Automation in Protected Cultivation

Brief Description of on-going activities

- Sensor-based technology interventions for precision farming
- Solar energy operated farm machinery and micro-irrigation systems
- Remote sensing and GIS applications for integrated watershed management, and soil and crop health monitoring.
- Simulation-optimization and climate modelling for holistic water management
- High pressure processing of high-value perishables and nutraceuticals
- Targeted metabolomics of floral scents for value-added products
- Microalgal biofuel production
- Waste utilization in Aquaculture
- Development of autonomous tractor
- Organic farming
- Solar energy utilization in food processing
- RTE-Health Food for malnourished children
- Vacuum frying of food

Research Areas

Abiotic Stress in Plants; Agronomy; Algal Refinery; Application of UAV and Geo-informatics; Artificial Intelligence; Automation in Protected Cultivation; Basin-wide Groundwater Modeling; Bioactives from microalgae; Biochemistry of floral scent volatiles; Biodegradable films from cyanobacteria; Bio-energy & Development of Relevant Materials; Climate Change & Adaptation Analysis; Climate Change Adaptation & Mitigation; Climate Change and Soil Health; Combination offset disc harrow; Computational Fluid Dynamics; Crop Modeling and Simulation; Crop Yield Modelling; Data Mining; Design flood estimation; Design of food processing machineries; Digital Soil Mapping; Eco-Hydro-Climatology; Ergonomics & Industrial Safety; Extractive metallurgy; Farm Machinery Systems Design; Field Investigation & Seawater Intrusion; Flood forecasting; Flood hazard and risk analysis; Food Fortification & Bioactives; Food Safety and Risk Assessment; Food Safety & Quality Control; Food Stability and Shelf life; Food Storage & Shelf Life Extension; Fuctional Food Development; Functional Food Packaging; Goundwater-Surface Water Interaction; GW Management using RS, GIS and MCDA; Harvesting of rice and wheat; Herbal Neutaceuticals Extraction; Histochemistry of plant metabolites; Hydroclimatology and Water Resources Eng; hydrological extremes; Hydrological Modelling & Watershed Manag; Hydrology of Horticultural Plantations; Hyperspectral Proximal Soil Sensors; Hyperspectral Sensing; Impact of climate change on flood risk; Indian Monsoon Rainfall, Extreme Events; Innovation and Business Incubation; Machine Design and Design Optimization; Management of Mechanized Agriculture; Microalgal Biofuels; Micro Irrigation; Natural products from root cultures; Non-invasive Sensors; Nonthermal method of food processing; Nonthermal Surface Sanitization of Food; Novel Food Product & Process Development; Numerical Optimization in Non-linear problems; Nutritional Quality; Ocean–Land–Atmosphere Interactions; Organic Farming & Crop Quality; Physiology of plant volatilome; Plant Molecular Biology; Portable XRF Applications in Soil; Post Harvest Engineering; Post-harvest Technology; Precipitation Recycling; Precision Agriculture; Process Equipment Design and Development; Process Modeling and Simulation; Process Simulation, Optimization & Control; Promoter Characterization; Protected Cultivation Technology; Renewable energy operated agri-machinery; Rice transplanter and sowing equipments; RS & GIS Applications in Water Resources; RTE Health Foods & Nutraceuticals; Rubber tracks for walking tractor; Secondary metabolism - molecular biology; Signal transduction and gene expression; Soil Physics; Soil Tillage and Traction Research; Solar PV Operated Irrigation Systems; Solute Transport; Statistical hydrology; Structural Health Monitoring; Sustainable Agricultural Mechanization; Sustainable Production Agriculture; Tea processing; Thermoelectric materials; Unsaturated flow and transport; Use of robotic arm for transplanting; Water Harvesting and Artificial Recharge;

Academic Performance

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Member - Editorial Board	09
Awards & Honours	09
Fellowships	03
Sponsored Research Projects	59
Consultancy Projects	08
Technology Transferred	01
Visits Abroad by Faculty Members	10
Invited Lectures by Faculty Members	32
Seminars, Conferences and Workshops Organized	03
Short-Term Courses, Training Programmes and Workshops organised	16
Papers Published in Journals	144
Papers Presented in Conferences	57

Architecture and Regional Planning

Head of the Department : Joy Sen

Professors

Name	Highest Degree	Research Areas
Jaydip Barman	Ph.D.	Urban design; Landscape and landscape planning; Creative Eco-tourism & Heritage based Tourism; Community & Behavioral Studies in Planning
Joy Sen	Ph.D.	Community and Regional planning; Cultural Heritage documentation; Regional analysis and programming
Sanghamitra Basu	Ph.D.	
Subrata Chattopadhyay	Ph.D.	Smartness of Traditional Indian cities; Mixed use development model; Heat Stress on MSME workers; Pri Urban Dymanics; Impact of settlement on flash flood
Uttam Kumar Banerjee	Ph.D.	

Associate Professors

Abraham George	Ph.D.	
Debapratim Pandit	Ph.D.	Transportation Planning & Routing Services; Public Transportation,Traffic Management & Safety; Community & Behavioral Studies in Planning; Urban Planning: Utilities, Services; IT based Infrastructure, Information System
Haimanti Banerji	Ph.D.	Sustainable Community Planning; Residential Satisfaction in Post Disaster Housing; Urban design; Human Factors Engineering
Saikat Kumar Paul	Ph.D., IIT Kharagpur	
Somnath Sen	Ph.D., IIT Kharagpur	
Tarak Nath Mazumder	Ph.D.	Disaster management

Assistant Professors

Arjun Mukerji	Ph.D.	History and Theory of Architecture; Urban Culture, Conservation & Heritage Planning; Urban design; Landscape and landscape planning
Arup Das	Ph.D.	Disaster Management & Environmental Resilience; Disaster Risk Mapping of Urban Areas; Urban Planning: Utilities, Services
Shankha Pratim Bhattacharya	Ph.D.	
Sumana Gupta	Ph.D.	Service quality assessment; Human Crowd study; Housing and Community planning; Facility Planning for Religious events
Sutapa Das	Ph.D.	Energy Studies of Buildings; Critical Infrastructure Protection in Disaster; Healthy workplace; Intelligent buildings; Building information modeling
Tapan Kumar Majumdar	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Arjun Mukerji	Assistant Professor	History and Theory of Architecture; Urban Culture, Conservation & Heritage Planning; Urban design; Landscape and landscape planning

Visiting Faculty

Amita Sinha	Assistant Professor	

Promotion

Arjun Mukerji	Assistant Professor	History and Theory of Architecture; Urban Culture, Conservation & Heritage Planning; Urban design; Landscape and landscape planning

Retirement

Tapan Kumar Majumdar	Assistant Professor

Re Appointment

Sanghamitra Basu	Professor

Brief Description of on-going activities

The Department of Architecture and Regional Planning IIT Kharagpur has made a very significant headway in front-line research collaboration with the Massachusetts Institute of Technology, USA; IvyLeage Graduate school of Architecture, Planning and Preservation (GSAPP), Columbia University, NYC, USA; The School of Urban and Regional Planning, GeorgiaTECh Atlanta, USA; Tokyo Metropolitan University, Japan and others and been accordingly earmarked as NIRF ranking #1 for two consecutive years: 2017-18 and 2018-19 as the top architectural school in the country.

Additionally, there are some major events like;

a)Workshops on Urban Informatics and AI driven analytics by TCS; on BIM by V Construct, a Pune based organisation; on Stainless Steel BY Jindal Group; on sustainable architecture by Rabie Omar are few mentionable.

b) Invited lectures by Prof. Amit Srivastava, The University of Adelaide, Australia ; Dr. Monobina Mukherjee and Mr. Ambarish Mukherjee from USA on Transportation modelling; Prof. Arun Menon of IIT Chennai Prof. Ravindra Vasavada of CEPT Ahmedabad and Ar. Vikas Dilwari in area of conservation; are a few mentionable.

c) Visit of Prof. Amita Srivastava as Full Bright Fellow from University of Illinois at Urbana Champaign USA.

The students have received major grants for conferences in Japan, USA; and Australia.

Research Areas

Building information modeling; Community and Regional planning; Community & Behavioral Studies in Planning; Critical Infrastructure Protection in Disaster; Cultural Heritage documentation; Disaster management; Disaster Management & Environmental Resilience; Disaster Risk Mapping of Urban Areas; Energy Studies of Buildings; Healthy workplace; Heat Stress on MSME workers; History and Theory of Architecture; Human Factors Engineering; Impact of settlement on flash flood; Intelligent buildings; IT based Infrastructure, Information System; Landscape and landscape planning; Mixed use development model; Pri Urban Dymanics; Public Transportation,Traffic Management & Safety; Regional analysis and programming; Residential Satisfaction in Post Disaster Housing; Smartness of Traditional Indian cities; Sustainable Community Planning; Transportation Planning & Routing Services; Urban Culture, Conservation & Heritage Planning; Urban design; Urban Planning: Utilities, Services;

Academic Performance

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Short-Term Courses, Training Programmes and Workshops Organised	02
Papers Published in Journals	05
Papers Presented in Conferences	16

Biotechnology

Head of the Department : Ramkrishna Sen

Professors

Name	Highest Degree	Research Areas
Amit Kumar Das	Ph.D.	
Ananta Kumar Ghosh	Ph.D.	Recombinant DNA Technology; Immunotechnology; Antimicrobial peptides; Virology
Anindya Sundar Ghosh	Ph.D.	Bacterial biofilm formation; Antibiotic Resistance mechanisms; Penicillin-interactive enzymes; Multi-drug resistance efflux pumps; Bacterial cell shape
Debabrata Das	Ph.D.	
Mrinal Kumar Maiti	Ph.D.	Plant Molecular Biology; Functional Genomics of Rice Crop; Biotechnology of Plants, Fungi and Algae; Lipid Metabolic Engineering; Bioprospecting of Endophytic Microbes
Pinaki Sar	Ph.D.	Microbial genomics and metagenomics; Microbiology of deep biosphere; Geomicrobiology; Bioremediation and Biodegradation
Ramkrishna Sen	Ph.D.	Green Process & Product Development; Microalgal & Microbial Biorefinery; Biofuels Bio-CCR & Waste Valorization; Antimicrobial & Anticancer Lipopeptides; Marine & Environmental Biotechnology
Satyahari Dey	Ph.D.	
Sudip Kumar Ghosh	Ph.D.	Plant Molecular Biology; nanobiotechnology; Molecular Cell biology of Parasite
Tapas Kumar Maiti	Ph.D.	

Associate Professors

Ranjit Prasad Bahadur	Ph.D.	Bioinformatics and Computational Biology

Assistant Professors

Agneyo Ganguly	Ph.D.	Mechanistic studies of RecQ helicases; Protein protein interactions
Riddhiman Dhar	Ph.D., University of Zurich, Switzerland	Drug resistance evolution; Non-genetic variation; Gene-environment interaction
Somdeb Bose Dasgupta	Ph.D	

Visiting Faculty

Name	Designation	Research Areas
Tapas Kumar Maiti	Professor	
Debabrata Das	Professor	Biohydrogen Production; Biohythane Process Development; Microbial Fuel Cell; CO2 sequestration by microalgae; Photo-bioreactor and biodiesel production

Brief Description of on-going activities

Antimicrobial chemotherapy, bacterial morphology and biofilm formation; Bioremediation of heavy metals, radionuclides and organic pollutants; Molecular analysis of microbial community structure and function at contaminated sites; Molecular cloning, expression and characterization of E. invadens encystation specific proteins; Recombinant protein expression in plant, animal and microbial systems; Structural and functional studies of protein from M. tuberculosis and S. aureus aiming at drug and inhibitor design; Improvement of hydrogen production from industrial waste using hybrid bioreactor. Continuous hydrogen production by immobilized recombinant E. coli BL-21; Molecular analysis of cypovirus infecting tasar silkworm;

Phytomedicine and molecular farming; Development of low fat content transgenic oilseed plant; Biomicrofluidics and Biochip development; Identification and characterization of immunomodulator from natural sources; Microbial fuel cell; Characterization of Antarctic microbiota; Probiotic based nutraceutical product development; Cellular microbiology and immnuobiology; Systems biology of genetic and nongenetic variations; Host-pathogen interactions; Green Process & Product Development in Microalgal-Microbial Biorefinery Models for anticancer lipopeptides, biosurfactants, biopolymers, biooil & biofuels with carbon capture and waste valorization

Research Areas

Antibiotic Resistance mechanisms; Antimicrobial & Anticancer Lipopeptides; Antimicrobial peptides; Bacterial biofilm formation; Bacterial cell shape; Biofuels Bio-CCR & Waste Valorization; Biohydrogen Production; Biohythane Process Development; Bioinformatics and Computational Biology; Bioprospecting of Endophytic Microbes; Bioremediation and Biodegradation; Biotechnology of Plants, Fungi and Algae; CO2 sequestration by microalgae; Drug resistance evolution; Functional Genomics of Rice Crop; Gene-environment interaction; Geomicrobiology; Green Process & Product Development; Immunotechnology; Lipid Metabolic Engineering; Marine & Environmental Biotechnology; Mechanistic studies of RecQ helicases; Microalgal & Microbial Biorefinery; Microbial Fuel Cell; Microbial genomics and metagenomics; Microbiology of deep biosphere; Molecular Cell biology of Parasite; Multi-drug resistance efflux pumps; nanobiotechnology; Non-genetic variation; Penicillin-interactive enzymes; Photo- bioreactor and biodiesel productio; Plant Molecular Biology; Protein protein interactions; Recombinant DNA Technology; Virology;

Academic Performance

New Acquisitions	01
Collaboration	23
Lectures by Visiting Experts	05
Doctoral Degrees Awarded	11
Member - Professional Bodies	12
Member - Editorial Board	06
Awards & Honours	01
Sponsored Research Projects	59
Consultancy Projects	02
Visits Abroad by Faculty Members	10
Invited Lectures by Faculty Members	22
Seminars, Conferences and Workshops Organized	05
Papers Published in Journals	48
Papers Presented in Conferences	32

Chemical Engineering

Head of the Department : Gargi Das

Professors

Name	Highest Degree	Research Areas
Amar Nath Samanta	Ph.D., IIT Kharagpur	Carbon capture and storage; Robust, Nonlinear and Adaptive control; Waste Water Treatment
Bhim Charan Meikap	Ph.D.	Pollution MOnitoring and Control; Pollution Control Technologies; Coal science and technology; Fluidization; Renewable Energy Sources
Gargi Das	Ph.D.	Multiphase flow and complex fluids; Process Intensification; Mutiphase Flow in reduced dimensions; Sensor Development for Multiphase system; Computational Fluid Dynamics (CFD)
Gautam Kundu	Ph.D.	
Jayanta Kumar Basu	Ph.D.	Adsorption and Separation Science; Waste Water Treatment; Advance Oxidation Processes; Reaction Engineering
Narayan Chandra Pradhan	Ph.D.	
Rabibrata Mukherjee	Ph.D.	
Sirshendu De	Ph.D.	Membrane separation; Water and waste water treatment; Microfluidics; Transport Phenomena
Sudarsan Neogi	Ph.D.	
Sudipto Chakraborty	Ph.D.	Ultrafast Cooling (Spray, Jet, Coolants); Process modelling and simulation; CFD and Heat transfer, Carbon based nano-materials
Sunando Dasgupta	Ph.D.	Microfluidics; Microscale Transport Processes; Interfacial Phenomena
Swati Neogi	Ph.D.	

Associate Professors

Amiya Kumar Jana	Ph.D.	
Arnab Atta	Ph.D.	Computational Fluid Dynamics; Single and Multiphase Fluid Dynamics; Microfluidics; Computational nanostructures
Debasis Sarkar	Ph.D.	Computational System Biology; Crystallization Engineering; Multi-objective Optimization
Jayanta Chakraborty	Ph.D.	
Parag Arvind Deshpande	Ph.D.	Computational chemistry; Computational material science; Molecular simulation
Saikat Chakraborty	Ph.D.	Bio-energy & Development of Relevant Materials; Microalgal Biofuels; Lignocellulosic Biofuels; Chemical Reactor Modeling; Catalysis and reaction engineering
Somenath Ganguly	Ph.D.	Porous Media; Structured Fluid
Sonali Sengupta	Ph.D.	Petroleum engineering; Catalysis and reaction engineering

Assistant Professors

Harikrishnan G	Ph.D.
Koustuv Ray	Ph.D.

Manish Kaushal	Ph.D.	Electrorheology; Soft-Glassy-Rheology; Drainge of vertical liquid thin films; Microfluidics; Rheology of molecularly thin liquid-film
Monojit Chakraborty	Ph.D.	Microfluidics and microscale transport; Interfacial Phenomena; Liquid Thin Films; Microscale Heat Transfer; Biomimetics
Sourav Mondal	Ph.D.	Transport in porous medium; Science of the Liquid crystal; Hydrodynamics of low Reynolds number; Chemically Reacting flows; Heat and Mass Transfer
Subhabrata Ray	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Koustuv Ray	Assistant Professor	
Monojit Chakraborty	Assistant Professor	Microfluidics and microscale transport; Interfacial Phenomena; Liquid Thin Films; Microscale Heat Transfer; Biomimetics
Sourav Mondal	Assistant Professor	Transport in porous medium; Science of the Liquid crystal; Hydrodynamics of low Reynolds number; Chemically Reacting flows; Heat and Mass Transfer

Promotion

Manish Kaushal	Assistant Professor	Electrorheology; Soft-Glassy-Rheology; Drainge of vertical liquid thin films; Microfluidics; Rheology of molecularly thin liquid-film

Re Appointment

Gautam Kundu	Ph.D.

Brief Description of on-going activities

Teaching and Research at Undergraduate, M.Tech/M.S., Ph.D., and Post-Doctoral Level

Research Areas

Adsorption and Separation Science; Advance Oxidation Processes; Bio-energy & Development of Relevant Materials; Biomimetics; Carbon based nano-materials; Carbon capture and storage; Catalysis and reaction engineering; CFD and Heat transfer; Chemically Reacting flows; Chemical Reactor Modeling; Coal science and technology; Computational chemistry; Computational Fluid Dynamics; Computational Fluid Dynamics (CFD); Computational material science; Computational nanostructures; Computational System Biology; Crystallization Engineering; Drainge of vertical liquid thin films; Electrorheology; Fluidization; Heat and Mass Transfer; Hydrodynamics of low Reynolds number; Interfacial Phenomena; Lignocellulosic Biofuels; Liquid Thin Films; Membrane separation; Microalgal Biofuels; Microfluidics; Microfluidics and microscale transport; Microscale Heat Transfer; Microscale Transport Processes; Molecular simulation; Multi-objective Optimization; Multiphase flow and complex fluids; Mutiphase Flow in reduced dimensions; Petroleum engineering; Pollution Control Technologies; Pollution MOnitoring and Control; Porous Media; Process Intensification; Process modelling and simulation; Reaction Engineering; Renewable Energy Sources; Rheology of molecularly thin liquid-film; Robust, Nonlinear and Adaptive control; Science of the Liquid crystal; Sensor Development for Multiphase system; Single and Multiphase Fluid Dynamics; Soft-Glassy-Rheology; Structured Fluid; Transport in porous medium; Transport Phenomena; Ultrafast Cooling (Spray, Jet, Coolants); Waste Water Treatment; Water and wastewater treatment;

Academic Performance

New Acquisitions	05
Collaboration	23
Lectures by Visiting Experts	06
Doctoral Degrees Awarded	16
MS Degrees Awarded	01
Fellow - Professional Bodies	01
Member - Professional Bodies	04
Member - Editorial Board	02
Awards & Honours	02
Sponsored Research Projects	56
Consultancy Projects	29
Visits Abroad by Faculty Members	11
Invited Lectures by Faculty Members	28
Seminars, Conferences and Workshops Organized	02
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	76
Papers Presented in Conferences	18

Chemistry

Head of the Department *:* Manish Bhattacharjee

Professors

Name	Highest Degree	Research Areas
C Retna Raj	Ph.D.	Functional materials; Electrocatalysis; Biosensors; Energy conversion and storage; Energy materials
Debashis Ray	Ph.D.	
Joykrishna Dey	Ph.D.	Organized assemblies; Macromolecules; Drug Delivery Systems; Molecular Gels; Biomacromolecule-Ligand Interactions
Kumar Biradha	Ph.D.	Structural Chemistry; Polymer synthesis; Functional materials; Organized assemblies; Energy materials
Manish Bhattacharjee	Ph.D.	
Narayan Dhuleep Pradeep Singh	Ph.D.	Design and Development of FPRPG.; Development of One and Two-Photon PRPG.; Organic Nanocarrier for Image Guided DDS; PRPG for release of Gasotransmitters.; Photocatalysis for Organic Synthesis
Nilmoni Sarkar	Ph.D.	FCS, FLIM, FRET, Ultrafast Spectrosocpy; Graphene oxide -Protein interaction
Pratim Kumar Chattaraj	Ph.D.	
Samik Nanda	Ph.D.	Asymmetric Synthesis; Total Synthesis of Natural Products; Biocatalysis in Organic synthesis;
Sanjoy Bandyopadhyay	Ph.D.	
Srabani Taraphder	Ph.D.	
Suneel Kumar Srivastava	Ph.D.	
Swagata Dasgupta	Ph.D.	Protein-protein/nucleic acid interaction; Protein protein interactions; Protein aggregation Studies; Protein Chemistry
Tanmaya Pathak	Ph.D.	
Assistant Professors		
Ahindra Nag	Ph.D.	
Amita (Pathak) Mahanty	Ph.D.	
Anoop Ayyappan	Ph.D.	Computational chemistry; Software Development; Modelling Reaction Mechanism; Chemical Evolution; Nanocluster modelling
Dibakar Dhara	Ph.D.	Physical Chemistry of Macromolecules; Synthetic Polymer Chemistry; Polymers for Biomedical Applications; Stimuli Responsive Polymers; Colloids and Nanomaterials
Ganesan Mani	Ph.D.	Organometallic, Main Group and Catalysis
Mintu Halder	Ph.D.	Experimental Physical Chemistry; Biophysics; Spectroscopy; Single Molecule Spectroscopy; Spectroscopy of Materials
Rajakumar Ananthakrishnan	Ph.D.	Photocatalytic Organic Transformations; Analytical Methods for pollutant/radical; Nano Coordination Polymer photocatalysts; Materials for Photocatalysis/Gas Sensing
Sabyashachi Mishra	Ph.D.	Enzyme Catalysis with Hybrid QM/MM; Molecular Spectrocopy; Molecular Magnetism
Sanjib Kumar Patra	Ph.D.	Synthetic inorganic chemistry; Macromolecules; Photovoiltices; Polymer synthesis; Organometallic chemistry

Assistant Professors

Debabrata Mukherjee	Ph.D.	Synthetic inorganic chemistry; Organometallic, Main Group and Catalysis
Ganesh Venkataraman	Ph.D.	Synthetic Organic Chemistry; Asymmetric Synthesis; Transition Metal Catalysis; Total Synthesis of Natural Products; Photoredox Catalysis
Madhab Chandra Das	Ph.D. (IIT Bombay)	Porous Metal Organic Frameworks (MOFs); Porous Covalent Organic Framework (COFs); Crystal Engineering; Proton Conducting Materials; Functional Porous Materials
Modhu Sudan Maji	Ph.D.	
Partha Pratim Jana	Ph.D.	Structural Chemistry; Energy materials; Computational chemistry
Pradip Kumar Chakraborty	Ph.D.	Structural Chemistry; Electronic & magnetic materials; Functional materials; Nano materials
Rajarshi Samanta	Ph.D.	Synthetic Organic Chemistry; Transition Metal Catalysis; Asymmetric Synthesis
Santanu Panda	Ph.D.	
Sukanta Mandal	Ph.D. (IIT Kanpur)	Synthetic inorganic chemistry
Suman Kalyan Samanta	Ph.D.	Functional materials; Organized assemblies; Macromolecules; Conductive polymers; Energy materials

New Faculty Appointment

Name	Designation	Research Areas
Ganesh Venkataraman	Ph.D.	Synthetic Organic Chemistry; Asymmetric Synthesis; Transition Metal Catalysis; Total Synthesis of Natural Products; Photoredox Catalysis
Pradip Kumar Chakraborty	Ph.D.	Structural Chemistry; Electronic & magnetic materials; Functional materials; Nano materials
Rajarshi Samanta	Ph.D.	Synthetic Organic Chemistry; Transition Metal Catalysis; Asymmetric Synthesis
Santanu Panda	Ph.D.	
Suman Kalyan Samanta	Ph.D.	Functional materials; Organized assemblies; Macromolecules; Conductive polymers; Energy materials

Brief Description of on-going activities

The faculty members of the department are involved in all the frontier areas of research. Large number of publications in high impact factor journals shows the quality of ongoing research carried out in the department. A large number of research projects are operational in the department.

Research Areas

Analytical Methods for pollutant/radical; Asymmetric Synthesis; Biocatalysis in Organic synthesis; Biomacromolecule-Ligand Interactions; Biophysics; Biosensors; Chemical Evolution; Colloids and Nanomaterials; Computational chemistry; Conductive polymers; Crystal Engineering; Design and Development of FPRPG.; Development of One and Two-Photon PRPG.; Drug Delivery Systems; Electrocatalysis; Electronic & magnetic materials; Energy conversion and storage; Energy materials; Enzyme Catalysis with Hybrid QM/MM; Experimental Physical Chemistry; FCS, FLIM, FRET, Ultrafast Spectrosocpy; Functional materials; Functional Porous Materials; Graphene oxide -Protein interaction; Macromolecules; Materials for Photocatalysis/Gas Sensing; Modelling Reaction Mechanism; Molecular Gels; Molecular Magnetism; Molecular Spectrocopy; Nanocluster modelling; Nano Coordination Polymer photocatalysts; Nano materials; Organic Nanocarrier for Image Guided DDS; Organized assemblies; Organometallic chemistry; Organometallic, Main Group and Catalysis; Photocatalysis for Organic Synthesis.; Photocatalytic Organic Transformations; Photoredox Catalysis; Physical Chemistry of Macromolecules; Polymers for Biomedical Applications; Polymer synthesis; Porous Covalent Organic Framework (COFs); Porous Metal

Organic Frameworks (MOFs); Protein aggregation Studies; Protein Chemistry; Protein protein interactions; Protein - small molecule interactions; Proton Conducting Materials; PRPG for release of Gasotransmitters.; Single Molecule Spectroscopy; Software Development; Spectroscopy; Spectroscopy of Materials; Stimuli Responsive Polymers; Structural Chemistry; Synthetic inorganic chemistry; Synthetic Organic Chemistry; Synthetic Polymer Chemistry; Total Synthesis of Natural Products; Transition Metal Catalysis;

Academic Performance

New Acquisitions	01
Collaboration	23
Doctoral Degrees Awarded	27
Fellow - Professional Bodies	05
Member - Professional Bodies	14
Member - Editorial Board	09
Awards & Honours	10
Fellowships	08
Sponsored Research Projects	51
Consultancy Projects	01
Visits Abroad by Faculty Members	07
Invited Lectures by Faculty Members	51
Seminars, Conferences and Workshops Organized	07
Papers Published in Journals	153
Papers Presented in Conferences	09

Civil Engineering

Head of the Department : Nirjhar Dhang

Professors

Name	Highest Degree	Research Areas
Aniruddha Sengupta	Ph.D.	Soil Dynamics, Geotechnical Earthquake Engineering; Unsaturated Soilmechanics; Soil-Structure Interaction
Anjali Pal	Ph.D.	
Arghya Deb	Ph.D.	Discrete Elements; Size effect in concrete; Micromechanics of Concrete
Ashok Kumar Gupta	Ph.D.	Water and wastewater treatment; Industrial Effluent Treatment and Reuse; Environmental Impact Assessment; Air Quality Management; Environmental Monitoring and Planning
Baidurya Bhattacharya	Ph.D.	Structural Safety; Computational material science; Probabilistic Safety Assessment; Molecular simulation; Reliability Engineering
Bhargab Maitra	Ph.D.	
Damodar Maity	Ph.D.	Structural Health Monitoring; Vibration Control of Highrise Structures; Cost Effective Housing; Seismic Safety of Dams
Debasis Roy	Ph.D.	Soil Dynamics, Geotechnical Earthquake Engineering; Ground Improvement & Soil/Rock Stabilization; Sustainable ground engineering; Numerical Modelling of Geotechnical Systems
Dhrubajyoti Sen	Ph.D.	River hydraulics and engineering; Urban flood monitoring and management; Hydraulic structures: design /operation
Dilip Kumar Baidya	Ph.D.	Soil Dynamics, Geotechnical Earthquake Engineering; Machine Foundations; Pile Foundations; Reliability in Geotechnical Engineering; Ground Improvement & Soil/Rock Stabilization
Kusam Sudhakar Reddy	Ph.D.	Pavement Materials; Pavement Analysis; Pavement Evaluation
Lingadahally S Ramachandra	Ph.D.	Stability of Structures; Brittle Material Failure under Impact; Nonlinear Dynamics
Makarand Madhao Ghangrekar	Ph.D.	Water & Wastewater Treatment / Recycling; Anaerobic Wastewater treatment; Bioelectrochemical processes, MFC, MDC,; Waste to Energy
M Amarnatha Reddy	Ph.D.	
Nirjhar Dhang	Ph.D.	Structural Health Monitoring and Control; Micromechanics of Concrete; Dynamics of bridges; Biomechanics
Sriman Kumar Bhattacharyya	Ph.D. (IIT Kharagpur)	
Subhasish Dey	Ph.D.	Turbulence and Fluvial Hydraulics; Analytical & Computational Hydrodynamics
Sudhir Kumar Barai	Ph.D.	Structural Health Monitoring; Sustainable Structures; Big Data Analytics; Machine Learning
Sujit Kumar Dash	Ph.D.	
Venkappayya R Desai	Ph.D.	

Associate Professors

Amit Shaw		
Anirban Dhar	Ph.D.	Groundwater Hydrology; Analytical & Computational Hydrodynamics; Computational Fluid Dynamics; Flow Through Porous Media
Biswanath Banerjee	Ph.D.	
Brajesh Kumar Dubey	Ph.D., University of Florida	Environmental Engineering; Integrated Waste Management; Life Cycle Analysis & Sustainable Engg; Environmental Risk Assessment; MSW Management for Smart Cities
Kousik Deb	Ph.D.	Soil-Structure Interaction; Ground Improvement & Soil/Rock Stabilization; Numerical Modeling; Foundation on Soft Soil; Soil Dynamics, Geotechnical Earthquake Engineering
Nilanjan Mitra	Ph.D.	
Prashanth Reddy Hanmaiahgari	Ph.D.	Turbulence and Fluvial Hydraulics; Mechanics of Sediment Transport; Unsteady Flows in Pipelines; Open Channel Flow Hydraulics
Rajib Maity	Ph.D.	Hydroclimatology and Water Resources Eng; Remote Sensing Applications; Climate Change Impacts on Water Resource; Time Series Analysis and Forecasting; ML and AI in Hydrology
Shubha Verma	Ph.D.	
Sudeshna Mitra	Ph.D.	
Sudha Goel	Ph.D.	Environmental Engineering; Water Quality and treatment; Solid and Hazardous Waste Management; Environmental Risk Assessment; Environmental Impact Assessment
Sushanta Chakraborty	Ph.D.	Development of Nobel Numerical Analysis Tools

Assistant Professors

Debarghya Chakraborty	Ph.D., IISc Bangalore	Numerical Modelling of Geotechnical Systems; Soil Dynamics, Geotechnical Earthquake Engineering; Ground Improvement & Soil/Rock Stabilization; Reliability in Geotechnical Engineering
Kranthi Kumar Kuna	Ph.D.	
Mohammad Saud Afzal	Ph.D.	
Paramita Bhattacharya	Ph.D., IISc Bangalore	Numerical Modelling of Geotechnical Systems; Soil Dynamics, Geotechnical Earthquake Engineering; Ground Improvement & Soil/Rock Stabilization
Puneet Kumar Patra	Ph.D.	Nonlinear Dynamics; Computational material science; Computational nanostructures; Molecular simulation
Shaikh Jahangir Hossain	Ph.D.	

Promotion

Biswanath Banerjee	Associate Professor	
Prashanth Reddy Hanmaiahgari	Ph.D.	Turbulence and Fluvial Hydraulics; Mechanics of Sediment Transport; Unsteady Flows in Pipelines; Open Channel Flow Hydraulics

Research Areas

Air Quality Management; Anaerobic Wastewater treatment; Analytical & Computational Hydrodynamics; Big Data Analytics; Bioelectrochemical processes, MFC, MDC,; Biomechanics; Brittle Material Failure under Impact; Climate Change Impacts on Water Resource; Computational Fluid Dynamics; Computational material science; Computational nanostructures; Cost Effective Housing; Development of Nobel Numerical Analysis Tools; Discrete Elements; Dynamics of bridges; Environmental Engineering; Environmental Impact Assessment; Environmental Monitoring and Planning; Environmental Risk Assessment; Flow Through Porous Media; Foundation on Soft Soil; Ground Improvement & Soil/Rock Stabilization; Groundwater Hydrology; Hydraulic structures: design /operation; Hydroclimatology and Water Resources Eng; Industrial Effluent Treatment and Reuse; Integrated Waste Management; Life Cycle Analysis & Sustainable Engg; Machine Foundations; Machine Learning; Mechanics of Sediment Transport; Micromechanics of Concrete; ML and AI in Hydrology; Molecular simulation; MSW Management for Smart Cities; Nonlinear Dynamics; Numerical Modeling; Numerical Modelling of Geotechnical Systems; Open Channel Flow Hydraulics; Pavement Analysis; Pavement Evaluation; Pavement Materials; Pile Foundations; Reliability in Geotechnical Engineering; Remote Sensing Applications; River hydraulics and engineering; Seismic Safety of Dams; Size effect in concrete; Soil Dynamics, Geotechnical Earthquake Engineering; Soil-Structure Interaction; Solid and Hazardous Waste Management; Stability of Structures; Structural Health Monitoring; Structural Health Monitoring and Control; Sustainable ground engineering; Sustainable Structures; Time Series Analysis and Forecasting; Turbulence and Fluvial Hydraulics; Unsaturated Soilmechanics; Unsteady Flows in Pipelines; Urban flood monitoring and management; Vibration Control of Highrise Structures; Waste to Energy; Water and wastewater treatment; Water Quality and treatment; Water & Wastewater Treatment / Recycling;

Academic Performance

Visits Abroad by Faculty Members	14
Invited Lectures by Faculty Members	21
Seminars, Conferences and Workshops Organized	04
Short-Term Courses, Training Programmes and Workshops organised	05
Papers Published in Journals	116
Papers Presented in Conferences	74

Computer Science and Engineering

Head of the Department : Sudeshna Sarkar

Professors

Name	Highest Degree	Research Areas
Abhijit Das	Ph.D. IISc Bangalore	
Anupam Basu	Ph.D.	
Arobinda Gupta	Ph.D.	Systems and Networking
Chittaranjan Mandal	Ph.D.	
Debdeep Mukhopadhyay	Ph.D.	
Dipanwita Roy Chowdhury	Ph.D.	
Indranil Sengupta	Ph.D.	CAD for VLSI & Embedded Systems; Information Security; Nanoelectronics and Devices
Jayanta Mukhopadhyay	Ph.D.	Image and Video Processing; Bioinformatics; Medical Informatics; Biomedical instrumentation; Robotics
Krothapalli Sreenivasa Rao	Ph.D.	Signal Processing; Speech Processing; Audio, Music and Multimedia; Machine Learning and Pattern Recognition; Big Data Analytics
Niloy Ganguly	Ph.D.	
Pabitra Mitra	Ph.D.	
Pallab Dasgupta	Ph.D.	Formal Methods; CAD for VLSI & Embedded Systems; Artificial Intelligence;
Partha Bhowmick	Ph.D.	Algorithms; Theoretical Computer Science; Computer Graphics; Image and Video Processing; Computer Vision
Partha Pratim Chakrabarti	Ph.D.	
Partha Pratim Das	Ph.D.	Computer Vision; Machine Learning; Software Engg; Digital Heritage; Technology Enabled Learning
Rajeev Kumar	Ph.D.	
Rajib Mall	Ph.D.	Program analysis; Program testing
Shamik Sural	Ph.D.	Data Science; Data and Application Security
Soumya Kanti Ghosh	Ph.D.	Spatial Informatics; Machine Learning; Spatial Web services; Spatio-Temporal Data Analysis; Cloud Computing
Sudebkumar Prasant Pal	Ph.D.	Design and analysis of algorithms; Computational geometry; Combinatorics and Graph Theory
Sudeshna Sarkar	Ph.D.	Artificial Intelligence; Information Retrieval; Machine Learning; Natural Language Pocessing
Sudip Misra	Ph.D.	
Sujoy Ghose	Ph.D.	
Associate Professors	Ph.D.	
Animesh Mukherjee	Ph.D.	Artificial Intelligence; Big Data Analytics; Natural Language Pocessing; Information Retrieval; Machine Learning
Debasis Samanta	Ph.D.	
Rajat Subhra Chakraborty	Ph.D.	Hardware Security; VLSI and Embedded Systems; Digital Content Protection; Digital Image Forensics

Assistant Professors

Abir Das	Ph.D.	Computer Vision; Artificial Intelligence; Machine Learning; Image and Video Processing; Pattern Recognition
Aritra Hazra	Ph.D.	Formal Methods; CAD for VLSI & Embedded Systems; VLSI and Embedded Systems; Embedded Systems; Design Verification
Bivas Mitra	Ph.D.	Network science, Multilayer networks; Social networks, Data science; Anomaly detection; Mobile affective computing; Socio-mobile applications, Social-IoT
Palash Dey	Ph.D.	Algorithms; Theoretical Computer Science
Pawan Goyal	Ph.D.	Natural Language Pocessing; Information Retrieval; Data and Web Mining; Complex and Social Networks
Pralay Mitra	Ph.D. (IISc, Bangalore)	Computational Biology; Bioinformatics; Molecular simulation; Computational Data Science
Rogers Mathew	Ph.D.	
Sandip Chakraborty	Ph.D. (IIT Guwahati)	Computer Networks; Assistive Systems; Systems and Networking
Saptarshi Ghosh	Ph.D.	Information Retrieval; Data Mining; Natural Language Pocessing; Machine Learning; Complex and Social Networks
Somindu Chaya Ramanna	Ph.D.	Cryptography; Theoretical Computer Science; Algorithms
Soumyajit Dey	Ph.D.	Formal Methods; CAD for VLSI & Embedded Systems; Embedded Systems
Sourangshu Bhattacharya	Ph.D.	Artificial Intelligence; Machine Learning; Information Retrieval; Big Data Analytics; Spatial Informatics
Swagato Sanyal	Ph.D.	Algorithms; Theoretical Computer Science

New Faculty Appointment

Bhargab Bikram Bhattacharya	Professor	
Palash Dey	Assistant Professor	Algorithms; Theoretical Computer Science
Saurabh Bagchi	Assistant Professor	
Swagato Sanyal	Assistant Professor	Algorithms; Theoretical Computer Science

Visiting Faculty

Bhargab Bikram Bhattacharya	Professor	

Promotion

Somindu Chaya Ramanna	Assistant Professor	Somindu Chaya Ramanna

Retirement

Dipankar Dasgupta	Professor	

Research Areas

Algorithms; Anomaly detection; Artificial Intelligence; Assistive Systems; Audio, Music and Multimedia; Big Data Analytics; Bioinformatics; Biomedical instrumentation; CAD for VLSI & Embedded Systems; Cloud Computing; Combinatorics and Graph Theory; Complex and Social Networks; Computational Biology; Computational Data Science; Computational geometry; Computer Graphics; Computer Networks; Computer Vision; Cryptography; Data and Application Security; Data and Web Mining; Data Mining; Data Science; Design and analysis of algorithms; Design Verification; Digital Content Protection; Digital Heritage; Digital Image Forensics; Embedded Systems; Formal Methods; Hardware Security; Image and Video Processing; Information Retrieval; Information Security; Machine Learning; Machine Learning and Pattern Recognition; Medical Informatics; Mobile affective computing; Molecular simulation; Nanoelectronics and Devices; Natural Language Pocessing; Network science, Multilayer networks; Pattern Recognition; Program analysis; Program testing; Robotics; Signal Processing; Social networks, Data science; Socio-mobile applications, Social-IoT; Software Engineering; Spatial Informatics; Spatial Webservices; Spatio-Temporal Data Analysis; Speech Processing; Systems and Networking; Technology Enabled Learning; Theoretical Computer Science; VLSI and Embedded Systems;

Academic Performance

New Acquisitions	01
Collaboration	46
Lectures by Visiting Experts	10
Doctoral Degrees Awarded	10
MS Degrees Awarded	11
Member - Professional Bodies	24
Member - Editorial Board	13
Awards & Honours	12
Fellowships	02
Sponsored Research Projects	136
Consultancy Projects	19
Visits Abroad by Faculty Members	38
Invited Lectures by Faculty Members	59
Seminars, Conferences and Workshops Organized	16
Short-Term Courses, Training Programmes and Workshops organised	04
Papers Published in Journals	73
Papers Presented in Conferences	115

Electrical Engineering

Head of the Department : Pranab Kumar Dutta

Professors

Name	Highest Degree	Research Areas
Alok Barua	Ph.D.	
Amit Patra	Ph.D.	Control of Power Converter Circuits; Rechargeable batteries; VLSI and Embedded Systems; Modelling & Diagnostics of Industrial Systems; Modelling & Diagnostics of Biomedical Systems
Ashok Kumar Pradhan	Ph.D.	Power System Protection; Wide Area Measurement Application; Synchrophasor Technology; Smart Grid Technology; Machine Learning Techn for Power Systems
Aurobinda Routray	Ph.D.	
Chandan Chakraborty	Ph.D.	Brushless and Magnetless Machines; Multilevel Converters; AC and DC Microgrid; Solar PV Systems
Debaprasad Kastha	Ph.D.	Wind Power Generation; Switched Mode Power Converters; Power Converters for DC micro grid; Machine Drives
Debapriya Das	Ph.D.	
Murali Mohan Bosukonda	Ph.D.	
N K Kishore	Ph.D.	Electrical Overstress Studies; Healthcare application of Electrostatics; Industrial Application of High Voltages; Engineering Education; Electric Power and Energy Systems
Pranab Kumar Dutta	Ph.D.	Optical Imaging and image processing; Biomedical Image Processing; Machine Learning and Pattern Recognition
Sarit Kumar Das	Ph.D.	Embedded Systems; Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Soft Computing and Control
Siddhartha Mukhopadhyay	Ph.D.	Embedded Systems; Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Soft Computing and Control; Electric Vehicles: Powertrain & Battery Management
Siddhartha Sen	Ph.D.	Fractional order Circuits and Systems; MEMS Capacitive Accelerometers; Sensor Development; Robust Control; Control Allocation
Tapas Kumar Bhattacharyya	Ph.D.	

Associate Professors

Alok Kanti Deb	Ph.D.	Control Systems; Computational Intelligence; Fault Diagnosis and Prognosis
Anirban Mukherjee	Ph.D.	
Gautam Poddar	Ph.D.	
Karabi Biswas	Ph.D.	Study of Fractional Order system; Sensor Design; Instrumentation System Design
Prabodh Bajpai	Ph.D.	Hybrid AC-DC microgrids; Smart Grid and Renewable Integration; Solar Photovoltaics; Power System Analysis, Dynamics & Control; Electricity markets
Santanu Kapat	Ph.D. IIT Kharagpur	

Assistant Professors

Arun Ghosh	Ph.D. IIT Kharagpur	Control of MIMO systems; Periodic control; Robust control; Control applications
Ashis Ranjan Hota	Ph.D.	Game Theory; Network Security; Smart Grid and Renewable Integration; Cyber-Physical and Human Systems; Data-Driven Control and Optimization
Ashis Maity	Ph.D.	Power Management IC; Energy Harvesting for Powering Microsys; Analog Electronics
Avishek Chatterjee	Ph.D.	
Debdoot Sheet	Ph.D.	Machine Learning; Computer Vision; Image and Video Processing; Biomedical Systems; Medical Informatics
Dheeman Chatterjee	Ph.D.	
Dipankar Debnath	Ph.D.	Motor design for EV application; Motor controller& battery charger for EV; Power electronics converter topologies; Converter design for solar PV
Nirmalya Ghosh	Ph.D.	Image and Video Processing; Medical Informatics; Machine Learning; Computer Vision; Pattern Recognition
Rajiv Ranjan Sahay	Ph.D.	
Sanand Dilip Amita Athalye	Ph.D.	Networked Control; Cyber physical systems; Applied Linear Algebra; Control and Optimization; Algebraic Riccati equations
Saurav Pramanik	Ph.D.	FRA Diagnostics of Power Transformer
Sourav Patra	Ph.D.	
Souvik Chattopadhyay	Ph.D.	
Suman Maiti	Ph.D.	High Performance Industrial Drives; High Voltage AC/DC systems and FACTS
Tanmoy Bhattacharya	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Ashis Ranjan Hota	Assistant Professor	Game Theory; Network Security; Smart Grid and Renewable Integration; Cyber-Physical and Human Systems; Data-Driven Control and Optimization
Sanand Dilip Amita Athalye	Assistant Professor	Networked Control; Cyber physical systems; Applied Linear Algebra; Control and Optimization; Algebraic Riccati equations

Visiting Faculty

Tangali S Sudarshan	Professor

Promotion

Name	Designation	Research Areas
Ashis Maity	Assistant Professor	Power Management IC; Energy Harvesting for Powering Microsys; Analog Electronics
Ashok Kumar Pradhan	Professor	Power System Protection; Wide Area Measurement Application; Synchrophasor Technology; Smart Grid Technology; Machine Learning Techn for Power Systems
Aurobinda Routray	Professor	
Dipankar Debnath	Assistant Professor	Motor design for EV application; Motor controller& battery charger for EV; Power electronics converter topologies; Converter design for solar PV
Nirmalya Ghosh	Assistant Professor	Image and Video Processing; Medical Informatics; Machine Learning; Computer Vision; Pattern Recognition

Retirement

Alok Barua	Professor

Re Appointment

Sarit Kumar Das Professor

Brief Description of on-going activities

The Department has two very major activities- one in Hybrid Electrical Vehicle and another in Management and grid connectivity of solar PV units. Both these activities multiple departments of various Institutes in India and Abroad with multi-crore sponsored funding. Apart from this, there is a strong activity in Signal Processing and Machine Learning funded from some of the leading industries.

Research Areas

AC and DC Microgrid; Algebraic Riccati equations; Analog Electronics; Applied Linear Algebra; Biomedical Image Processing; Biomedical Systems; Brushless and Magnetless Machines; Computer Vision; Control Allocation; Control and Optimization; Control applications; Control of MIMO systems; Control of Power Converter Circuits; Converter design for solar PV; Cyber- Physical and Human Systems; Cyber physical systems; Data-Driven Control and Optimization; Electrical Overstress Studies; Electricity markets; Electric Power and Energy Systems; Electric Vehicles: Powertrain & Battery Management; Embedded Systems; Energy Harvesting for Powering Microsys; Engineering Education; Fractional order Circuits and Systems; FRA Diagnostics of Power Transformer; Game Theory; Healthcare application of Electrostatics; High Performance Industrial Drives; High Voltage AC/DC systems and FACTS; Hybrid AC-DC microgrids; Image and Video Processing; Industrial Application of High Voltages; Instrumentation System Design; Machine Drives; Machine Learning; Machine Learning and Pattern Recognition; Machine Learning Techn for Power Systems; Medical Informatics; MEMS Capacitive Accelerometers; Modelling & Diagnostics of Biomedical Systems; Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Motor controller& battery charger for EV; Motor design for EV application; Multilevel Converters; Networked Control; Network Security; Optical Imaging and image processing; Pattern Recognition; Periodic control; Power Converters for DC micro grid; Power electronics converter topologies; Power Management IC; Power System Analysis, Dynamics & Control; Power System Protection; Rechargeable batteries; Robust control; Robust Control; Sensor Design; Sensor Development; Smart Grid and Renewable Integration; Smart Grid Technology; Soft Computing and Control; Solar Photovoltaics; Solar PV Systems; Study of Fractional Order system; Switched Mode Power Converters; Synchrophasor Technology; VLSI and Embedded Systems; Wide Area Measurement Application; Wind Power Generation;

Academic Performance

New Acquisitions	01
Collaboration	38
Doctoral Degrees Awarded	17
MS Degrees Awarded	01
Fellow - Professional Bodies	02
Member - Professional Bodies	16
Member - Editorial Board	09
Awards & Honours	02
Fellowships	01
Sponsored Research Projects	55
Consultancy Projects	08
Visits Abroad by Faculty Members	20
Invited Lectures by Faculty Members	34
Seminars, Conferences and Workshops Organized	03
Short-Term Courses, Training Programmes and Workshops organised	03
Papers Published in Journals	70
Papers Presented in Conferences	54

Electronics and Electrical Communication Engineering

Head of the Department : Prabir Kumar Biswas

Professors

Name	Highest Degree	Research Areas
Ajoy Kumar Ray	Ph.D.	
Amitabha Bhattacharya	Ph.D.	Microwave Imaging; Microwave Stealth; Ground Penetrating Radar; Microwave Propagation; High Power Microwaves
Anindya Sundar Dhar	Ph.D.	
Bratin Ghosh	Ph.D.	Electromagnetics; Antenna and Arrays; RF and Microwave Circuits
Dhrubes Biswas	Ph.D.	
Goutam Saha	Ph.D.	Biomedical Signal Processing; Speech Processing
Indrajit Chakrabarti	Ph.D.	
Mrityunjoy Chakraborty	Ph.D.	Digital Signal Processing; Adaptive Signal Processing; VLSI Signal Processing; Compressed Sensing; Applied Linear Algebra
Prabir Kumar Biswas	Ph.D.	Image and Video Processing; Multimedia; Sensor Networks; Structural Health Monitoring; Machine Learning and Pattern Recognition
Pradip Mandal	Ph.D.	
Raja Datta	Ph.D.	Sensor Networks; Optical Communication and Networks; Telecommunication Systems and Networks; Network Security; Algorithms
Ratnam Varada Raja Kumar	Ph.D.	
Santanu Chattopadhyay	Ph.D.	VLSI and Embedded Systems; Network-on-Chip Design and Test; Low Power Digital Design and Testing; Thermal Aware Testing; Logic Encryption
Sant Sharan Pathak	Ph.D.	
Sudipta Mukhopadhyay	Ph.D.	Medical Image Processing; Video Postprocessing; Biometric Authentication; Biomedical Signal Processing; Machine Learning
Tarun Kanti Bhattacharyya	Ph.D.	BioMEMS; Electro-chemical, Electro-mechanical & MEMS Sensor; MEMS and Microsystems; Circuits, Devices and Sensors; Nanofabrication

Associate Professors

Akhilesh Mohan	Ph.D.	RF and Microwave Circuits; Antenna and Arrays
Arijit De	Ph.D.	
Bibhudatta Sahoo	Ph.D.	Nanoelectronics and Devices; RF and Microwave Circuits; Semiconductor Devices and Circuits; Signal Conditioning & Mixed-Signal VLSI Design; Machine Learning
Mrinal Kanti Mandal	Ph.D.	Microwave and Millimeter-Wave Circuits; Antenna and Arrays; Six-port receiver; Radar systems
Prasanta Kumar Guha	Ph.D.	Sensor on CMOS MEMS platform; thermal accelerometer; Water contaminant sensor; super capacitor based energy device; Metal oxide/2Dlayered mat. gas sensor
Rajarshi Roy	Ph.D.	Queuing theory and Computational Science; 5G Communications; Telecommunication Systems and

		Networks; Sensor Networks; Wireless and Optical Networking
Rajat Roy	Ph.D.	
Ritwik Kumar Layek	Ph.D., Texas A&M University	Systems Biology
Shailendra Kumar Varshney	Ph.D.	Microphotonics; Fiber Optics and Photonics; Nonlinear Photonics; Quantum photonics; Optical wireless communication
Sudipta Mahapatra	Ph.D.	Parallel and Distributed Computing; Wireless and Optical Networking; Video Coding/QoE Aware Video Streaming; Intelligent Internet of Things (IoT)

Assistant Professors

Aniket Singha	Ph.D.	Micro/nano-scale transport processes; Quantum Transport modeling; Topological insulators and materials; Thermoelectric energy harvesting; Spin based devices
Basudev Lahiri	Ph.D.	Nanofabrication; Microphotonics; Catalysis & Spectroscopy using Metal Nanoparticles; Nano materials
Chetna Singhal	Ph.D.	Wireless Networks; Wireless Communications; Multimedia systems; Multimedia Communication; UAV networks
Debashis Sen	Ph.D. Jadavpur University	Image and Video Processing; Vision; Uncertainty Handling; Bio-Inspired Computing; Eye Movement Analysis
Gourab Dutta	Ph.D.	Semiconductor Devices and Circuits; Nanoelectronics and Devices; Modeling of Semiconductor Devices
Kapil Debnath	Ph.D.	Photonic Crystals; Fiber Optics and Photonics; Nanoscale optoelectronics; Nanofabrication; Solar Photovoltaics
Sarang Pendharker	Ph.D.	Reconfigurable microwave circuits; Photonics: metamaterials and topology; Electromagnetic waves in complex media; Optical microscopy techniques
Sharba Bandyopadhyay	Ph.D., Johns Hopkins University, Baltimore, USA	Neuroscience; Computational Neuroscience; Physiological & Cognitive Data Analysis
Sudip Nag	Ph.D.	Neuroscience; Bioelectronic Systems
Vivek Dixit	Ph.D., National University of Singapore	

New Faculty Appointment

Name	Designation	Research Areas
Aniket Singha	Ph.D.	Micro/nano-scale transport processes; Quantum Transport modeling; Topological insulators and materials; Thermoelectric energy harvesting; Spin based devices
Sarang Pendharker	Ph.D.	Reconfigurable microwave circuits; Photonics: metamaterials and topology; Electromagnetic waves in complex media; Optical microscopy techniques

Promotion

Name	Designation	Research Areas
Basudev Lahiri	Assistant Professor	Nanofabrication; Microphotonics; Catalysis &

		Spectroscopy using Metal Nanoparticles; Nano materials
Bibhudatta Sahoo	Associate Professor	Nanoelectronics and Devices; RF and Microwave Circuits; Semiconductor Devices and Circuits; Signal Conditioning & Mixed-Signal VLSI Design; Machine Learning
Chetna Singhal	Assistant Professor	Wireless Networks; Wireless Communications; Multimedia systems; Multimedia Communication; UAV networks
Kapil Debnath	Assistant Professor	Photonic Crystals; Fiber Optics and Photonics; Nanoscale optoelectronics; Nanofabrication; Solar Photovoltaics
Mrinal Kanti Mandal	Associate Professor	Microwave and Millimeter-Wave Circuits; Antenna and Arrays; Six-port receiver; Radar systems
Sudip Nag	Assistant Professor	Neuroscience; Bioelectronic Systems

Retirement

Ajoy Kumar Ray	Professor

Research Areas

5G Communications; Adaptive Signal Processing; Algorithms; Antenna and Arrays; Applied Linear Algebra; Bioelectronic Systems; Bio-Inspired Computing; Biomedical Signal Processing; BioMEMS; Biometric Authentication; Catalysis & Spectroscopy using Metal Nanoparticles; Circuits, Devices and Sensors; Compressed Sensing; Computational Neuroscience; Digital Signal Processing; Electro-chemical, Electro-mechanical & MEMS Sensor; Electromagnetics; Electromagnetic waves in complex media; Eye Movement Analysis; Fiber Optics and Photonics; Ground Penetrating Radar; High Power Microwaves; Image and Video Processing; Intelligent Internet of Things (IoT); Logic Encryption; Low Power Digital Design and Testing; Machine Learning; Machine Learning and Pattern Recognition; Medical Image Processing; MEMS and Microsystems; Metal oxide/2Dlayered mat. gas sensor; Micro/nano-scale transport processes; Microphotonics; Microwave and Millimeter-Wave Circuits; Microwave Imaging; Microwave Propagation; Microwave Stealth; Modeling of Semiconductor Devices; Multimedia; Multimedia Communication; Multimedia systems; Nanoelectronics and Devices; Nanofabrication; Nano materials; Nanoscale optoelectronics; Network-on-Chip Design and Test; Network Security; Neuroscience; Nonlinear Photonics; Optical Communication and Networks; Optical microscopy techniques; Optical wireless communication; Parallel and Distributed Computing; Photonic Crystals; Photonics: metamaterials and topology; Physiological & Cognitive Data Analysis; Quantum photonics; Quantum Transport modeling; Queuing theory and Computational Science; Radar Systems; Reconfigurable microwave circuits; RF and Microwave Circuits; Semiconductor Devices and Circuits; Sensor Networks; Sensor on CMOS MEMS platform; Signal Conditioning & Mixed-Signal VLSI Design; Six-port receiver; Solar Photovoltaics; Speech Processing; Spin based devices; Structural Health Monitoring; super capacitor based energy device; Systems Biology; Telecommunication Systems and Networks; thermal accelerometer; Thermal Aware Testing; Thermoelectric energy harvesting; Topological insulators and materials; UAV networks; Uncertainty Handling; Video Coding/QoE Aware Video Streaming; Video Postprocessing; Vision; VLSI and Embedded Systems; VLSI Signal Processing; Water contaminant sensor; Wireless and Optical Networking; Wireless Communications; Wireless Networks;

Academic Performance

New Acquisitions	01
Collaboration	31
Lectures by Visiting Experts	04
Doctoral Degrees Awarded	17
MS Degrees Awarded	04
Fellow - Professional Bodies	03
Member - Professional Bodies	24
Member - Editorial Board	14
Awards & Honours	06
Fellowships	04

Sponsored Research Projects	90
Consultancy Projects	04
Technology Transferred	01
Visits Abroad by Faculty Members	13
Invited Lectures by Faculty Members	32
Seminars, Conferences and Workshops Organized	05
Short-Term Courses, Training Programmes and Workshops organised	06
Papers Published in Journals	91
Papers Presented in Conferences	62

Geology and Geophysics

Head of the Department : Saibal Gupta

Professors

Name	Highest Degree	Research Areas
Abhijit Bhattacharya	Ph.D.	
Anil Kumar Gupta	Ph.D.	
Anindya Sarkar	Ph.D.	
Arindam Basu	Ph.D. University of Hong Kong	Engineering Geology; Rock Mechanics
Biswajit Mishra	Ph.D.	
Debashish Sengupta	Ph.D.	
Manish A Mamtani	Ph.D.	Structural Geology; Microtectonics
Mruganka Kumar Panigrahi	Ph.D.	Crustal Fluids; Ore Deposits; Geochemistry; Modeling and Simulation
Paresh Nath Singha Roy		Application of fractals in earth science; Geophysical signal processing; Pattern recognition in earth sciences; Crustal deformation monitoring with GPS; Earthquake forecasting
Ravikant Vadlamani	Ph.D.	
Saibal Gupta	Ph.D.	
Sankar Kumar Nath	Ph.D.	Computational Seismology; Engineering Seismology; Seismic Prospecting; Seismic Microzonation & Risk; Landslide Susceptibility Slope Stability
Santanu Kumar Bhowmik	Ph.D.	
Shashi Prakash Sharma	Ph.D.	Electrical & Electromagnetic Geophysics; Geophysical optimizations; Numerical Modeling; Mineral and Groundwater Exploration
Subhasish Das	Ph.D.	
Subhasish Tripathy	Ph.D.	
William Kumar Mohanty	Ph.D.	

Associate Professors

Abhijit Mukherjee	Ph.D.	
Arun Singh	Ph.D.	
Chandrani Singh	Ph.D.	Seismic attenuation tomography; Seismic Hazard; Seismic wave propagation
Dewashish Upadhyay	Ph.D.	Geochemistry; Isotope Geology; Geochronology; Petrology; Cosmochemistry
Kamal Lochan Pruseth	Ph.D.	
Sanghamitra Ray	Ph.D.	Vertebrate Palaeontology; Palaeobiology; Bone Histology; Gondwana Stratigraphy

Assistant Professors

Melinda Kumar Bera	Ph.D.	Sedimentology; Sequence Stratigraphy; Stable Isotope Geochemistry; Cenozoic Himalaya; Bengal Basin
Probal Sengupta	Ph.D.	
Sabyasachi Maiti	Ph.D.	Remote sensing and GIS; Geomorphology; Exploration
Shubhabrata Paul	Ph.D.	Palaeobiology; Invertebrate Paleontology
Sudha Agrahari	Ph.D.	
Sujoy Kanti Ghosh	Ph.D.	

New Faculty Appointment

Name	Highest Degree	Research Areas
Paresh Nath Singha Roy	Professor	Application of fractals in earth science; Geophysical signal processing; Pattern recognition in earth sciences; Crustal deformation monitoring with GPS; Earthquake forecasting
Shubhabrata Paul	Assistant Professor	Palaeobiology; Invertebrate Paleontology

Visiting Faculty

Sourendra Kumar Bhattacharya	Professor

Brief Description of on-going activities

The Department of Geology and Geophysics of IIT Kharagpur offers two five-year integrated M.Sc. programs in Applied Geology and Exploration Geophysics, two 2-year M.Sc. programs in Geology and M.Sc. Geophysics, and a 2 year M.Tech. program in Exploration Geosciences. The department has past and presently active collaborative work with various organisations like ONGC, GSI, OIL, UCIL, DAE etc. The sponsored projects undertaken by the department include crustal evolution and geochronology of Singbhum, central, Rajasthan and southern Indian cratons, experimental petrology, gold and uranium mineralisation, mineral magnetics, Himalayan orogeny and sedimentation, stable isotopes in Phanerozoic climate change, evolution of Ganges delta, hydrology of Bengal basin and coastal aquifers, seismic tomography and deep crustal structure, engineering geology, seismic hazard and microzonation, near surface geophysics, archaeology of eastern India and Indus valley civilisation, planetary investigation of meteorites and Mars, and consultancy projects in ground water assessment, river chemistry, seismic hazard and mining geology. The department hosts two DST national facilities of stable isotope and electron probe micoanalysis, and a state of the art non- traditional and radiogenic MC-ICP MS laboratory. Besides, the department hosts a spectrum of modern analytical and field equipment namely, X-ray diffractometer, Raman laser, FTIR, gas and ion chromatographs, liquid scintillation counter, fluid inclusion stages, magnetic susceptibility Kappa bridge etc. The geophysics laboratory hosts magneto-telluric, and array of geophysical equipment including gravimeter and resistivity meters, radiation dosimeters, large number of seismometers and a nationally networked broadband seismic observatory. The department has well equipped engineering geology and remote sensing laboratories. The department has made fundamental contributions in dating oldest rocks in India, Precambrian orogeny and metamorphism, Himalayan evolution and Cenozoic climate change, arsenic pollution in Bengal basin, crustal structure below Himalayas, sesimic microzonation of major cities, geotechnical properties of rocks, coastal geomorphology, theoretical electromagnetics, discovering martian analogues and unravelling the oldest roots of Indus valley civilisation. The faculty members are fellows of national science academies, recipient of national geoscience award, and in editorial boards of prestigeous international journals.

Research Areas

Application of fractals in earth science; Bengal Basin; Bone Histology; Cenozoic Himalaya; Computational Seismology; Cosmochemistry; Crustal deformation monitoring with GPS; Crustal Fluids; Earthquake forecasting; Electrical & Electromagnetic Geophysics; Engineering Geology; Engineering Seismology; Exploration; Geochemistry; Geochronology; Geomorphology; Geophysical optimizations; Geophysical signal processing; Gondwana Stratigraphy; Isotope Geology; Landslide Susceptibility Slope Stability; Microtectonics; Mineral and Groundwater Exploration; Modeling and Simulation; Numerical Modeling; Ore Deposits; Palaeobiology; Pattern recognition in earth sciences; Petrology; Remote sensing and GIS; Rock Mechanics; Sedimentology; Seismic attenuation tomography; Seismic Hazard; Seismic Microzonation & Risk; Seismic Prospecting; Seismic wave propagation; Sequence Stratigraphy; Stable Isotope Geochemistry; Structural Geology; Vertebrate Palaeontology;

Academic Performance

New Acquisitions	02
Collaboration	18
Lectures by Visiting Experts	07
Doctoral Degrees Awarded	04
MS Degrees Awarded	01
Fellow - Professional Bodies	03
Member - Professional Bodies	23

Member - Editorial Board	11
Awards & Honours	03
Fellowships	01
Sponsored Research Projects	37
Consultancy Projects	05
Visits Abroad by Faculty Members	03
Invited Lectures by Faculty Members	09

Humanities and Social Sciences

Head of the Department : Priyadarshi Patnaik

Professors

Name	Highest Degree	Research Areas
Anjali Roy	Ph.D.	Postcolonial Literature and Theory; Partition 1947; Media Studies; Popular Culture; Diaspora Studies
Bhagirath Behera	Ph.D.	Environmental Economics; Development Economics
Chhanda Chakraborti	Ph.D.	
Damodar Suar	Ph.D.	
Jitendra Mahakud	Ph.D.	Corporate Finance; Investment Management; Financial Markets and Risk Management; Banking; Behavioral Finance
Kailash Bihari Lal Srivastava	Ph.D.	Human Resources Development & Management; Social & Organizational Psychology & Behavior; Performance Management; Knowledge Management; Change management
Kishor Goswami	Ph.D.	Development Economics; Agricultural Economics; Economics of Biofuels
Narayan Chandra Nayak	Ph.D.	Public Economics & Policy
Priyadarshi Patnaik	Ph.D.	
Pulak Mishra	Ph.D.	Industrial Economics; Public Economics & Policy; Economics of Rural Development;
Suhita Chopra Chatterjee	Ph.D.	Sociology of Health; Medical Sociology; End-of-Life Care
Vijai Nath Giri	Ph.D.	

Associate Professors

Gourishankar S Hiremath	Ph.D.	Efficiency of Financial Markets; International Capital Flows; Open economy macroeconomics; Macro-Finance Interlinkages
H S Komalesha	Ph.D.	
Jayashree Chakraborty	Ph.D.	Syntax; Semantics; Language Communication; Sociolinguistics; Discourse Analysis
Rabindra Kumar Pradhan	Ph.D.	Industrial and Organisational Psychology; Organisational Behaviour; Human Resources Development & Management; Positive Psychology; Health Psychology
Saswat Samay Das	Ph.D.	
Seema Singh	Ph.D.	Language Studies & Literary Theories; Literature; Media & Communication Studies; Translation & Culture
Zakir Husain	Ph.D.	

Assistant Professors

Anuradha Choudry	Ph.D.	
Anwesha Aditya	Ph.D., Jadavpur University	International Economics; Development Economics
Archana Patnaik	Ph.D.	Natural Resource Management; Commons and Community; Sociology of Science and Technology; Law and Society; Gender and Society
Bimal Kishore Sahoo	Ph.D.	
Dripta Piplai (Mondal)	Ph.D.	Language Conflict in classroom; Language Technology, Minority Languages; Syntactic Variation; Endangered Language; Ethnomusicology, Language Documentation
Inder Sekhar Yadav	Ph.D.	Financial Economics and related Studies; Labour Economics; Financial Macroeconomics; Development and Agricultural Issues

Jenia Mukherjee	Ph.D.	Ecological Humanities & Anthropocene Studies
Mantu Kumar Mahalik	Ph.D.	Open Empirical Macroeconomics; Monteary Economics; Housing Economics; Energy Economics; Financial Economics
Rishabh Rai	Ph.D.	
Siddhartha Chattopadhyay	Ph.D.	Applied Econometrics; Economics of Growth; Development Economics; Monetary Economics
Somdatta Bhattacharya	Ph.D.	Urban Cultures; Crime Fiction; Indian writing in English; Social theories of space and spatiality; Public digital humanities
Sree Vinutha Venkataraman	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Archana Patnaik	Assistant Professor	Natural Resource Management; Commons and Community; Sociology of Science and Technology; Law and Society; Gender and Society
Dripta Piplai (Mondal)	Assistant Professor	Language Conflict in classroom; Language Technology, Minority Languages; Syntactic Variation; Endangered Language; Ethnomusicology, Language Documentation
Mantu Kumar Mahalik	Assistant Professor	Open Empirical Macroeconomics; Monteary Economics; Housing Economics; Energy Economics; Financial Economics
Somdatta Bhattacharya	Assistant Professor	Urban Cultures; Crime Fiction; Indian writing in English; Social theories of space and spatiality; Public digital humanities

Visiting Faculty

Chhanda Chakraborti	Professor
Damodar Suar	Professor
Manas Kumar Mandal	Professor

Promotion

Bhagirath Behera	Professor	Environmental Economics; Development Economics
Dripta Piplai (Mondal)	Assistant Professor	Language Conflict in classroom; Language Technology, Minority Languages; Syntactic Variation; Endangered Language; Ethnomusicology, Language Documentation
Inder Sekhar Yadav	Assistant Professor	Financial Economics and related Studies; Labour Economics; Financial Macroeconomics; Development and Agricultural Issues
Jitendra Mahakud	Professor	Corporate Finance; Investment Management; Financial Markets and Risk Management; Banking; Behavioral Finance
Kishor Goswami	Professor	Development Economics; Agricultural Economics; Economics of Biofuels
Pulak Mishra	Professor	Industrial Economics; Public Economics & Policy; Economics of Rural Development;

Resignation

Sree Vinutha Venkataraman	Assistant Professor

Brief Description of on-going activities

Research and Development on: 1. Quantitative economics, 2. Financial economics, 3. Economics of growth, 4. Industrial economics, 5. Development economics, 6. Environmental and resource economics, 7. Developing world bioethics, 8. Gender and trade, 9. Financial institutions and markets, 10. Sociology of health and medicine, 11. Human resource development, 12. Brain and behavior, 13. Interpersonal, intercultural and

organizational communication, 14. Visual aesthetics, 15. Business ethics, corporate social responsibility, 16. Economics of biofuels, 17. Bioethics and Public Health Ethics, Human Resource Development 18. Literary Theory 19. Developmental Sociology 20. Environmental Humanities and Social Sciences 21. Indian Pscyhology 22. Organizational Psychology 23. Translation Studies, etc.

Training and development programmes on: Communication, Literary Theory and Practice, Human resource development, Strategic management, Emotional intelligence,Logic, Research methodology and data analysis, Financial modelling and risk management, Leadership and team building, 1anguage, cognition and communication, Culture and Cross-cultural communication, Creative writing, etc.

Invited talks:
Dr. Monojit Choudhry, Microsoft Research Labs, Bangalore (by Dr. D. Piplai); Prof. Satyapriya Rout on "Discourses of Water:
Post-Structuralist Critique" (by A. Patnaik); Workshop by the 1947 Partition Archive team, An Interaction with the 1947 Partition Archive (by Dr. S. Bhattacharya) Prof. Anol Bhattacharya, University of South Florida: Research Methodology (by Dr. P Mishra)

Research Areas

Agricultural Economics; Applied Econometrics; Banking; Behavioral Finance; Change management; Commons and Community; Corporate Finance; Crime Fiction; Development and Agricultural Issues; Development Economics; Diaspora Studies; Discourse Analysis; Ecological Humanities & Anthropocene Studies; Economics of Biofuels; Economics of Growth; Economics of Rural Development; Efficiency of Financial Markets; Endangered Language; End-of-Life Care; Energy Economics; Environmental Economics; Ethnomusicology, Language Documentation; Financial Economics; Financial Economics and related Studies; Financial Macroeconomics; Financial Markets and Risk Management; Gender and Society; Health Psychology; Housing Economics; Human Resources Development & Management; Indian writing in English; Industrial and Organisational Psychology; Industrial Economics; International Capital Flows; International Economics; Investment Management; Knowledge Management; Labour Economics; Language Communication; Language Conflict in classroom; Language Studies & Literary Theories; Language Technology, Minority Languages; Law and Society; Literature; Macro-Finance Interlinkages; Media & Communication Studies; Media Studies; Medical Sociology; Monetary Economics; Monteary Economics; Natural Resource Management; Open economy macroeconomics; Open Empirical Macroeconomics; Organisational Behaviour; Partition 1947; Performance Management; Popular Culture; Positive Psychology; Postcolonial Literature and Theory; Public digital humanities; Public Economics & Policy; Semantics; Social & Organizational Psychology & Behavior; Social theories of space and spatiality; Sociolinguistics; Sociology of Health; Sociology of Science and Technology; Syntactic Variation; Syntax; Translation & Culture; Urban Cultures;

Academic Performance

Collaboration	19
Doctoral Degrees Awarded	13
Fellow - Professional Bodies	01
Member - Professional Bodies	28
Member - Editorial Board	17
Awards & Honours	05
Fellowships	02
Sponsored Research Projects	38
Consultancy Projects	02
Visits Abroad by Faculty Members	24
Invited Lectures by Faculty Members	52
Seminars, Conferences and Workshops Organized	14
Short-Term Courses, Training Programmes and Workshops organised	05
Papers Published in Journals	55
Papers Presented in Conferences	22

Industrial and Systems Engineering

Head of the Department : Jhareswar Maiti

Professors

Name	Highest Degree	Research Areas
Biswajit Mahanty	Ph.D. IIT Kharagpur	Operations management; Systems Dynamics & Simulation; Operations Research (OR); Project Management, Maintenance & Monitoring
Jhareswar Maiti	Ph.D.	Data Science; Risk Assessment and Uncertainty Analysis; Prognostic and Health Monitoring; Digital Twins & Virtual Reality; Safety Analytics
Mamata Jenamani	Ph.D.	E- Business, Information Systems; Operations & Supply Chain Management; Web data analytics; Online auctions and e-procurement
Manoj Kumar Tiwari	Ph.D.	Manufacturing Operations Planning; Supply Chain Management and Logistics; Intelligent Decision Modeling; Operations Analysis and Management; Product and Process Improvements
Pradip Kumar Ray	Ph.D.	Ergonomics and product design; Performance Management; Operations & Supply Chain Management; Quality and Safety Engineering; TQM and with Analytics
Sarada Prasad Sarmah	Ph.D.	Supply Chain Management and Logistics; Reverse Logistics; Manufacturing/Production Planning & Control; Operations management

Associate Professors

Jitendra Kumar Jha	Ph.D.	Supply Chain Management and Logistics; Operations Research (OR); Inventory Control; Facility Location
Jitesh J Thakkar	Ph.D.	Project Management, Maintenance & Monitoring; Supply Chain Management and Logistics; Lean Six Sigma; Operations management; Operations Research (OR)

Assistant Professors

Akhilesh Kumar	Ph.D. Wayne State University, Detroit, Michigan	Business Analytics; Closed-loop Supply Chains; Product Returns and Remanufacturing; Condition-Based Maintenance
Goutam Sen	Ph.D.	
Sayak Roychowdhury	Assistant Professor	Reinforcement Learning; Process Simulation, Optimization & Control; Statistical Decision Modeling; Cybersecurity
Sri Krishna Kumar	Ph.D.	Supply Chain and Logistics; Operations Research (OR); Game Theory; Non Linear Programming

New Faculty Appointment

Name	Highest Degree	Research Areas
Sayak Roychowdhury	Assistant Professor	Reinforcement Learning; Process Simulation, Optimization & Control; Statistical Decision Modeling; Cybersecurity

Chair Professor

Jyoti Mukherjee	Professor
Soumyanath Chatterjee	Professor

Visiting Faculty

O. Bala Krishna	Assistant Professor	

Promotion

Akhilesh Kumar	Assistant Professor	Business Analytics; Closed-loop Supply Chains; Product Returns and Remanufacturing; Condition-Based Maintenance
Jitendra Kumar Jha	Associate Professor	Supply Chain Management and Logistics; Operations Research (OR); Inventory Control; Facility Location
Mamata Jenamani	Professor	E- Business, Information Systems; Operations & Supply Chain Management; Web data analytics; Online auctions and e-procurement

Resignation

Jyoti Mukherjee	Professor

Research Areas

Business Analytics; Closed-loop Supply Chains; Condition-Based Maintenance; Cybersecurity; Data Science; Digital Twins & Virtual Reality; E- Business, Information Systems; Ergonomics and product design; Facility Location; Game Theory; Intelligent Decision Modeling; Inventory Control; Lean Six Sigma; Manufacturing Operations Planning; Manufacturing/Production Planning & Control; Non Linear Programming; Online auctions and e-procurement; Operations Analysis and Management; Operations management; Operations Research (OR); Operations & Supply Chain Management; Performance Management; Process Simulation, Optimization & Control; Product and Process Improvements; Product Returns and Remanufacturing; Prognostic and Health Monitoring; Project Management, Maintenance & Monitoring; Quality and Safety Engineering; Reinforcement Learning; Reverse Logistics; Risk Assessment and Uncertainty Analysis; Safety Analytics; Statistical Decision Modeling; Supply Chain and Logistics; Supply Chain Management and Logistics; Systems Dynamics & Simulation; TQM and with Analytics; Web data analytics;

Academic Performance

New Acquisitions	01
Collaboration	38
Lectures by Visiting Experts	03
Doctoral Degrees Awarded	02
MS Degrees Awarded	02
Fellow - Professional Bodies	04
Member - Professional Bodies	18
Member - Editorial Board	27
Awards & Honours	13
Fellowships	03
Sponsored Research Projects	21
Consultancy Projects	10
Visits Abroad by Faculty Members	04
Invited Lectures by Faculty Members	21
Short-Term Courses, Training Programmes and Workshops organised	05
Papers Published in Journals	59
Papers Presented in Conferences	26

Mathematics

Head of the Department : Mahendra Prasad Biswal

Professors

Name	Highest Degree	Research Areas
Adrijit Goswami	Ph.D.	Data and Web Mining; Cryptography; Operations Research (OR); Supply Chain Management and Logistics; Fuzzy Sets and Applications
Chandal Nahak	Ph.D.	
Debjani Chakraborty	Ph.D.	
Dharmendra Kumar Gupta	Ph.D.	
Geetanjali Panda	Ph.D.	Numerical Optimization; Optimization with uncertainty; Portfolio Optimization; Convex Optimization
G P Raja Sekhar	Ph.D.	Biphasic mixture theory; Boundary integral methods; Flow through anisotropic porous media; Transport phenomena of viscous drops
Mahendra Prasad Biswal	Ph.D.	
Parmeshwary Dayal Srivastava	Ph.D.	
Pratima Panigrahi	Ph.D.	Combinatorics and Graph Theory
P V S N Murthy	Ph.D.	Bio Fluid Mechanics; Double diffusive convective instability
Rajni Kant Pandey	Ph.D.	
Somesh Kumar	Ph.D.	Estimation in Restricted Parameter Space; Estimating in selected populations; Estimation in directional distributions; Classification of observations; Mesaures of Entropy and Reliability
Somnath Bhattacharyya	Ph.D.	
Umesh Chandra Gupta	Ph.D.	

Associate Professors

Bappaditya Bhowmik	Ph.D.	Geometric Function Theory
Gnaneshwar Nelakanti	Ph.D.	
Jitendra Kumar	Ph.D.	Particle Technology; Mathematical Modelling and Simulations; Development of Numerical Methods; Mathematical and Numerical Analysis
Koeli Ghoshal	Ph.D.	Mechanics of Sediment Transport; Mathematical Modeling of Fluid Flow; Turbulent flow in open channels; Maximum Entropy Approach to Channel Flow; Homotopy Analysis Method
Pawan Kumar	Ph.D.	
Ratna Dutta	Ph.D.	Obfuscation and multilinear maps; Functional Encryption & cloud computing; Multivariate public key crypto- system; Lattice and Code Based Cryptography; Elliptic curves and bilinear pairings
Rupanwita Gayen	Ph.D.	Linear water waves; Integral equations
Sourav Mukhopadhyay	Ph.D.	Algebraic Cryptanalysis; Digital Rights Managements; Key pre-distribution for WSN; Time/Memory Trade-off Cryptanalysis; Functional Encryption & cloud computing
T Raja Sekhar	Ph.D.	

Assistant Professors

Asish Ganguly	Ph.D.	Quantum Mechanics; Quantum Information; Non-linear Dynamics; Soliton Theory & Inverse Scattering; Fluid Dynamics
Bibhas Adhikari	Ph.D. IIT Guwahati	Applied Linear Algebra; Theory of Complex Networks; Quantum Information Theory
Bodhayan Roy	Assistant Professor	Theoretical Computer science; Combinatorics and Graph Theory; Algorithms
Buddhananda Banerjee	Assistant Professor	Surrogate Endpoint Analysis in Clinical Trials; Functional data analysis; Goodness-of-fit test for survival data; Change point problem
Debapriya Biswas	Ph.D.	Calculus and Functional Analysis; Calculus and Topology; Groups of symmetries, Analysis, Geometry; Mathematical Physics & Parabolic Analytic Function; Vector Spaces and Topology
Hari Shankar Mahato	Ph.D.	Partial Differential Equations; Applied Analysis; Homogenization Theory; Transport in Heterogeneous Media; Mathematical Biology
Mousumi Mandal	Ph.D.	
Nitin Gupta	Ph.D.	Applied Probability; Reliability Theory; Mathematical Statistics
Prateep Chakraborty	Assistant Professor	Calculus and Topology; Vector Spaces and Topology; Groups of symmetries, Analysis, Geometry
Rajesh Kannan	Ph.D.	Linear Algebra; Combinatorics and Graph Theory; Applied Functional Analysis & Optimization
Ramakrishna Nanduri	Ph.D.	Commutative Algebra
Swanand Ravindra Khare	Ph.D., IIT Bombay	Applied Mathematics

New Faculty Appointment

Name	**Designation**	**Research Areas**
Biswa Nath Datta	Assistant Professor	
Bodhayan Roy	Assistant Professor	Theoretical Computer science; Combinatorics and Graph Theory; Algorithms
Prateep Chakraborty	Assistant Professor	Calculus and Topology; Vector Spaces and Topology; Groups of symmetries, Analysis, Geometry

Visiting Faculty

Buddhananda Banerjee	Assistant Professor	Surrogate Endpoint Analysis in Clinical Trials; Functional data analysis; Goodness-of-fit test for survival data; Change point problem

Promotion

Bibhas Adhikari	Assistant Professor	Applied Linear Algebra; Theory of Complex Networks; Quantum Information Theory
Buddhananda Banerjee	Assistant Professor	Surrogate Endpoint Analysis in Clinical Trials; Functional data analysis; Goodness-of-fit test for survival data; Change point problem

Retirement

Dharmendra Kumar Gupta	Professor
Parmeshwary Dayal Srivastava	Professor

Research Areas

Algebraic Cryptanalysis; Applied Analysis; Applied Linear Algebra; Applied Mathematics; Applied Probability; Bio Fluid Mechanics; Biphasic mixture theory; Boundary integral methods; Calculus and Functional Analysis; Calculus and Topology; Change point problem; Classification of observations; Combinatorics and Graph Theory; Commutative Algebra; Convex Optimization; Cryptography; Data and Web Mining; Development of Numerical Methods; Digital Rights Managements; Double diffusive convective instability; Elliptic curves and bilinear pairings; Estimating in selected populations; Estimation in directional distributions; Estimation in Restricted Parameter Space; Flow through anisotropic porous media; Functional data analysis; Functional Encryption & cloud computing; Fuzzy Sets and Applications; Geometric Function Theory; Goodness-of-fit test for survival data; Groups of symmetries, Analysis, Geometry; Homogenization Theory; Homotopy Analysis Method; Integral equations; Key pre-distribution for WSN; Lattice and Code Based Cryptography; Linear Algebra; Linear water waves; Mathematical and Numerical Analysis; Mathematical Biology; Mathematical Modeling of Fluid Flow; Mathematical Modelling and Simulations; Mathematical Physics & Parabolic Analytic Function; Mathematical Statistics; Maximum Entropy Approach to Channel Flow; Mechanics of Sediment Transport; Mesaures of Entropy and Reliability; Multivariate public key crypto-system; Numerical Optimization; Obfuscation and multilinear maps; Operations Research (OR); Optimization with uncertainty; Partial Differential Equations; Particle Technology; Portfolio Optimization; Quantum Information Theory; Reliability Theory; Supply Chain Management and Logistics; Surrogate Endpoint Analysis in Clinical Trials; Theory of Complex Networks; Time/Memory Trade-off Cryptanalysis; Transport in Heterogeneous Media; Transport phenomena of viscous drops; Turbulent flow in open channels; Vector Spaces and Topology;

Academic Performance

New Acquisitions	01
International Collaborations	10
Doctoral Degrees Awarded	16
Fellow - Professional Bodies	01
Member - Professional Bodies	03
Member - Editorial Board	07
Awards & Honours	04
Sponsored Research Projects	24
Visits Abroad by Faculty Members	04
Invited Lectures by Faculty Members	25
Seminars, Conferences and Workshops Organized	02
Short-Term Courses, Training Programmes and Workshops organised	01
Papers Published in Journals	02

Mechanical Engineering

Head of the Department : Sukanta Kumar Dash

Professors

Name	Highest Degree	Research Areas
Abhijit Guha	Ph.D. University of Cambridge	
Amiya Ranjan Mohanty	Ph.D.	
Anirvan Dasgupta	Ph.D.	Mechanics of inflatable structures; Vibration induced transport; Discrete and continuous system dynamics; Rail vehicle dynamics
Arun Kumar Samantaray	Ph.D.	Nonlinear Dynamics; Fault Diagnosis and Prognosis; Modelling & Diagnostics of Industrial Systems; Rail vehicle dynamics; Systems and Control
Asimava Roy Choudhury	Ph.D.	Thin/thick Coatings & Nano-polymer Composites; Additive and Laser based Manufacturing; Computer control of machine tools; Design & development of machines; Non traditional manufacturing
Biswajit Maiti	Ph.D.	
Cheruvu Siva Kumar	Ph.D.	
Dilip Kumar Pratihar	Ph.D.	Optimization & Modeling of Manufacturing Processes; Robotics & Computer-Aided Engineering (CAE)
Goutam Chakraborty	Ph.D.	Mechanics of Advanced Materials; Vibration and Noise Control; Dynamics of MEMS and NEMS devices; Vibration of Electromechanical Systems
Maddali Ramgopal	Ph.D.	
Manab Kumar Das	Ph.D.	Surface engineering and coated materials
Manas Chandra Ray	Ph.D.	
Partha Pratim Bandyopadhyay	Ph.D.	Surface engineering and coated materials
Partha Saha	Ph.D.	
Prasanta Kumar Das	Ph.D.	Single and Multiphase Fluid Dynamics; Heat Transfer; Thermal Engineering; Computational Fluid Dynamics; Flow of granular material
Ranjan Bhattacharyya	Ph.D.	
Rathindranath Maiti	Ph.D.	
Sandipan Ghosh Moulic	Ph.D.	Computational Fluid Dynamics; Hydrodynamic and Thermal Instability; Spectral Methods in Fluid Dynamics; Perturbation Methods in Fluid Dynamics; Convective Heat Transfer
Sanjay Gupta	Ph.D.	Bio Mechanics
Sati Nath Bhattacharyya	Ph.D.	
Soumitra Paul	Ph.D.	Machining; Grinding; Cutting ool Coating; Residual Stress; Manufacturing
Souvik Bhattacharyya	Ph.D.	
Subhransu Roy	Ph.D.	Heat Transfer; Computational Fluid Dynamics; Melting and Solidification; Train Aerodynamics
Sukanta Kumar Dash	Ph.D.	
Suman Chakraborty	Ph.D.	Microfluidics and microscale transport
Surjya Kanta Pal	Ph.D.	Friction Stir Welding and Processing; Industry 4.0;

		Modelling and Simulation; Ultrafast Cooling Methodologies

Associate Professors

Anandaroop Bhattacharya	Ph.D. University of Colorado	Thermal Engineering; Microfluidics; Thermal management of Li-ion batteries; Electronic Packaging and cooling
Kingshook Bhattacharyya	Ph.D.	
Kumar Ray	Ph.D.	
Mihir Sarangi	Ph.D.	
Somnath Roy	Ph.D.	
Sovan Lal Das	Ph.D.	
Sushanta Kumar Panda	Ph.D.	
Vikranth Racherla	Ph.D.	Friction Stir Welding and Processing; Optimization & Modeling of Manufacturing Processes; Mechanics of Composites; Computational Weld Mechanics & Welding Technology

Assistant Professors

Aditya Bandopadhyay	Ph.D.	
Ajay Muljibhai Sidpara	Ph.D. IIT Kanpur	Surface finishing; Micromachining; Tribology
Atul Jain	Ph.D.	
Chirag Deepak Kalelkar	Ph.D.	Porous materials and structured fluids; Single and Multiphase Fluid Dynamics
Dhananjay Kumar Srivastava	Ph.D.	
Jeevanjyoti Chakraborty	Ph.D.	Microfluidics; Lithium-ion battery modelling; Fuel cells modelling; Flow through deformable confinements
Jinu Paul	Ph.D.	Thin/thick Coatings & Nano-polymer Composites; Friction Stir Welding and Processing
Rajaram Lakkaraju	Ph.D.	
Sankha Deb	Ph.D.	Computer Integrated Manufacturing; Automation and Robotics; Flexible Manufacturing Systems; Soft Computing techniques; Micromanufacturing Processes
Sourav Mitra	Ph.D.	Adsorption; Refrigeration; Thermal energy storage; Thermal desalination
S Ramanujam	Ph.D.	

Promotion

Name	Designation	Research Areas
Somnath Roy	Associate Professor	
Sourav Mitra	Assistant Professor	

Retirement

Rathindranath Maiti	Professor

Research Areas

Automation and Robotics; Bio Mechanics; Computational Fluid Dynamics; Computational Weld Mechanics & Welding Technology; Computer Integrated Manufacturing; Convective Heat Transfer; cutting tool coating; Discrete and continuous system dynamics; Dynamics of MEMS and NEMS devices; Electronic Packaging and cooling; Fault Diagnosis and Prognosis; Flexible Manufacturing Systems; Flow of granular material; Flow through deformable confinements; Friction Stir Welding and Processing; Fuel cells modelling; grinding; Heat Transfer; Hydrodynamic and Thermal Instability; Industry 4.0; Lithium-ion battery modelling; machining; manufacturing; Mechanics of Advanced Materials; Mechanics of Composites; Mechanics of inflatable structures; Melting and Solidification; Microfluidics; Microfluidics and microscale transport;

Micromachining; Micromanufacturing Processes; Modelling and Simulation; Modelling & Diagnostics of Industrial Systems; Nonlinear Dynamics; Optimization & Modeling of Manufacturing Processes; Perturbation Methods in Fluid Dynamics; Porous materials and structured fluids; Rail vehicle dynamics; residual stress; Robotics & Computer-Aided Engineering (CAE); Single and Multiphase Fluid Dynamics; Soft Computing techniques; Spectral Methods in Fluid Dynamics; Surface engineering and coated materials; Surface finishing; Systems and Control; Thermal Engineering; Thermal management of Li-ion batteries; Thin/thick Coatings & Nano-polymer Composites; Train Aerodynamics; Tribology; Ultrafast Cooling methodologies; Vibration and Noise Control; Vibration induced transport; Vibration of Electromechanical Systems;

Academic Performance

Collaboration	22
Doctoral Degrees Awarded	22
MS Degrees Awarded	02
Fellow - Professional Bodies	02
Member - Professional Bodies	06
Member - Editorial Board	10
Awards & Honours	03
Fellowships	03
Sponsored Research Projects	93
Consultancy Projects	02
Visits Abroad by Faculty Members	17
Invited Lectures by Faculty Members	25
Seminars, Conferences and Workshops Organized	05
Short-Term Courses, Training Programmes and Workshops organised	05
Papers Published in Journals	164
Papers Presented in Conferences	75

Metallurgical and Materials Engineering

Head of the Department : Rahul Mitra

Professors

Name	Highest Degree	Research Areas
Debalay Chakrabarti	Ph.D.	Physical metallurgy; Mechanical metallurgy; Iron & steel technology; Structural Safety; Advanced Materials Processing
Gour Gopal Roy	Ph.D.	Computational Fluid Dynamics; Electron beam welding; Sponge iron technology by RHF; Extractive metallurgy; NMI control in steel
Indranil Manna	Ph.D.	
Jyotsna Dutta Majumdar	Ph.D.	
Karabi Das	Ph.D.	Advanced Materials Processing; Bulk nanocomposites and nanocomposite thin films; Surface Engineering; Functionally Graded Materials; Wear Resistant Steels
Koushik Biswas	Ph.D.	Energy materials; Modelling of metals and ceramics; Multifunctional ceramics; cement
Nirupam Chakraborti	Ph.D.	Extractive metallurgy; Process Simulation, Optimization & Control; Soft Computing and Control; Computational material science; Iron & steel technology
Rahul Mitra	Ph.D.	Advanced Alloys & Superalloys; Mechanical metallurgy; Thin film growth and epitaxy; Corrosion & environmental degradation; Advanced Materials Processing
Shampa Aich	Ph.D.	Magnetic Materials (Permanent Magnet); NiTi-based Shape Memory Alloy Thin Film; Magnetic Shape Memory Alloy; Bio-Materials; Surface engineering and coated materials
Shiv Brat Singh	Ph.D.	Physical metallurgy of steel
Siddhartha Das	Ph.D.	Energy materials; Surface engineering and coated materials; Failure Analysis; Characterization of Materials; Nano Materials
Sudipto Ghosh	Ph.D.	
Tapas Laha	Ph.D.	
Tarun Kumar Kundu	Ph.D.	

Associate Professors

Amit Bhaduri	Ph.D.	
Jayanta Das	Ph.D.	Metastable alloys, Bulk Metallic Glasses; Non-equilibrium Processing; Bulk Nanocrystalline Metals and Alloys; Low Stacking Fault Energy Materials; High Temperature Oxidation
Narendra Nath Acharya	Ph.D.	
Sujoy Kumar Kar	Ph.D.	Processing-Structure-Texture-Property; Neural network & Thermo-kinetic modeling; TiAl based high temperature materials; Additive and Laser based Manufacturing; Ti alloys, Ni based superalloys, Steels
Sumantra Mandal	Ph.D. IIT Madras	Alloy Design; Grain Boundaries and Interfaces; Aqueous and High Temperature Corrosion; Creep, Fatigue and Fracture; Computational Materials Modeling

Tapas Kumar Bandyopadhyay	Ph.D.	

Assistant Professors

Amlan Dutta	Ph.D.	Computational material science; Modelling of dislocation dynamics; Elastoplastic behaviour of nanomaterials; Bulk metallic glasses
Chandra Sekhar Tiwary	Ph.D.	
Indrani Sen	Ph.D.	Shape memory alloys and smart materials; Improved Structural materials; Additive and Laser based Manufacturing; Marine Structural Engineering
Mangal Roy	Ph.D.	Bone Regeneration & Bone Tissue Engineering; Powder metallurgy; Advanced Alloys & Superalloys
Siddhartha Roy	Ph.D.	Mechanics of Composites; Mechanical metallurgy
Somjeet Biswas	Ph.D.	Thermomechanical processing and SPD; Quantitative Microscopy and Texture; Advanced light metals and alloys; Mechanical & Physical Metallurgy; Recrystallization and related phenomena

New Faculty Appointment

Name	Designation	Research Areas
Chandra Sekhar Tiwary	Assistant Professor	
Siddhartha Roy	Assistant Professor	Mechanics of Composites; Mechanical metallurgy

Visiting Faculty

Gour Prasad Das	Professor
Prodip Kumar Sen	Professor

Promotion

Amlan Dutta	Assistant Professor	Computational material science; Modelling of dislocation dynamics; Elastoplastic behaviour of nanomaterials; Bulk metallic glasses
Chandra Sekhar Tiwary	Assistant Professor	
Debalay Chakrabarti	Associate Professor	Physical metallurgy; Mechanical metallurgy; Iron & steel technology; Structural Safety; Advanced Materials Processing
Koushik Biswas	Associate Professor	Energy materials; Modelling of metals and ceramics; Multifunctional ceramics; cement
Shampa Aich	Professor	Magnetic Materials (Permanent Magnet); NiTi-based Shape Memory Alloy Thin Film; Magnetic Shape Memory Alloy; Bio-Materials; Surface engineering and coated materials
Tapas Laha	Professor	
Tarun Kumar Kundu	Professor	

Research Areas

Additive and Laser based Manufacturing; Advanced Alloys & Superalloys; Advanced light metals and alloys; Advanced Materials Processing; Alloy Design; Aqueous and High Temperature Corrosion; Bio-Materials; Bone Regeneration & Bone Tissue Engineering; Bulk metallic glasses; Bulk nanocomposites and nanocomposite thin films; Bulk Nanocrystalline Metals and Alloys; cement; Characterization of Materials; Computational Fluid Dynamics; Computational material science; Computational Materials Modeling; Corrosion & environmental degradation; Creep, Fatigue and Fracture; Elastoplastic behaviour of nanomaterials; Electron beam welding; Energy materials; Extractive metallurgy; Failure Analysis; Functionally Graded Materials; Grain Boundaries and Interfaces; High Temperature Oxidation; Improved

Structural materials; Iron & steel technology; Low Stacking Fault Energy Materials; Magnetic Materials (Permanent Magnet); Magnetic Shape Memory Alloy; Marine Structural Engineering; Mechanical metallurgy; Mechanical & Physical Metallurgy; Mechanics of Composites; Metastable alloys, Bulk Metallic Glasses; Modelling and simulation; Modelling of dislocation dynamics; Modelling of metals and ceramics; Multifunctional ceramics; Nano Materials; Neural network & Thermo-kinetic modeling; NiTi-based Shape Memory Alloy Thin Film; NMI control in steel; Non-equilibrium Processing; Physical metallurgy; Physical metallurgy of steel; Powder metallurgy; Processing-Structure-Texture-Property; Process Simulation, Optimization & Control; Quantitative Microscopy and Texture; Recrystallization and related phenomena; Shape memory alloys and smart materials; Soft Computing and Control; Sponge iron technology by RHF; Structural Safety; Surface Engineering; Surface engineering and coated materials; Thermomechanical processing and SPD; Thin film growth and epitaxy; TiAl based high temperature materials; Ti alloys, Ni based superalloys, Steels; Wear Resistant Steels;

Academic Performance

Collaboration	43
Doctoral Degrees Awarded	09
Fellow - Professional Bodies	03
Member - Professional Bodies	09
Member - Editorial Board	08
Awards & Honours	03
Fellowships	02
Sponsored Research Projects	59
Consultancy Projects	13
Visits Abroad by Faculty Members	10
Invited Lectures by Faculty Members	24
Seminars, Conferences and Workshops Organized	04
Short-Term Courses, Training Programmes and Workshops organised	04
Papers Published in Journals	96
Papers Presented in Conferences	24

Mining Engineering

Head of the Department : Debasis Deb

Professors

Name	Highest Degree	Research Areas
Arun Kumar Majumder	Ph.D.	
Ashis Bhattacherjee	Ph.D.	Occupational health and safety; Injury epidemiology; Safety data analytics; operations research applications; Whole-body vibration of machine operator
Biswajit Samanta	Ph.D.	Mine Planning & Design : Coal & Metalliferous; Mine Ventilation Planning and Design; Geostatistics
Debashish Chakravarty	Ph.D.	
Debasis Deb	Ph.D.	Rock Mechanics and Ground Control; Numerical Modelling of Geotechnical Systems; Digital Image Correlation
Jayanta Bhattacharyya	Ph.D.	
Karanam Uma Maheshwar Rao	Ph.D.	
Khanindra Pathak	Ph.D. London University	
Samir Kumar Das	Ph.D.	
Samir Kumar Pal	Ph.D.	
S Suryanarayana Bhamidipati	Ph.D.	

Associate Professors

Abhiram Kumar Verma	Ph.D.	
Aditya Kumar Patra	Ph.D.	Air quality measurement and modelling; Whole-body vibration of machine operator; Ergonomics & Industrial Safety
Basanta Kumar Prusty	Ph.D.	Coalbed methane and coal mine methane; unconventional gas, shale gas; CO2 sequestration; mining environmental management
Bibhuti Bhusan Mandal	Ph.D.	
Srikant Annavarapu		

Assistant Professors

Kaushik Dey	Ph.D. (Kanpur)

New Academic Programmes

1. M.Tech (Geomechanics for Mineral and Energy Resources (MI1)
2. M.Tech (Safety, Health and Environment (MI2)

Research Areas

Air quality measurement and modelling; CO2 sequestration; Coalbed methane and coal mine methane; Digital Image Correlation; Drilling Fluid Waste Management; Ergonomics & Industrial Safety; Geostatistics; H2 storage in porous materials; Injury epidemiology; Mine Planning & Design : Coal & Metalliferous; Mine Ventilation Planning and Design; mining environmental management; Numerical Modelling of

Geotechnical Systems; Occupational health and safety; operations research applications; Petroleum production engineering; Polymer synthesis; Rock Mechanics and Ground Control; Safety data analytics; unconventional gas, shale gas; Whole-body vibration of machine operator;

Academic Performance

New Acquisitions	09
Collaboration	06
Member - Professional Bodies	08
Member - Editorial Board	02
Awards & Honours	02
Fellowships	01
Sponsored Research Projects	10
Consultancy Projects	35
Visits Abroad by Faculty Members	04
Invited Lectures by Faculty Members	08
Papers Published in Journals	26
Papers Presented in Conferences	13

Ocean Engg and Naval Architecture

Head of the Department : Prasad Kumar Bhaskaran

Professors

Name	Highest Degree	Research Areas
Debabrata Sen	Ph.D.	
Hari V Warrior	Ph.D.	Physical and Dynamical Oceanography; Turbulence Modeling in Oceanography; Fluid Structure Interaction; Computational Fluid Dynamics
Om Prakash Sha	Ph.D.	Marine Design and Production; High Performance Marine Vehicles
Prasad Kumar Bhaskaran	Ph.D.	Ocean Modeling and Analysis; Marine Acoustics; Ocean Wave Climate Studies; Port & Harbour Engineering; Mechanics of Sediment Transport
Trilochan Sahoo	Ph.D.	Coastal Engineering; Hydroelasticity; Wave past porous structures; Engineering Mathematics and Computation; Flexural gravity wave blocking

Associate Professors

Ashoke Bhar	Ph.D.	
Vishwanath Nagarajan	Ph.D.	Fluid Structure Interaction; Marine Hydrodynamics; Seakeeping and Maneuvering; Ship Motion; Marine Design and Production

Assistant Professors

Anirban Bhattacharyya	Ph.D.	Marine propulsion; Ship design; Energy Saving Devices
Arunjyoti Sarkar	Ph.D. University of Stavanger, Norway	Marine operation for subsea installation; Low RPM current turbine; Offshore wind turbine; Subsea pipelines and risers
Kiran Vijayan	Ph.D.	Vibration of marine structures; Fluid Structure Interaction; Noise and Vibration Control; Measurement While Drilling, Blasting Applications; Smart Materials and Structures
Nabanita Datta	Ph.D.	Vibration of marine structures; Fluid Structure Interaction
Ranadev Datta	Ph.D.	Fluid Structure Interaction; Hydroelasticity of Floating Structures & Ships; Numerical Ship Hydeodynamics; Green Water Loading, Slamming; Seakeeping of Offshore Structure & Ship
Ritwik Ghoshal	Ph.D.	Fluid Structure Interaction; Marine Structural Engineering; Vibration of marine structures; Computational Fluid Dynamics; Mechanics of Composites

New Faculty Appointment

Name	Designation	Research Areas
Ritwik Ghoshal	Ph.D.	Fluid Structure Interaction; Marine Structural Engineering; Vibration of marine structures; Computational Fluid Dynamics; Mechanics of Composites

Visiting Faculty

Subramaniam Neelamani	Professor

Research Areas

Coastal Engineering; Computational Fluid Dynamics; Energy Saving Devices; Engineering Mathematics and Computation; Flexural gravity wave blocking; Fluid Structure Interaction; Green Water Loading, Slamming; High Performance Marine Vehicles; Hydroelasticity; Hydroelasticity of Floating Structures & Ships; Low RPM current turbine; Marine Acoustics; Marine Design and Production; Marine Hydrodynamics;

Marine operation for subsea installation; Marine propulsion; Marine Structural Engineering; Measurement While Drilling, Blasting Applications; Mechanics of Composites; Mechanics of Sediment Transport; Noise and Vibration Control; Numerical Ship Hydeodynamics; Ocean Modeling and Analysis; Ocean Wave Climate Studies; Offshore wind turbine; Physical and Dynamical Oceanography; Port & Harbour Engineering; Seakeeping and Maneuvering; Seakeeping of Offshore Structure & Ship; Ship design; Ship Motion; Smart Materials and Structures; Subsea pipelines and risers; Turbulence Modeling in Oceanography; Vibration of marine structures; Wave past porous structures;

Academic Performance

Collaboration	18
Doctoral Degrees Awarded	03
MS Degrees Awarded	02
Fellow - Professional Bodies	03
Member - Professional Bodies	06
Member - Editorial Board	05
Awards & Honours	06
Sponsored Research Projects	18
Consultancy Projects	18
Invited Lectures by Faculty Members	07
Short-Term Courses, Training Programmes and Workshops organised	03
Papers Published in Journals	44
Papers Presented in Conferences	33

Physics

Head of the Department : Krishna Kumar

Professors

Name	Highest Degree	Research Areas
Achintya Dhar	Ph.D.	Organic Electronics; Solar Photovoltaics; Semicondutor Thin Films; Thin Film Heterostructure
Ajay Kumar Singh	Ph.D.	Nuclear Structure; Gamma-ray spectroscopy; Nuclear detectors
Anushree Roy	Ph.D.	
Arghya Taraphder	Ph.D.	
Dipak Kumar Goswami	Ph.D.	Organic Electronic Devices; Biomedical devices, Flexible electronics; Organic thin film growth; Flexible healthcare devices
Kamal Lochan Panigrahi	Ph.D.	High Energy Physics; String Theory; AdS/CFT duality
Krishna Kumar	Ph.D.	Hydrodynamic Instabilities; Nonlinear Dynamics; Interfacial Waves
Partha Roy Chaudhuri	Ph.D.	Fiber & Integrated Optics, Photonics; Experimental Bio-Photonics, Imaging
Pragya Shukla	Ph.D.	Statistical Studies of Complex Systems; System Dependent Random matrix theory; Mathematical Physics; Statistical Physics
Prasanta Kumar Datta	Ph.D.	
Samit Kumar Ray	Ph.D.	
Sayan Kar	Ph.D.	
Somnath Bharadwaj	Ph.D.	Astrophysics; Cosmology
Sonjoy Majumder	Ph.D.	Physics of ultra cold atom; Light matter interaction: Atomic clock; Quantum Information Theory; Relativistic many-electron theory; Astrophysics: Atomic data
Sudhansu Sekhar Mandal	Ph.D., IIT Kanpur	Fractional Quantum Hall Effect; Disordered Superconductors; Magnetic Vortices and Skyrmions; Physics of Topological Materials
Tapan Kumar Nath	Ph.D.	Functional materials; Engineered oxide & semiconductor heterostructures; Thin film growth and epitaxy; GMR & Magneto-electric & Magneto-caloric Materials; Spintronic nanomaterials and devices

Associate Professors

Amal Kumar Das	Ph.D.	Magnetism and Spintronics
Amreesh Chandra	Ph.D.	
Sanjeev Kumar Srivastava	Ph.D.	Swift heavy ion-matter interaction; Nuclear Condensed Matter Physics; Local Magnetism; Quantum phase transitions & criticality
Shivakiran B N Bhaktha	Ph.D.	Glass Photonics; Random Lasers; Optofluidics; Photonic Crystals; Microresonators
Sugata Pratik Khastgir	Ph.D.	Mathematical Physics; Integrable Models

Assistant Professors

Amar Nath Gupta	Ph.D.	Biophysics; Soft Matter Physics; Single-Molecule Force Spectroscopy; Microrheology; Protein folding

Debamalya Banerjee	Ph.D.	
Debraj Choudhury	Ph.D., IISc Bangalore	GMR & Magneto-electric & Magneto-caloric Materials; Thin film growth and epitaxy; Electronic & magnetic materials
Jyotirmoy Bhattacharya	Ph.D.	Quantum field theory; Gravity; String Theory; Relativistic hydrodynamics; Quantum entanglement in QFTs
Maruthi Manoj Brundavanam	Ph.D.	Singular Optics; Correlation Optics
Poornachandra Sekhar Burada	Ph.D.	Soft Matter Physics; Non-equilibrium Statistical Mechanics; Low-Reynolds number Hydrodynamics; Computational Physics
Sajal Dhara	Ph.D.	Nanoscale optoelectronics; Electron transport; Light-matter interaction
Samudra Roy	Ph.D.	Nonlinear Photonics; Nonlinear Cavity Dynamics, Cavity Soliton; Airy pulse dynamics
Sandipan Sengupta	Ph.D.	Classical gravity; Quantum gravity
Sitikantha Dhurjati Das	Ph.D.	
Tirtha Sankar Ray	Ph.D.	Particle Physics; Beyond Standard Model Physics; Electroweak Symmetry Breaking; Astroparticle Physics

Visiting Faculty

Name	Highest Degree	Research Areas
Bhupendra Nath Dev	Assistant Professor	
Simone Peli	Assistant Professor	
Utpal Sarkar	Professor	

Promotion

Jyotirmoy Bhattacharya	Assistant Professor	Quantum field theory; Gravity; String Theory; Relativistic hydrodynamics; Quantum entanglement in QFTs
Sitikantha Dhurjati Das	Assistant Professor	

Brief Description of on-going activities

Department of Physics runs the following academic programs:

1. Five year Integrated M.Sc.
2. Joint M.Sc.-Ph.D.
3. Two year M. Tech. in Functional Materials and Devices
4. Ph.D.

The faculty members of the Department are involved in research in frontiers of theoretical and experimental physics in addition to teaching

Research Areas

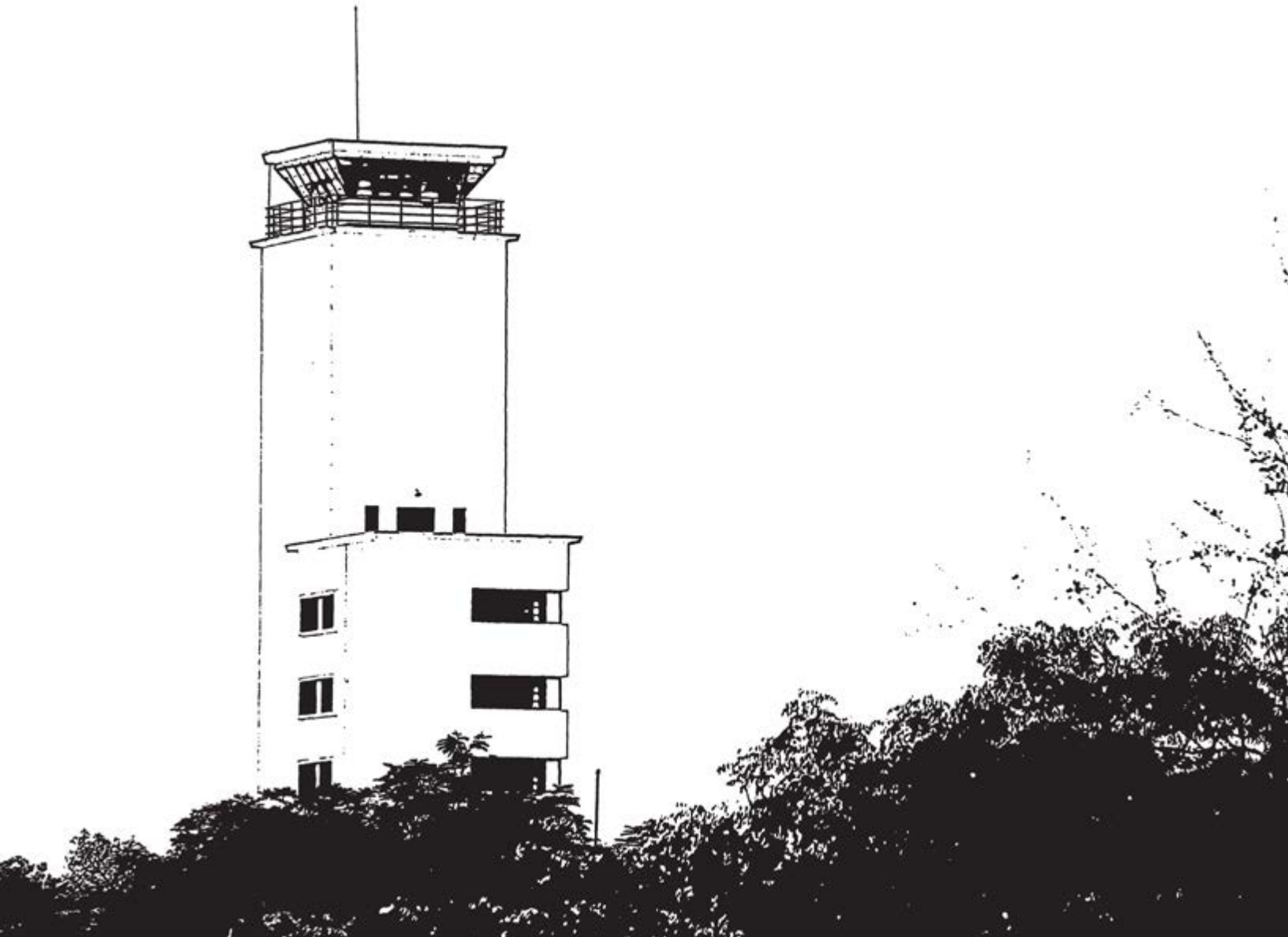
AdS/CFT duality; Airy pulse dynamics; Astroparticle Physics; Astrophysics; Astrophysics: Atomic data; Beyond Standard Model Physics; Biomedical devices, Flexible electronics; Biophysics; Classical gravity; Computational Physics; Correlation Optics; Cosmology; Disordered Superconductors; Electronic & magnetic materials; Electron transport; Electroweak Symmetry Breaking; Engineered oxide & semiconductor heterostructures; Experimental Bio-Photonics, Imaging; Fiber & Integrated Optics, Photonics; Flexible healthcare devices; Fractional Quantum Hall Effect; Functional materials; Gamma-ray spectroscopy; Glass Photonics; GMR & Magneto-electric & Magneto-caloric Materials; Gravity; High Energy Physics; Hydrodynamic Instabilities; Integrable Models; Interfacial Waves; Light-matter interaction; Light matter interaction: Atomic clock; Local Magnetism; Low-Reynolds number Hydrodynamics; Magnetic Vortices and Skyrmions; Magnetism and Spintronics; Mathematical Physics; Microresonators; Microrheology; Nanoscale optoelectronics; Non-equilibrium Statistical Mechanics; Nonlinear Cavity Dynamics, CavitySoliton; Nonlinear Dynamics; Nonlinear Photonics; Nuclear Condensed Matter Physics; Nuclear detectors; Nuclear Structure;

Optofluidics; Organic Electronic Devices; Organic Electronics; Organic thin film growth; Particle Physics; Photonic Crystals; Physics of Topological Materials; Physics of ultra cold atom; Protein folding; Quantum entanglement in QFTs; Quantum field theory; Quantum gravity; Quantum Information Theory; Quantum phase transitions & criticality; Random Lasers; Relativistic hydrodynamics; Relativistic many-electron theory; Semicondutor Thin Films; Single-Molecule Force Spectroscopy; Singular Optics; Soft Matter Physics; Solar Photovoltaics; Spintronic nanomaterials and devices; Statistical Physics; Statistical Studies of Complex Systems; String Theory; Swift heavy ion-matter interaction; System Dependent Random matrix theory; Thin film growth and epitaxy; Thin Film Heterostructure;

Academic Performance

New Acquisitions	02
Collaboration	49
Doctoral Degrees Awarded	12
Member - Professional Bodies	12
Member - Editorial Board	03
Awards & Honours	01
Fellowships	01
Sponsored Research Projects	46
Visits Abroad by Faculty Members	11
Invited Lectures by Faculty Members	56
Papers Published in Journals	95
Papers Presented in Conferences	30

ACADEMIC CENTERS



Advanced Technology Development Centre

Head of the Department : Sunando Dasgupta

Assistant Professors

Name	Highest Degree	Research Areas
Ayantika Chatterjee	Assistant Professor	Information Security; Big Data Analytics; System Security
Somnath Sengupta	Ph.D.	Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Electric Vehicles: Powertrain & Battery Management; Algorithms

New Faculty Appointment

Name	Designaion	Research Areas
Ayantika Chatterjee	Assistant Professor	Information Security; Big Data Analytics; System Security

Visiting Faculty

Jatindra Nath Roy	Professor	MEMS and Microsystems; Semiconductor Devices and Circuits; VLSI and Embedded Systems; Solar and Wind Energy Conversion

Promotion

Somnath Sengupta	Assistant Professor	Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Electric Vehicles: Powertrain & Battery Management; Algorithms

New Academic Programmes

Apart from PhD and M.S. degrees the centre has started a M. Tech. course on embedded control and software (ECS). The course covers Design, Analysis and Implementation of high quality, functionally accurate embedded software incorporating complex intelligent control mechanisms across a wide range of hardware and software platforms. The methods address issues to Performance, Power / Energy, Fault Tolerance, Real-Time Operations, Safety-Criticality, Communication, Security, Parallel / Distributed Implementations, Software Engineering, etc. It will incorporate important applications, development of CAD tools and include Laboratory and Industry experience. The course is Interdisciplinary and Collaborative in nature and faculty members from several departments along with industry and other external experts are taking classes. It includes possibilities of industry based projects, sponsored candidates and participation in national level programmes. Researchorientation is a focus of this course which aims at developing new methods of intelligent control and software technology. Recently the centre has started a new elective course on ‘Principles of Automotive Dynamics & Control’, under the ECS program.

Brief Description 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 / microphotonic 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 smart sensors and their interfacing circuits for special applications. During the last one year the MEMS devices developed in the laboratory include silicon piezoresistive, capacitive as well as tunneling accelerometer. Design of MEMS acclerometer with enhanced sensitivity and Closed loop MEMS capacitive accelerometer have also been undertaken. 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. Design and development of MEMS based micropropulsion devices for micro/nano satellite programme
such as accelerometer

The work on the broad area of micro and nano materials and structures are also continued. On-going activities include synthesis of nanomaterials primarily through gas phase synthesis and characterization of the nanomaterials produced.

Research and development is also undertaken in the field of Integrated Optics & Micro-Photonics. An integrated-optic design software have been developed and copyrighted. This software can design single-mode step-index and graded index waveguides along with bending losses and mode profiles. Fabrication and characterization of titanium indiffused lithium niobate waveguides, directional couplers, power splitters, switches for fiber-optic communication networks have been performed. Recently polymer based microstructures for microphotonic applications have been developed in the centre. Polymer integrated-optic waveguides have been fabricated and characterized in the centre for possible applications in passive waveguide devices.

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 60 different chips have been fabricated and tested. 15 leading companies have joined the AVLSI Consortium. More than 12 ongoing collaborative research projects funded by the Govt. of India and leading companies including National Semiconductors, Intel, Synopsys, Infineon, Texas Instruments, Si2 Microsystems, Agilent, Tessolve, Analog Devices and General Motors. 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. Research on Solar PV is also continued.

A radiation hardened 2.5GHz Phase Lock Loop (PLL) using 0.18μm technology has been designed to deliver a clock with very low jitter in high radiation environment. Specific architectural design and techniques are implemented to help mitigate the radiation effects that degrade the PLL performance. UMC 180 nm Silicon on Sapphire (SOS) CMOS process technology is used in the developed radiation hardened PLL. This indigenously developed IC uses a novel technology which can work up to a total radiation dose of 900Krad which is higher compared to the commercially available radiation hardened PLL. Microfluidics group of the centre focuses on several cutting edge research topics like healthcare technologies, and on-chip power generation. They are currently working on two devices namely lab-on-a-compact-disk (LOCD) and ‘paper and pencil’ based microfluidic platform. We have developed lab-on-a-CD device aiming towards inexpensive diagnosis of malaria, which holds the potential of eliminating the stereotype clinical methodologies. Currently, we are working towards the optimization of lab-on-a-CD device for haemoglobin-based disorders by exploiting the rheological properties of blood. The ‘paper-and-pencil’ based devices, developed by us, provide an inexpensive, efficient remedy for spot diagnostics considering the mass usage. We have illustrated the
flow characteristics on such ‘paper-and-pencil’ devices and its subsequent use for mixing of two analytes. We have also delineated the utility of the ‘paper-and-pencil’ device for simultaneous detection of multiple analytes. We believe that the aforementioned microfluidic devices hold the potential of circumventing the disadvantages of the stereotype clinical practices, and thus ushering in a new paradigm of efficient and affordable diagnostics. We are currently in process of developing another device namely ‘plant-onchip’ aiming on-chip power generation, by utilizing the streaming potential generated, due to the flow of an electrolyte solution within the micro-conduit.

The work ‘dynamics of thin liquid films’ includes studying the dynamics of thin liquid films (TLF’s), subject to various modes of perturbation including thermal, electric and magnetic. A recent work regarding the effect of magnetic body-force on the dynamics of thin liquid films provided a novel and highly promising mode of TLF manipulation. The dynamics could be used for applications in Point of care diagnostic systems and towards development of lab on chip devices in general.

Dual functionalities of superhydrophobicity and adhesion of a rose petal are investigated by soft-lithographically replicating the structures of the petal. Moreover, the wetting states on these replicas are determined using confocal microscopy. An innovative method has been developed for transforming an elastomeric film in to a highly adhesive surface without sacrificing its wetting characteristics via the creation of wrinkles on the elastomeric film surface. These wrinkled surfaces with tailored topography have advantages in droplet manipulation, cell adhesion and proliferation, and sorting of the colloidal particles etc.

Cell micropatterning and cell sorting has important applications in the development of biosensors and lab-on-a-chip devices, tissue engineering and fundamental cell biology studies. The colloidal self assembly and lattice formation are observed inside a microchannel of varying width. The flow inside the channel is

achieved by capillary flow by altering the hydrophilicity of the channel. This can further help in sorting of diseased RBCs from healthy RBCs based on their shapes and sizes.

Coffee ring effect can be used as a tool in diagnostic assays to enhance the sensitivity of biomarker detection at the ring position. Protein drying pattern in presence of polystyrene beads has been studied. The variation in the drying pattern can be used to quantify protein fibrillation.

Red blood cells (RBCs) of blood (~ 45% by volume) in matured state are typically biconcave discs with a characteristic diameter of ~ 8 microns. RBC-laden blood droplets are subjected to natural evaporation over substrates possessing different functional groups and the kinetics of RBC deformation as a function of substrate property are monitored and correlated to a deformation index specific to variation in substrate property.

BioMEMS is a rapidly advancing, inter-disciplinary research field for creation and development of new methods/systems to effectively process or manipulate biological materials with electronic devices and components. Giving a prior importance to the biomedical sensing research, an interdisciplinary R&D work has been initiated to promote MEMS and Biosensor activity that encompasses design, fabrication and engineering of biomedical & microfluidic devices for its electro-physiological characterisation. For the evaluation of electrical and physical properties of bio molecules and cells using suitable micro-fluidic devices, appropriate fabrication of polymeric coated bio-MEMS are being investigated and its utility are evaluated under different microscopic and electrical impedance study. The research also involves development of different BioMEMS transducers and related technologies for
electrical impedance study. The research also involves development of different BioMEMS transducers and related technologies for sensing various biomedical signals for precise and appropriate diagnostics and therapeutics. Microfabrication technology is being explored to develop various miniature MEMS devices for deployment of in-vivo and in-vitro detection of biomedical signals and its characterisation. Research on MEMS and BioMEMS also includes: Micromachining of flexible polymer for MEMS and electronic skin applications; Development of MEMS based pressure sensor skin for medical robotics; Miniature active devices for cardiac application; Development of Electronic Hotspot cooling device by using Digital Microfluidics; and Comparative study of open and closed Digital Microfluidic System.

Recent research on biotechnology in the centre includes: Development of Auditory and Motor Cortical Circuitry: In Autism Models and Normal; Frontal Cortical Encoding of Sounds for Executive Decision Making; Vocalizations Structure in Different Contexts: In Autism Models and Normal; Auditory Cortical Encoding of Sound Contrast; Multisensory Integration in Frontal and Sensory Cortices.

Research Areas

Algorithms; Big Data Analytics; Electric Vehicles: Powertrain & Battery Management; Information Security; MEMS and Microsystems; Modelling & Diagnostics of Industrial Systems; Modelling of Aerospace & Automotive Systems; Semiconductor Devices and Circuits; Solar and Wind Energy Conversion; System Security; VLSI and Embedded Systems;

Academic Performance

New Acquisitions	01
Doctoral Degrees Awarded	16
Fellow - Professional Bodies	02
Member - Professional Bodies	02
Member - Editorial Board	01
Sponsored Research Projects	05
Consultancy Projects	02
Visits Abroad by Faculty Members	01
Invited Lectures by Faculty Members	01
Papers Published in Journals	05
Papers Presented in Conferences	05

Centre for Artificial Intelligence

Head of the Department : *Sudeshna Sarkar*

New Academic Programmes

1. Outreach Course: Certificate program for working professionals on "Foundations of Artificial Intelligence and Machine Learning"

Brief Description of on-going activities

The Centre for AI engages in research and teaching in AI. It has offered courses on Machine Learning and Deep Learning. It has also started an Outreach program for delivering AI related courses. A 6-month Certificate program for working professionals is ongoing. The Centre for AI has engaged in research projects with various partners.

Academic Performance

New Acquisitions	01

P K Sinha Centre For Bioenergy

Head of the Department : Makarand Madhao Ghangrekar

This is India's first integrated Bioenergy center. The activities of the centre include knowledge in action by partnering with the government, commercial organizations, knowledge dissemination through academia, industry and policy makers. The center's faculty members are currently working in the areas of bio-ethanol, bio-diesel, bio-hydrogen, bio-methane, algal bio-refinery and microbial fuel cells and genetic prospecting of energy crops.

Centre for Computational and Data Sciences

Head of the Department : *Sanjoy Bandyopadhyay*

Assistant Professors

Name	Highest Degree	Research Areas
Divya Nayar	Ph.D.	Computational chemistry; Molecular simulation; Solvation thermodynamics; Biophysical chemistry; Statistical Mechanics
Sandeep Kumar Reddy	Ph.D.	NQE in Condensed Phase; Molecular Modelling and Simulation; Machine learning; Material Interfaces

Research Areas

Biophysical chemistry; Computational chemistry; Machine learning; Material Interfaces; Molecular Modelling and Simulation; Molecular simulation; NQE in Condensed Phase; Solvation thermodynamics; Statistical Mechanics;

Academic Performance

New Acquisitions	01
Invited Lectures by Faculty Members	05
Papers Published in Journals	04

Centre For Educational Technology

Head of the Department : Rajib Mall

Associate Professors

Name	Highest Degree	Research Areas
Bani Bhattacharya	Ph.D.	

Assistant Professors

Atasi Mohanty	Ph.D.	
Jiaul Hoque Paik	Ph.D.	Big Data Analytics; Information Retrieval; Natural Language Pocessing; Machine Learning; Learning Analytics
Kaushal Kumar Bhagat	Ph.D.	Augmented Reality; Virtual Reality; Flipped classroom; Online learning; Formative assessment
Manjira Sinha	Ph.D.	Text Readability, Language Comprehension; Computer Assisted Education; Assistive Technology; Assistive and Augmentative Communication; Text Mining, Big Data
Plaban Kumar Bhowmick	Ph.D.	Natural Language Pocessing; Artificial Intelligence; Digital Library; Computer Assisted Language Learning
Rajlakshmi Guha	Ph.D.	Positive Psychology; Physiological & Cognitive Data Analysis; Educational Neuroscience Cognitive Neuro- psychology
Shyamal Kumar Das Mandal	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Kaushal Kumar Bhagat	Assistant Professor	Augmented Reality; Virtual Reality; Flipped classroom; Online learning; Formative assessment
Manjira Sinha	Assistant Professor	Text Readability, Language Comprehension; Computer Assisted Education; Assistive Technology; Assistive and Augmentative Communication; Text Mining, Big Data

Research Areas

Artificial Intelligence; Assistive and Augmentative Communication; Assistive Technology; Augmented Reality; Big Data Analytics; Cognitive Neuro-psychology; Computer Assisted Education; Computer Assisted Language Learning; Digital Library; Educational Neuroscience; Flipped classroom; Formative assessment; Information Retrieval; Learning Analytics; Machine Learning; Natural Language Pocessing; Online learning; Physiological & Cognitive Data Analysis; Positive Psychology; Text Mining, Big Data; Text Readability, Language Comprehension; Virtual Reality;

Academic Performance

Member - Professional Bodies	05
Member - Editorial Board	01
Awards & Honours	03
Sponsored Research Projects	22
Consultancy Projects	02
Visits Abroad by Faculty Members	03
Invited Lectures by Faculty Members	15
Seminars, Conferences and Workshops Organized	03
Papers Published in Journals	04
Papers Presented in Conferences	05

Centre For Oceans, Rivers, Atmosphere and Land Science

Head of the Department : Anil Kumar Gupta

Professors

Name	Highest Degree	Research Areas
Arun Chakraborty	Ph.D.	Ocean Modelling and Process Studies; Ocean Data Assimilation; Regional coupled Modelling; Visualization of 3D Ocean Data; Bio-geochemical modelling

Associate Professors

Achanta Naga Venkata Satyanarayana	Ph.D.	Modeling of PBL & Air sea Interactions; Modeling of Extreme Events; Urban Boundary Layer, UHI Impact-Climate; Parameterization- Land Surface Processes; Air Pollution&Regional Climate Modeling
C Shaji	Ph.D.	Upper Equatorial Indian Ocean Dynamics; Ocean Modeling and Analysis; Ocean Processes Studies; Water Masses & Climate Variations; Physical Forcing on Biologi. Activity
Mihir Kumar Dash	Ph.D.	Modelling of Mesoscale Ocean Processes; Monsoon dynamics; Cryospheric Modeling using RS; Remote Sensing of the Ocean Surfaces
Mukunda Dev Behera	Ph.D.	Terrestrial Remote Sensing; Spatial Biodiversity; Ecological Climatology; Biomass and Carbon Sequestration; Land Use and Land Cover Dynamics
Parthasarathi Chakraborty	Ph.D.	

Assistant Professors

Abhishek Kumar Rai		Machine Learning; Natural Hazards/Catastrophe Modelling; Marine/Land Geophysics; Seismology/Seismic Exploration; Remote sensing and GIS
Jayanarayanan Kuttippurath	D.Sc., University of Pierre Marie Curie, Paris	Atmospheric Chemistry and Physics; Climate Change and Climate Modelling; Physical Oceanography;
Pranab Deb		Past and future of Earth's Cryosphere; Climate dynamics; Global teleconnection; Antarctic sea ice; Polar climate change & variability

New Faculty Appointment

Name	Designation	Research Areas
Parthasarathi Chakraborty	Associate Professor	
Pranab Deb	Assistant Professor	Past and future of Earth's Cryosphere; Climate dynamics; Global teleconnection; Antarctic sea ice; Polar climate change & variability

Chair Professor

V Chandrasekar	Professor

Visiting Faculty

Abhishek Kumar Rai	Assistant Professor	Machine Learning; Natural Hazards/Catastrophe Modelling; Marine/Land Geophysics; Seismology/Seismic Exploration; Remote sensing and GIS
Prem Chand Pandey	Professor	

Promotion

Abhishek Kumar Rai	Assistant Professor	Machine Learning; Natural Hazards/Catastrophe Modelling; Marine/Land Geophysics; Seismology/Seismic Exploration; Remote sensing and GIS
C Shaji	Associate Professor	Upper Equatorial Indian Ocean Dynamics; Ocean Modeling and Analysis; Ocean Processes Studies; Water Masses & Climate Variations; Physical Forcing on Biologi. Activity
Parthasarathi Chakraborty	Associate Professor	
Jayanarayanan Kuttippurath	Assistant Professor	Atmospheric Chemistry and Physics; Climate Change and Climate Modelling; Physical Oceanography; Atmospheric Pollution and Health effects

Research Areas

Air Pollution&Regional Climate Modeling; Antarctic sea ice; Atmospheric Chemistry and Physics; Bio-geochemical modelling; Biomass and Carbon Sequestration; Climate Change and Climate Modelling; Climate dynamics; Cryospheric Modeling using RS; Ecological Climatology; Global teleconnection; Land Use and Land Cover Dynamics; Machine Learning; Marine/Land Geophysics; Modeling of Extreme Events; Modeling of PBL & Air sea Interactions; Modelling of Mesoscale Ocean Processes; Monsoon dynamics; Natural Hazards/Catastrophe Modelling; Ocean Data Assimilation; Ocean Modeling and Analysis; Ocean Modelling and Process Studies; Ocean Processes Studies; Parameterization- Land Surface Processes; Past and future of Earth's Cryosphere; Physical Forcing on Biologi. Activity; Physical Oceanography; Polar climate change & variability; Regional coupled Modelling; Remote sensing and GIS; Remote Sensing of the Ocean Surfaces; Seismology/Seismic Exploration; Spatial Biodiversity; Terrestrial Remote Sensing; Upper Equatorial Indian Ocean Dynamics; Urban Boundary Layer, UHI Impact-Climate; Visualization of 3D Ocean Data; Water Masses & Climate Variations;

Academic Performance

Collaboration	07
Doctoral Degrees Awarded	07
Member - Professional Bodies	03
Member - Editorial Board	07
Awards & Honours	03
Sponsored Research Projects	22
Visits Abroad by Faculty Members	01
Invited Lectures by Faculty Members	12
Seminars, Conferences and Workshops Organized	04
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	40
Papers Presented in Conferences	49

Center for Re-Water Research

Head of the Department : Makarand Madhao Ghangrekar

Brief Description of on-going activities

Research is being undertaken to produce reusable quality treated water from polluted water stream, including sewage. Under this centre two sewage treatment plants are getting constructed on campus to produce potable quality treated water, with the capacities of 1350 cu.m per day and 300 cu.m per day. Another hybrid plant is already commissioned on campus to produce clean water from sewage for onsite reuse except potability.

Centre for Theoretical Studies

Convenor: Somnath Bharadwaj

Brief Descriptions on-going activities

1. CTS is offering new advanced post-graduate courses which are relevant across departments through involvement of faculty from various departments. These courses are: a) Methods in molecular simulations (TS70009), b) Advanced dynamics (TS70002), c) Wave propagation in continuous media (TS70003) d) Advanced Mathematical techniques (TS70004), e) Advanced quantum theory (TS70005) f) Quantum mechanics and quantum computing (TS70006) g) Hydrodynamics at Low Reynolds Number (TS61002) h) Nanomechanics (TS61004) .

2. CTS also offering Micro-Specialization in "SIMULATION METHODS AND APPLICATIONS" for under graduate student a) Simulations in Collider Physics and Cosmology (TS62001)
3. b) Monte Carlo Simulation in Engineering (CE60103)

4. CTS is also admitting PhD students through institute fellowships, CSIR fellowships. Currently eleven such students are enrolled.

Academic Performance

New Acquisitions	01
Lectures by Visiting Experts	09
Doctoral Degrees Awarded	01

Cryogenic Engineering

Head of the Department : Parthasarathi Ghosh

Professors

Name	Highest Degree	Research Areas
Kanchan Chowdhury	Ph.D.	Cryogenic air separation; Prevention of Fire in hospitals; Liquefied Natural Gas (LNG) transport; Liquefied Natural Gas (LNG) vaporization; Safety in oxygen-rich environment
Vutukuru Vasudeva Rao	Ph.D.	Applied Superconductivity; Vacuum Technology

Associate Professors

Indranil Ghosh	Ph.D.	Heat Exchanges: PlateFin, Minichannel; Heat Transfer in Metal Foam; Solid Sorption Cooling; Cryosorption Storage of Hydrogen
Parthasarathi Ghosh	Ph.D.	Cryogenic refrigeration and liquefaction; Large scale helium cryogenics; CFD of cryogenic fluid transfer systems; Cryogenic rotating equipments; Low temperature processes and equipment
Tapas Kumar Nandi	Ph.D.	Cryogenic refrigeration; Perforated plate matrix heat exchanger; Cryogenic rocket propulsion; Thermoacoustics engine
Venimadhav Adyam	Ph.D.	

Assistant Professors

Abhay Singh Gour	Assistant Professor	Sensors & Actuators; Applied Superconductivity; Power Distribution System; Soft Computing and Control; Semiconductor Devices and Circuits
Pavitra Sandilya	Ph.D.	

New Faculty Appointment

Abhay Singh Gour	Assistant Professor	Sensors & Actuators; Applied Superconductivity; Power Distribution System; Soft Computing and Control; Semiconductor Devices and Circuits

Promotion

Indranil Ghosh	Professor	Heat Exchanges: PlateFin, Minichannel; Heat Transfer in Metal Foam; Solid Sorption Cooling; Cryosorption Storage of Hydrogen
Tapas Kumar Nandi	Ph.D.	Cryogenic refrigeration; Perforated plate matrix heat exchanger; Cryogenic rocket propulsion; Thermoacoustics engine

Research Areas

Applied Superconductivity; Carbon capture and storage; CFD of cryogenic fluid transfer systems; Cryogenic air separation; Cryogenic refrigeration; Cryogenic refrigeration and liquefaction; Cryogenic rocket propulsion; Cryogenic rotating equipments; Cryogenics in chemical processes; Cryosorption Storage of Hydrogen; Heat Exchanges: PlateFin, Minichannel; Heat Transfer in Metal Foam; Heat transfer using nano-fluids; Large scale helium cryogenics; Liquefied Natural Gas (LNG) transport; Liquefied Natural Gas (LNG) vaporization; Low temperature processes and equipment; Perforated plate matrix heat exchanger; Power Distribution System; Prevention of Fire in hospitals; Process Intensification; Process modelling and simulation; Safety in oxygen- rich environment; Semiconductor Devices and Circuits; Sensors & Actuators; Soft Computing and Control; Solid Sorption Cooling; Storage of cryogens; Thermoacoustics engine; Vacuum Technology;

Academic Performance

New Acquisitions	01
Collaboration	05

Lectures by Visiting Experts	02
Doctoral Degrees Awarded	01
Member - Professional Bodies	07
Member - Editorial Board	01
Awards & Honours	01
Sponsored Research Projects	15
Consultancy Projects	02
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	08
Seminars, Conferences and Workshops Organized	03
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	28
Papers Presented in Conferences	49

Materials Science Centre

Head of the Department : Pallab Banerji

Professors

Name	Highest Degree	Research Areas
Bhanu Bhusan Khatua	Ph.D.	Polymeric Supercapacitors Materials; Polymeric Piezoelectric Materials; Polymer Composite for EMI-SE Application; Polymer-Graphene/CNT/CNH Nanocomposites; Polymer processing and composites
Chacko Jacob	Ph.D.	Thin film growth and epitaxy; Nanofabrication; Functional materials; 2D Transition Metal Dichalcogenides; Nanotechnology
Pallab Banerji	Ph.D.	
Subhasish Basu Majumder	Ph.D.	Oxide gas sensors; Fly ash based ceramic products; Multiferroic thin fims and composites; Li and Na ion batteries; Fiber reinforced cement composites
Susanta Banerjee	Ph.D.	Polymer synthesis; Membrane separation; Fluorinated high performance polymers; Conductive polymers; Optoelectronic polymers

Associate Professors

Debabrata Pradhan	Ph.D.	Nanotechnology; Energy materials; Functional materials

Assistant Professors

Ayan Roy Chaudhuri	Ph.D., IISc Bangalore	Engineered oxide & semiconductor heterostructures; Energy materials; Thin film growth and epitaxy; Nanofabrication; Two Dimensional Ransition Metal Dichalcogenides
Hemakesh Mohapatra	Ph.D.	Stimuli-responsive polymers; Polymer processing and composites; Self healing elastomers
Rajat Kumar Das	Ph.D., IISc Bangalore	Self-healing hydrogels; Self healing elastomers
Shibayan Roy	Ph.D., IISc Bangalore	Crystallographic texture and EBSD; Mechanical Properties; Additive and Laser based Manufacturing; Glass and glass-ceramics; Modelling of metals and ceramics
Vidya Kochat	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Hemakesh Mohapatra	Assistant Professor	Stimuli-responsive polymers; Polymer processing and composites; Self healing elastomers
Vidya Kochat	Assistant Professor	

Promotion

Bhanu Bhusan Khatua	Professor	Polymeric Supercapacitors Materials; Polymeric Piezoelectric Materials; Polymer Composite for EMI-SE Application; Polymer-Graphene/CNT/CNH Nanocomposites; Polymer processing and composites

Research Areas

2D Transition Metal Dichalcogenides; Additive and Laser based Manufacturing; Conductive polymers; Crystallographic texture and EBSD; Energy materials; Engineered oxide & semiconductor heterostructures; Fiber reinforced cement composites; Fluorinated high performance polymers; Fly ash based ceramic products; Functional materials; Glass and glass-ceramics; Li and Na ion batteries; Mechanical Properties; Membrane separation; Modelling of metals and ceramics; Multiferroic thin fims and composites; Nanofabrication; Nanotechnology; Optoelectronic polymers; Oxide gas sensors; Polymer Composite for EMI-

SE Application; Polymer-Graphene/CNT/CNH Nanocomposites; Polymeric Piezoelectric Materials; Polymeric Supercapac itors Materials; Polymer processing and composites; Polymer synthesis; Self healing elastomers; Self-healing hydrogels; Stimuli-responsive polymers; Thin film growth and epitaxy; Two Dimensional Ransition Metal Dichalcogenides;

Academic Performance

New Acquisitions	01
Collaboration	48
Doctoral Degrees Awarded	07
Member - Professional Bodies	04
Member - Editorial Board	03
Awards & Honours	03
Fellowships	01
Sponsored Research Projects	38
Visits Abroad by Faculty Members	04
Invited Lectures by Faculty Members	22
Papers Published in Journals	64
Papers Presented in Conferences	11

Rubber Technology

Head of the Department : Nikhil Kumar Singha

Professors

Name	Highest Degree	Research Areas
Kinsuk Naskar	Ph.D.	High Performance TPV; Green Tyre Technology; Shape memory polymer blends; Polymer and rubber nanocomposites; Electron beam processing/crosslinking
Nikhil Kumar Singha	Ph.D.	Self healing elastomers; Polymer and rubber nanocomposites; Synthetic Polymer Chemistry; Polymer Characterizations & Modifications; Fluorinated high performance polymers
Santanu Chattopadhyay	Ph.D.	Viscoelasticity of rubbery nanocomposite; Advanced Rubber Compounds; Biopolymer and Biocomposites; Smart Textiles/ Technical Textiles; FEA of rubber and product design

Associate Professors

Narayan Chandra Das	Ph.D. IIT Kharagpur	Polymer and rubber nanocomposites; New generation green tire compounds; Polymeric food packaging materials; Biodegradable polymers; Carbon dots & nanomaterials for sensors

Emeritus Faculty

Name	Designation	Research Areas
Anil Kumar Bhowmick	Professor	

Research Areas

Advanced Rubber Compounds; Biodegradable polymers; Biopolymer and Biocomposites; Carbon dots & nanomaterials for sensors; Electron beam processing/crosslinking; FEA of rubber and product design; Fluorinated high performance polymers; Green Tyre Technology; High Performance TPV; New generation green tire compounds; Polymer and rubber nanocomposites; Polymer Characterizations & Modifications; Polymeric food packaging materials; Self healing elastomers; Shape memory polymer blends; Smart Textiles/ Technical Textiles; Synthetic Polymer Chemistry; Viscoelasticity of rubbery nanocomposite;

Academic Performance

Collaboration	06
Doctoral Degrees Awarded	11
Member - Professional Bodies	04
Member - Editorial Board	07
Awards & Honours	01
Fellowships	02
Sponsored Research Projects	18
Consultancy Projects	09
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	21
Seminars, Conferences and Workshops Organized	01
Short-Term Courses, Training Programmes and Workshops organised	03
Papers Published in Journals	55
Papers Presented in Conferences	22

Rural Development

Head of the Department : Nirupama Mallick

Professors

Name	Highest Degree	Research Areas
Pradip Kumar Bhowmick	Ph.D.	Rural and Tribal Development Planning

Assistant Professors

Piyush Kumar Singh	Ph.D.	Agricultural Production and Management; Pricing & Risk management in Agriculture; AgriValue Chain Financing and Management; Digital Platform for Financial Inclusion; Resource Use Efficiency in Farming
Somnath Ghosal	Ph.D.	Rural Development and Regional Planning; Ethnographic and Qualitative Research; Aboriginal Culture, Believes & Practices; Biodiversity and Environment; Community Forestry

Research Areas

Aboriginal Culture, Believes & Practices; Agricultural Production and Management; AgriValue Chain Financing and Management; Biodiversity and Environment; Community Forestry; Digital Platform for Financial Inclusion; Ethnographic and Qualitative Research; Pricing & Risk management in Agriculture; Resource Use Efficiency in Farming; Rural and Tribal Development Planning; Rural Development and Regional Planning;

Academic Performance

Collaboration	02
Member - Professional Bodies	05
Member - Editorial Board	01
Awards & Honours	01
Fellowships	01
Sponsored Research Projects	08
Visits Abroad by Faculty Members	01
Seminars, Conferences and Workshops Organized	02
Short-Term Courses, Training Programmes and Workshops organised	01
Papers Published in Journals	04
Papers Presented in Conferences	04

Steel Technology Centre

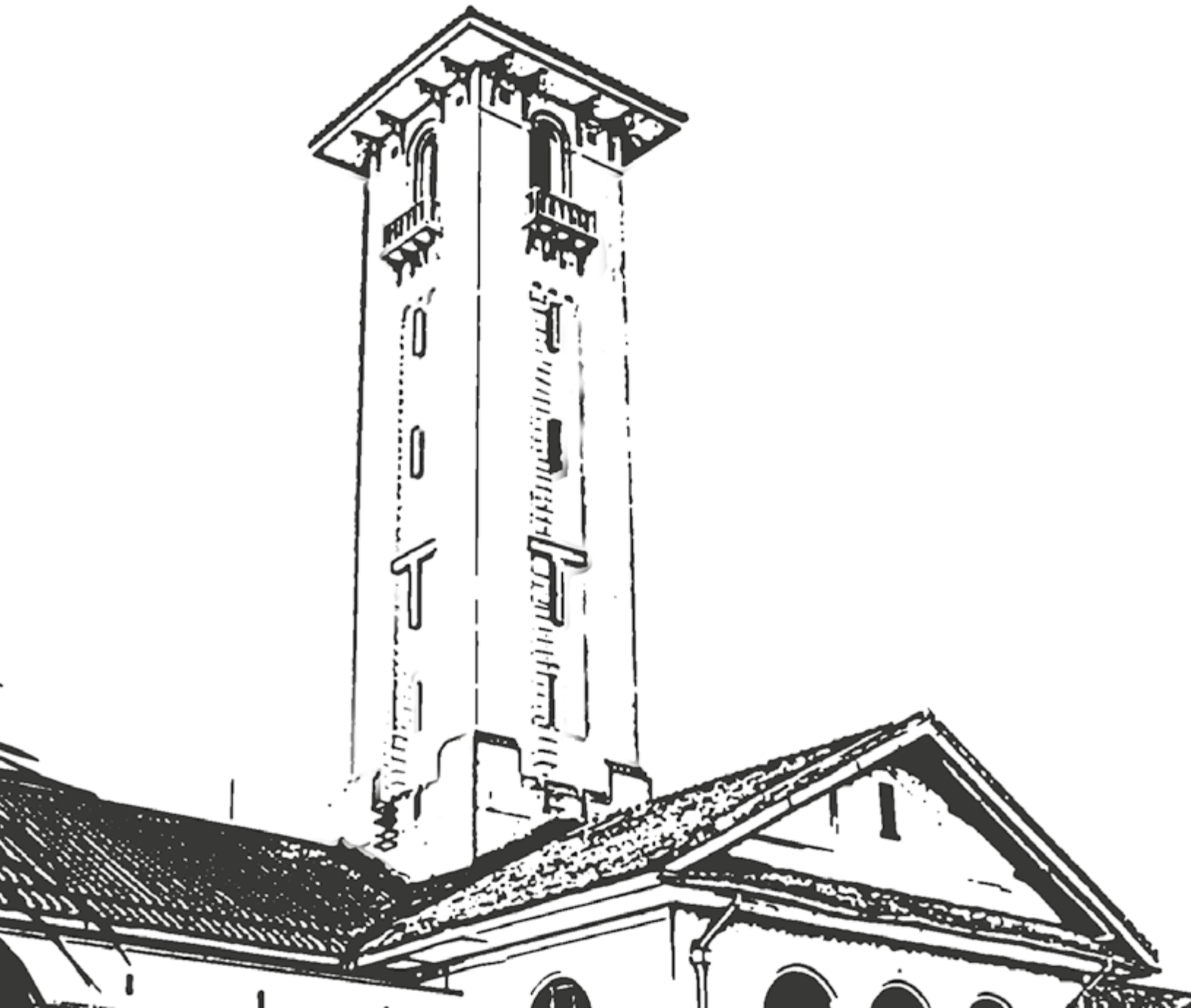
Head of the Department : Surjya Kanta Pal

Brief Description of on-going activities

The centre has got the state of the art facilities on different types of metal working processes, such as instrumented rolling mills, forging press, different types of furnaces, characterization setups, optical microscopes, tensile testing instruments etc.

The centre is actively doing industrial research with iron and steel making organizations such as Tata Steel, and also with R&D laboratory of Iron and Steel making.

ACADEMIC SCHOOL



G.S Sanyal School of Telecommunication

Head of the Department : Raja Datta

Professors

Name	Highest Degree	Research Areas
Saswat Chakrabarti	Ph.D.	

Associate Professors

Debarati Sen	Ph.D.	5G Communications; Millimeter Wave Communications; Large MIMO Systems; Cloud RAN; Green Communications
Goutam Das	Ph.D.	Optical Communication and Networks; Cellular Networks; Cognitive Radio Networks; Industrial Economics; Computational chemistry
Suvra Sekhar Das	Ph.D.	

Assistant Professors

Amit Kumar Dutta	Assistant Professor	5G Communications; Communication systems; Quantum Information Theory; Physical Layer communication theory
Aneek Adhya	Ph.D.	Elastic optical networks; Computer Communication and Networks; Hybrid Wireless-Optical Access Networks; Physical Layer Impairment Issues
Parthajit Mohapatra	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Amit Kumar Dutta	Assistant Professor	5G Communications; Communication systems; Quantum Information Theory; Physical Layer communication theory

New Faculty Appointment

Asoknath Chatterjee	Professor

Promotion

Amit Kumar Dutta	Assistant Professor	5G Communications; Communication systems; Quantum Information Theory; Physical Layer communication theory

Resignation

Parthajit Mohapatra	Ph.D.

Research Areas

5G Communications; Cellular Networks; Cloud RAN; Cognitive Radio Networks; Communication systems; Computational chemistry; Computer Communication and Networks; Elastic optical networks; Green Communications; Hybrid Wireless-Optical Access Networks; Industrial Economics; Large MIMO Systems; Millimeter Wave Communications; Optical Communication and Networks; Physical Layer communication theory; Physical Layer Impairment Issues; Quantum Information Theory;

Academic Performance

New Acquisitions	07
Collaboration	12
Lectures by Visiting Experts	03
Doctoral Degrees Awarded	05
MS Degrees Awarded	01
Member - Professional Bodies	03

Member - Editorial Board	01
Sponsored Research Projects	09
Consultancy Projects	01
Visits Abroad by Faculty Members	04
Invited Lectures by Faculty Members	06
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	26
Papers Presented in Conferences	16

Ranbir and Chitra Gupta School of Infrastructure Design and Mngt.

Head of the Department : *Bhargab Maitra*

Assistant Professors

Name	Highest Degree	Research Areas
Ankhi Banerjee	Ph.D. (Kanpur)	Residential Location Choice; Housing Affordability; Urban and Regional Planning; Urban design; Urban Planning: Utilities, Services
Arkopal Kishore Goswami	Ph.D.	Urban Transport Planning and Mgmt; Preservation of Roadway Infrastructure; Performance Management; Multimodal Transport Planning
Bharath Haridas Aithal	Ph.D.	Remote sensing and GIS; Urban design; Machine Learning; Soft Computing and Control; Factor based Modelling for Urban Mixed Land Use
Swati Maitra	Ph.D.	Transport Infrastructure; Retrofitting and Rehabilitation; Concrete and Cementitious materials; Tourism Infrastructure and Management

Promotion

Bharath Haridas Aithal	Ph.D.	Remote sensing and GIS; Urban design; Machine Learning; Soft Computing and Control; Factor based Modelling for Urban Mixed Land Use

Research Areas

Concrete and Cementitious materials; Factor based Modelling for Urban Mixed Land Use; Housing Affordability; Machine Learning; Multimodal Transport Planning; Performance Management; Preservation of Roadway Infrastructure; Remote sensing and GIS; Residential Location Choice; Retrofitting and Rehabilitation; Soft Computing and Control; Tourism Infrastructure and Management; Transport Infrastructure; Urban and Regional Planning; Urban design; Urban Planning: Utilities, Services; Urban Transport Planning and Mgmt;

Academic Performance

Collaboration	07
Member - Professional Bodies	02
Awards & Honours	02
Sponsored Research Projects	17
Consultancy Projects	02
Visits Abroad by Faculty Members	05
Invited Lectures by Faculty Members	09
Seminars, Conferences and Workshops Organized	06
Short-Term Courses, Training Programmes and Workshops organised	08
Papers Published in Journals	13
Papers Presented in Conferences	28

Rajiv Gandhi School of Intellectual Property Law

Head of the Department : *Padmavati Manchikanti*

Professors

Name	Highest Degree	Research Areas
Dipa Dube	Ph.D.	
Indrajit Dube	Ph.D.	
Padmavati Manchikanti	Ph.D.	Plant secondary metabolic pathways; Recombinant Drug Regulation and IPaspect; Bioenergy-IP and commercialisation; Implementation of IP Laws; Biodiversity Law
Raju K D	Ph.D.	International Law; Intellectual property law; International Economic and Trade Law

Associate Professors

Uday Shankar	Ph.D.	Constitutional Law; Socio-Economic Rights; Energy Law; Labour and Industrial Law

Assistant Professors

Arindam Basu	Ph.D.	
Balraj Kaur Sidhu	Ph.D.	International Law; Environmental Law; Courts and Tribunals; Sexual and Gender based Violence; Internet Governance
Gaurav Shukla	Ph.D.	
Gouri Ashok Gargate	Ph.D.	Intellectual property management; Intellectual property audit, valuation; Intellectual property analytics; Technology transfer; Intellectual property law
Niharika Sahoo Bhattacharya	Ph.D.	Intellectual property law; Pharmaceuticals and IPR; Geographical Indication; Patent Law; Competition Law and IPR
Shreya Matilal	Ph.D.	
S R Subramanian	Ph.D. , Nagpur	International Law; International Investment Law; International Commercial Arbitration; International Human Rights Law

New Faculty Appointment

Name	Designation	Research Areas
Gouri Ashok Gargate	Ph.D.	Intellectual property management; Intellectual property audit, valuation; Intellectual property analytics; Technology transfer; Intellectual property law
Niharika Sahoo Bhattacharya	Ph.D.	Intellectual property law; Pharmaceuticals and IPR; Geographical Indication; Patent Law; Competition Law and IPR

Visiting Faculty

Prabuddha Ganguli	Visiting Faculty	

Promotion

Dipa Dube	Ph.D.	
Indrajit Dube	Ph.D.	
Padmavati Manchikanti	Ph.D.	Plant secondary metabolic pathways; Recombinant Drug Regulation and IPaspect; Bioenergy-IP and commercialisation; Implementation of IP Laws; Biodiversity Law
Raju K D	Ph.D.	International Law; Intellectual property law; International Economic and Trade Law
Uday Shankar	Ph.D.	Constitutional Law; Socio-Economic Rights; Energy

Law; Labour and Industrial Law

Resignation

Gaurav Shukla Ph.D.

Brief Description of on-going activities

Title and duration of Conferences organized

National

1. 4th National Moot Court Competition, (31st August, 2018 to 02nd September, 2018)
2. National Colloquium on Legal Research (15th March 2019 and 16th March 2019)
3. Research Scholars Day (15th March 2019 and 16th March 2019)
4. AICTE Workshop on Biotechnology and Intellectual Property Rights (04th to 10th February, 2019)
5. AICTE Workshop on IP Management of Academic and Research Institute (04th to 10th March, 2019)
6. Workshop on 'The Multiple Facet of IPR – An Engineering's Perspective' with collaboration with IPR Cell, IIT Kharagpur
7. Patent Drafting workshop – Mr Dipan Banerjee, Lakshmikumaran and Sridharan Attorneys (2nd March 2019)
8. Organized IP workshop along with IP Cell, IIT Kharagpur on 'IP power house: Fuel for start ups' – Dr Malathi Lakshmikumaran
9. Short term course on "industrial relations – Make in India and Skills and Skilll India
10. GIAN course on 'Law and Policy on Renewable energy'

International

1. International IP Symposium jointly conducted by IIT Kharagpur, George Washington University Law School, USA and Gujrat National Law University, October 3-6

Institute Lecture

Organised Institute lecture jointly with IP Cell IIT Kharagpur on 'Commercializing Innovation: Why do inventors patent their inventions?' By Dr Malathi Lakshmikumaran (March 2nd, 2019)

Research Areas

Biodiversity Law; Bioenergy-IP and commercialisation; Competition Law and IPR; Constitutional Law; Courts and Tribunals; Energy Law; Environmental Law; Geographical Indication; Implementation of IP Laws; Intellectual property analytics; Intellectual property audit, valuation; Intellectual property law; Intellectual property law; Intellectual property management; International Commercial Arbitration; International Human Rights Law; International Investment Law; International Law; Internet Governance; Labour and Industrial Law; Patent Law; Pharmaceuticals and IPR; Plant secondary metabolic pathways; Recombinant Drug Regulation and IPaspect; Sexual and Gender based Violence; Socio-Economic Rights; Technology transfer;

Academic Performance

Collaboration	03
Lectures by Visiting Experts	10
Doctoral Degrees Awarded	06
Member - Professional Bodies	20
Member - Editorial Board	07
Awards & Honours	01
Fellowships	02
Sponsored Research Projects	09
Visits Abroad by Faculty Members	14
Invited Lectures by Faculty Members	56
Seminars, Conferences and Workshops Organized	07
Short-Term Courses, Training Programmes and Workshops organised	04
Papers Published in Journals	11
Papers Presented in Conferences	04

Rajendra Mishra School of Engg Entrepreneurship

Head of the Department : Partha Pratim Das

Associate Professors

Name	Highest Degree	Research Areas
Basab Chakraborty	Ph.D.	
Pranab Kumar Dan	Ph.D.	Transmission and Driveline Analysis; Efficient Manufacturing System Design; Robust Optimisation to Reduce Failure; Adaptive Transmission ECU Design for Car; Vehicle Transmission Design and Testing

Assistant Professors

Bhaskar Bhowmick	Ph.D.	Social Entrepreneurship; Entrepreneurship Development; Firm Environment and Leadership; Technology and Sustainable Development; Start-up Ecosystem
Mamoni Banerjee	Ph.D.	Phytochemicals, Bio pesticides; Pesticidal bio-efficacy; Rural Technology Development; Health Care Management; Entrepreneurship
Manoj Kumar Mondal	Ph.D.	
Mrigank Sharad	Ph.D.	Signal Conditioning & Mixed-Signal VLSI Design; VLSI for Neuromorphic Computing; Biomedical Systems; Artificial Intelligence; Intelligent Internet of Things (IoT)
Prabha Bhola	Ph.D.	Entrepreneurship Development; Product Analytics and Modelling; Statistical Decision Modeling; Energy Management
Ram Babu Roy	Ph.D.	Health Care Management; Complex and Social Networks; Big Data Analytics
Titas Bhattacharjee (Rudra)	Ph.D.	Financial Management; Corporate Governance; Entrepreneurship; Agricultural Economics; Corporate Reporting

Promotion

Name	Highest Degree	Research Areas
Basab Chakraborty	Associate Professor	

Research Areas

Adaptive Transmission ECU Design for Car; Agricultural Economics; Artificial Intelligence; Big Data Analytics; Biomedical Systems; Complex and Social Networks; Corporate Governance; Corporate Reporting; Efficient Manufacturing System Design; Energy Management; Entrepreneurship; Entrepreneurship Development; Financial Management; Firm Environment and Leadership; Health Care Management; Intelligent Internet of Things (IoT); Pesticidal bio-efficacy; Phytochemicals, Bio pesticides; Product Analytics and Modelling; Robust Optimisation to Reduce Failure; Rural Technology Development; Signal Conditioning & Mixed-Signal VLSI Design; Social Entrepreneurship; Start-up Ecosystem; Statistical Decision Modeling; Technology and Sustainable Development; Transmission and Driveline Analysis; Vehicle Transmission Design and Testing; VLSI for Neuromorphic Computing;

Academic Performance

New Acquisitions	01
Collaboration	11
Doctoral Degrees Awarded	01
Fellow - Professional Bodies	01
Member - Professional Bodies	04
Member - Editorial Board	10

Sponsored Research Projects	13
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	06
Seminars, Conferences and Workshops Organized	02
Papers Published in Journals	13
Papers Presented in Conferences	17

School of Bio Science

Head of the Department : Amit Kumar Das

Professors

Nihar Ranjan Jana	Ph.D.	Neurodegenerative disorders; Protein quality control mechanisms; Experience-dependent synaptic plasticity

Assistant Professors

Name	Highest Degree	Research Areas
Abhijit Das	Ph.D., Tata Institute of Fundamental Research	Developmental neurobiology; Neuro-epigenetics; Ageing and neuro-degenerative disorders
Arindam Mondal	Ph.D.,University of Calcutta	Molecular Virology; Biochemistry
Dibyendu Samanta	Ph.D.	Protein engineering; Immune receptors; Cell adhesion molecules; Protein-protein/nucleic acid interaction
Ritobrata Goswami	Ph.D., Indiana University	Immunology; T cell biology
Soumya De	Ph.D.	NMR Spectroscopy; Structural Biology; Biophysics; Signal transduction and gene expression; Protein engineering

New Faculty Appointment

Name	Highest Degree	Research Areas
Nihar Ranjan Jana	Ph.D.	Neurodegenerative disorders; Protein quality control mechanisms; Experience-dependent synaptic plasticity

Research Areas

Ageing and neuro-degenerative disorders; Biochemistry; Biophysics; Cell adhesion molecules; Developmental neurobiology; Experience-dependent synaptic plasticity; Immune receptors; Immunology; Molecular Virology; Neurodegenerative disorders; Neuro-epigenetics; NMR Spectroscopy; Protein engineering; Protein-protein/nucleic acid interaction; Protein quality control mechanisms; Signal transduction and gene expression; Structural Biology; T cell biology;

Academic Performance

New Acquisitions	04
Collaboration	04
Lectures by Visiting Experts	03
Doctoral Degrees Awarded	01
Member - Editorial Board	04
Awards & Honours	01
Fellowships	01
Sponsored Research Projects	16
Invited Lectures by Faculty Members	04
Seminars, Conferences and Workshops Organized	01
Papers Published in Journals	10
Papers Presented in Conferences	02

Energy Science and Engineering

Head of the Department : *Suneel Kumar Srivastava*

Assistant Professors

Name	Highest Degree	Research Areas
Amit Ghosh	Ph.D.,IISc Bangalore	
Chirodeep Bakli	Ph.D.	Microfluidics; Micro/nano-scale transport processes; Nanofluidics; Molecular simulation; Renewable Energy Sources
Sreeraj Puravankara	Ph.D., Westphalia-Wilhelms University, Germany	Energy materials; Rechargeable batteries; Structural Chemistry; Sodium ion batteries; Lithium-ion battery modelling
Trilok Singh	Ph.D.	Energy materials; Functional materials; Nano materials; Engineered oxide & semiconductor heterostructures; Solar Photovoltaics

Research Areas

Energy materials; Engineered oxide & semiconductor heterostructures; Functional materials; Lithium-ion battery modelling; Nano materials; Rechargeable batteries; Sodium ion batteries; Solar Photovoltaics; Structural Chemistry;

Academic Performance

Collaboration	01
Member - Professional Bodies	01
Fellowships	01
Sponsored Research Projects	11
Consultancy Projects	01
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	09
Seminars, Conferences and Workshops Organized	01
Short-Term Courses, Training Programmes and Workshops organised	01
Papers Published in Journals	10
Papers Presented in Conferences	04

Environmental Science and Engineering

Head of the Department : Makarand Madhao Ghangrekar

Assistant Professor

Name	Highest Degree	Research Areas
Shamik Chowdhury	Ph.D.	

New Faculty Appointment

Name	Designation	Research Areas
Shamik Chowdhury	Assistant Professor	

Visiting Faculty

Binay Kanti Dutta	Visiting Faculty

Brief Description of on-going activities

School of Environmental engineering is undertaking leading edge research in the area of ground water pollution control, Water quality management, sewage treatment and reuse, industrial water pollution control, Soil pollution, solid and hazardous waste management, and air pollution control. The faculty associated with the School are undertaking the sponsored research projects in this area and extending consultancy services to the municipalities, State Governments and Central Government on Environmental Related issues.

Research Areas

Biogas; Environmental Engineering; Pollution Control Technologies;

Academic Performance

Collaboration	01
Consultancy Projects	02
Invited Lectures by Faculty Members	01
Short-Term Courses, Training Programmes and Workshops organised	01
Papers Published in Journals	03

School of Medical Science and Technology

Head of the Department : Jyotirmoy Chatterjee

Professors

Name	Highest Degree	Research Areas
Jyotirmoy Chatterjee	Ph.D.	Oral Pre-cancer Therapeutic Patch Dev.; Wound Healing & Honey; Stem cells Diffe. & Honey based Matrix; Multi-modal Imaging on Oral cancer Diag; Lung Cancer & Diabetic Retinopathy Diag
Koel Chaudhury	Ph.D.	Non-invasive biomarkers and sensors; Metabolomics; Nanomedicine; Women's health; Respiratory disorders
Mahitosh Mandal	Ph.D.	
Manjunatha Mahadevappa	Ph.D.	
Sangeeta Das Bhattacharya	Ph.D.	
Santanu Dhara	Ph.D.	
Soumen Das	Ph.D.	BioMEMS; Microfluidics; Sensors & Actuators; MEMS and Microsystems; Biomedical devices, Flexible electronics

Assistant Professors

Gayatri Mukherjee	Ph.D.	Immunology; Development of Immunetherapeutics; Commensal Microbiota in Cancer; Immune modulation in atherosclerosis
Nishant Chakravorty	Ph.D.	Regenerative Medicine; Clinical Research; Bone Regeneration & Bone Tissue Engineering
Praphulla Chandra Shukla	Ph.D.	Atherosclerosis and non-coding RNAs; Immune interaction in heart and vessels; Cardiac developmental biology; Heart failure and vascular biology

Visiting Faculty

Name	Designation	Research Areas
Debashree Guha Adhya	Visiting Faculty	
Marc J. Madou	Visiting Faculty	
Satadal Saha	Visiting Faculty	

Retirement

Analava Mitra	Ph.D.	
Chandan Chakraborty	Ph.D.	Biomedical Data Analytics; Digital Pathology; Medical Image Analysis; Machine Learning for Medical Imaging

New Academic Programmes

Three joint M.Sc./Ph.D. programs in collaboration with Tata Medical Center, Kolkata in
(i) Medical Physics,
(ii) Nuclear Medicine,
(iii) Molecular Medical Microbiology.

Research Areas

Atherosclerosis and non-coding RNAs; Biomedical devices, Flexible electronics; BioMEMS; Bone Regeneration & Bone Tissue Engineering; Cardiac developmental biology; Clinical Research; Commensal Microbiota in Cancer; Development of Immunetherapeutics; Heart failure and vascular biology; Immune interaction in heart and vessels; Immune modulation in atherosclerosis; Immunology; Lung Cancer & Diabetic Retinopathy Diag; MEMS and Microsystems; Metabolomics; Microfluidics; Multi-modal Imaging

on Oral cancer Diag; Nanomedicine; Non-invasive biomarkers and sensors; Oral Pre-cancer Therapeutic Patch Dev.; Regenerative Medicine; Respiratory disorders; Sensors & Actuators; Stem cells Diffe. & Honey based Matrix;Women's health; Wound Healing & Honey;

Academic Performance

New Acquisitions	01
Collaboration	26
Lectures by Visiting Experts	02
Doctoral Degrees Awarded	07
MS Degrees Awarded	01
Fellow - Professional Bodies	01
Member - Professional Bodies	04
Member - Editorial Board	04
Awards & Honours	02
Sponsored Research Projects	32
Invited Lectures by Faculty Members	10
Papers Published in Journals	15
Papers Presented in Conferences	10

Nano Science and Technology

Head of the Department : Rahul Mitra

New Academic Programmes

1. Ph.D program has been started from 2014 . MS/M.Tech Program will be started later .

Brief Description of on-going activities

The School of Nano-Science and Technology is involved in diverse research activities of interdisciplinary nature:
(i) Group-IV and III-V semiconductor nanostructures for electronic and photonic devices;
(ii) MEMS and microsystems, Nano-electronics, Nano-scale iosystems engineering;
(iii) GMR & magneto-electric and magnetocaloric materials;
(iv) Polymer and rubber based nanocomposites;
(v) Polymer thin film instability, self organization and meso-mechanics;
(vi) Carbon nanotubes, graphene, metallic nanowires, and nano-particles;
(vii) Biocompatible nanostructures for bioimaging & diagnostics, drug delivery, biosensor;
(viii) Intermetallics, bulk amorphous alloys and nanocomposites;
(ix) Nanostructured/nanocomposite thin films and coatings;
(x) Oxide gas sensors, Lithium ion rechargeable batteries;
(xi) Computational nanostructures

Academic Performance

New Acquisitions	13
Lectures by Visiting Experts	02
Doctoral Degrees Awarded	01

School of Water Resources

Head of the Department : Ashok Kumar Gupta

Associate Professors

Name	Highest Degree	Research Areas
Bhabagrahi Sahoo	Ph.D.	Integrated River Basin Management; Real-time flood modeling and forecasting; Surface water - Groundwater interaction; Meso-scale Solute Transport Dynamics; Remote Sensing in Hydroinformatics

Assistant Professors

Manoj Kumar Tiwari	Ph.D.	Water & Wastewater Treatment / Recycling; Bioremediation and Biodegradation; Fate and Transport of Contaminants; Contaminated Site Management; Smart Water Distribution Systems;
Partha Sarathi Ghosal	Ph.D.	Water and wastewater treatment; Geogenic pollutant removal; Water supply network management; Advanced wastewater treatment; Adsorption
Renji Remesan	Ph.D.	Land surface processes & environment; Climate Impacts on Water Resources; Catchment modelling and management; Hydroinformatics

New Faculty Appointment

Name	Designation	Research Areas
Partha Sarathi Ghosal	Assistant Professor	Water and wastewater treatment; Geogenic pollutant removal; Water supply network management; Advanced wastewater treatment; Adsorption

Promotion

Bhabagrahi Sahoo	Professor	Integrated River Basin Management; Real-time flood modeling and forecasting; Surface water - Groundwater interaction; Meso-scale Solute Transport Dynamics; Remote Sensing in Hydroinformatics

Brief Description of on-going activities

- Ecofriendly treatment systems for reuse of greywater
- Leak detection and urban water supply network management
- Pathway identification & toxicity analysis of electrochemical oxidation of methyl orange
- Developed approaches for real-time short-to-medium range streamflow and reservoir inflow forecasting with a maximum lead-time of 7-days.
- Developed a stream-aquifer interaction model under sparse data-availability scenarios to estimate the exchange flux
- Developed a technique for daily-scale monitoring of river pollution using remote sensing data
- Bathymetric survey and water quality and sediment quantity analysis in Tilaiya Dam
- Land surface process modeling using JULES in Krishna River basin
- Sediment characterization using sediment finger printing approaches in the Konar dam catchment

Research Areas

Bioremediation and Biodegradation; Catchment modelling and management; Climate Impacts on Water Resources; Contaminated Site Management; Fate and Transport of Contaminants; Hydroinformatics; Integrated River Basin Management; land surface processes & environment; Meso-scale Solute Transport Dynamics; Real-time flood modeling and forecasting; Remote Sensing in Hydroinformatics; Smart Water Distribution Systems; Surface water - Groundwater interaction; Water & Wastewater Treatment / Recycling;

Academic Performance

New Acquisitions	01
Collaboration	17
Doctoral Degrees Awarded	04
MS Degrees Awarded	01
Member - Professional Bodies	03
Member - Editorial Board	01
Fellowships	02
Sponsored Research Projects	13
Consultancy Projects	04
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	11
Seminars, Conferences and Workshops Organized	02
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	08
Papers Presented in Conferences	08

Subir Chowdhury School of Quality and Reliability

Head of the Department : Sanjay Kumar Chaturvedi

Professors

Name	Highest Degree	Research Areas
Sanjay Kumar Chaturvedi	Ph.D.	FMEA/FMECA, Reliability Apportionment; Network Reliability; Reliability based Design; Reliability data Analysis, Maintenance; SystemReliability Modelling and Analysis
V N Achutha Naikan		Reliability Engineering; Condition-Based Maintenance; Quality Control; Simulation

Associate Professors

Neeraj Kumar Goyal		Accelerated Life Testing; Probabilistic Safety Assessment; RAMS for Railway Systems; System Reliability Modeling; Communication Network Reliability

Assistant Professors

Monalisa Sarma	Ph.D.	
Rajiv Nandan Rai	Visiting Faculty	RAMS analysis; Preventive Maintenance; Prognostic Health Monitoring, Process Reliability; TQM and with Analytics; Repairable Systems Reliability Analysis

Visiting Faculty

Name	Designation	Research Areas
Rajiv Nandan Rai	Visiting Faculty	RAMS analysis; Preventive Maintenance; Prognostic Health Monitoring, Process Reliability; TQM and with Analytics; Repairable Systems Reliability Analysis

Promotion

Sanjay Kumar Chaturvedi	Ph.D.	FMEA/FMECA, Reliability Apportionment; Network Reliability; Reliability based Design; Reliability data Analysis, Maintenance; SystemReliability Modelling and Analysis
Rajiv Nandan Rai	Visiting Faculty	RAMS analysis; Preventive Maintenance; Prognostic Health Monitoring, Process Reliability; TQM and with Analytics; Repairable Systems Reliability Analysis

New Academic Programmes

1. The new course curriculum under the aegis of 'School' banner has started from the academic year 2018-19. The School has also started a Micro-specialization in Quality Engineering for the UG students of other departments of the Institute from the academic year 2018-19.

Brief Description of on-going activities

The M. Tech. new course curriculum of the school has been started from the session 2018-19. First batch of students in the new curriculum are now in their project and thesis phase. The new building of the School is expected to be handed over soon and by December 2019, the School will start operating in its entirety from its new location. The faculty members have brought the research projects (under IMPRINT-2 as Co-PI, from SRIC as PI)) in the tune of about a crore. There were 24 Int. Journals and 13 conference papers contributed by the School during the last academic year. A MoU for development of outcome based series of short term training modules tailored to TVSE Motor Company, Hossur has been signed for a period of three years w. e. f. 2018. The faculty members visited their premises in September'18, November'18 and February'19, respectively to complete the first year commitment to train their engineers in the area of reliability, maintainability and maintenance engineering. The participants in this course were engineers from their operations, R&D, and maintenance departments. Development of Quality Engineering Lab is completed. First batch has successfully completed the lab work under the new curricula.

All regular students of current graduating batch got placed in Oceaneering International, Cummins India Limited, Eaton Technologies, John Deere and Pranav Vikas, Faridabad, achieving a target of 100%

placement. Besides, the regular students of the current batch have got internship offer from various multi-nationals for a period of 6-10 months. Currently there are 24 research students on roll of the School out of which 21 are PhD scholars, three are MS students and one engineer from RINL, Visakhapatnam under 'Certificate in Excellence Program (CER)'. Another two research students have successfully defended their research leading to the award of Ph. D. degree whereas three research scholars have joined Curtin University, under the dual Ph. D. program (DDDP) under an MoU with Curtin University.

An industry talk was organized for the benefits of our students in January 18, 2019. Mr. Pravin Kadekodi, Engineering Manager – Center for Reliability & Safety, Eaton India Innovation Center delivered his talks entitled "Expectation from reliability engineering in evolving technology landscape" and "Industry challenges faced by reliability engineers", respectively.

Research Areas

Accelerated Life Testing; Communication Network Reliability; Condition-Based Maintenance; FMEA/FMECA, Reliability Apportionment; Network Reliability; Preventive Maintenance; Probabilistic Safety Assessment; Prognostic Health Monitoring, Process Reliability; Quality Control; RAMS analysis; RAMS for Railway Systems; Reliability based Design; Reliability data Analysis, Maintenance; Reliability Engineering; Repairable Systems Reliability Analysis; Simulation; System Reliability Modeling; SystemReliability Modelling and Analysis; TQM and with Analytics;

Academic Performance

Collaboration	04
Lectures by Visiting Experts	02
Member - Professional Bodies	04
Awards & Honours	01
Sponsored Research Projects	08
Consultancy Projects	01
Visits Abroad by Faculty Members	01
Invited Lectures by Faculty Members	03
Short-Term Courses, Training Programmes and Workshops organised	05
Papers Published in Journals	14
Papers Presented in Conferences	12

Vinod Gupta School of Management

Head of the Department : Prabina Rajib

Professors

Name	Highest Degree	Research Areas
Gautam Sinha	Ph.D.	
Prabina Rajib	Ph.D.	
Sangeeta Sahney	Ph.D.	Marketing managment; Consumer Behavior; Services Marketing; Organizational Behavior; Quality Management

Associate Professors

Arun Kumar Misra	Ph.D.	Product Pricing and Product Risk; Asset-Liability Management; Risk-Based Pricing; Banks' Capital and Liquidity Management; Market Microstructure
Biplab Datta	Ph.D.	Leadership; Social Media Marketing [eWOM]; Customer Relationship Management; Services Marketing
Chandra Sekhar Mishra	Ph.D.	
Parama Barai	Ph.D.	
Ranjan Chaudhuri	Ph.D.	
Rudra Prakash Pradhan	Ph.D.	Banking and Decisions making; Financial Economics and related Studies; Statistical Decision Modeling; Public Economics & Policy
Sujoy Bhattacharya	Ph.D.	Statistical Decision Modeling
Susmita Mukhopadhyay	Ph.D.	Spirituality and Work place happiness; People Analytics; Behavioural issues in Microfinance; Leadership; Ethics

Assistant Professors

Abhijeet Chandra	Ph.D. JMI New Delhi	Corporate Finance; Financial Economics and related Studies; Behavioral Finance; Financial Markets and Risk Management; Asset Pricing
Ajay Kumar Mishra	Assistant Professor	Market Microstructure; Corporate Finance; Asset Pricing; Banking Regulations; Short Selling and Informed Trading
Amit Upadhyay	Ph.D.	Operations Research (OR); Transportation and Logistics Management; Revenue Optimization; Railway Analytics
Aradhna Malik	Ph.D.	Geriatric Well-being & End of Life Care; Social Entrepreneurship; Media & Communication Studies; Corporate Social Responsibility; Communication & Sustainable Development
Barnali Nag	Ph.D.	
Saini Das	Ph.D.	Information Security; Information security risk management; Management Information Systems; E-commerce Technology and Applications; Cyber ethics : security and privacy
Srabanti Mukherjee	Ph.D., IIESc&T, Shibpur	Consumer Behavior; Social Media Marketing [eWOM]; Services Marketing; Healthcare and Higher Education; Bottom of Pyramid and Rural Marketing
Swagato Chatterjee	Ph.D.	Predictive Analytics; Game Theory; Big Data Analytics; Statistical Decision Modeling
Tuheena Mukherjee	Ph.D.	
Tutan Ahmed	Ph.D.	Human Development; Applied Econometrics; 5. Education for Sustainable Development; Labour Economics; Machine Learning and Pattern Recognition

New Faculty Appointment

Name	Highest Degree	Research Areas
Ajay Kumar Mishra	Assistant Professor	Market Microstructure; Corporate Finance; Asset Pricing;

		Banking Regulations; Short Selling and Informed Trading
Biswarup Ghosh	Visiting Faculty	
Surojit Mookherjee	Visiting Faculty	Knowledge Management; Manufacturing/Production Planning & Control; Operations management; Project Management, Maintenance & Monitoring

Visiting Faculty

Biswarup Ghosh	Visiting Faculty	
Kunal Kanti Ghosh	Visiting Faculty	Supply Chain Analytics; Product Analytics and Modelling; Engineering Services Outsourcing; World Class Manufacturing (WCM)
Sanjib Chowdhury	Visiting Faculty	
Surojit Mookherjee	Visiting Faculty	Knowledge Management; Manufacturing/Production Planning & Control; Operations management; Project Management, Maintenance & Monitoring
Swagato Chatterjee	Visiting Faculty	Predictive Analytics; Game Theory; Big Data Analytics; Statistical Decision Modeling
Tutan Ahmed	Visiting Faculty	Human Development; Applied Econometrics; 5. Education for Sustainable Development; Labour Economics; Machine Learning and Pattern Recognition
Vivek Kumar Dubey	Visiting Faculty	Predictive Analytics; Game Theory; Big Data Analytics; Statistical Decision Modeling

Promotion

Parama Barai	Associate Professor	
Sangeeta Sahney	Professor	Marketing managment; Consumer Behavior; Services Marketing; Organizational Behavior; Quality Management
Swagato Chatterjee	Assistant Professor	Predictive Analytics; Game Theory; Big Data Analytics; Statistical Decision Modeling

Re-Appointment

Gautam Sinha	Professor	

Resignation

Ranjan Chaudhuri	Associate Professor	

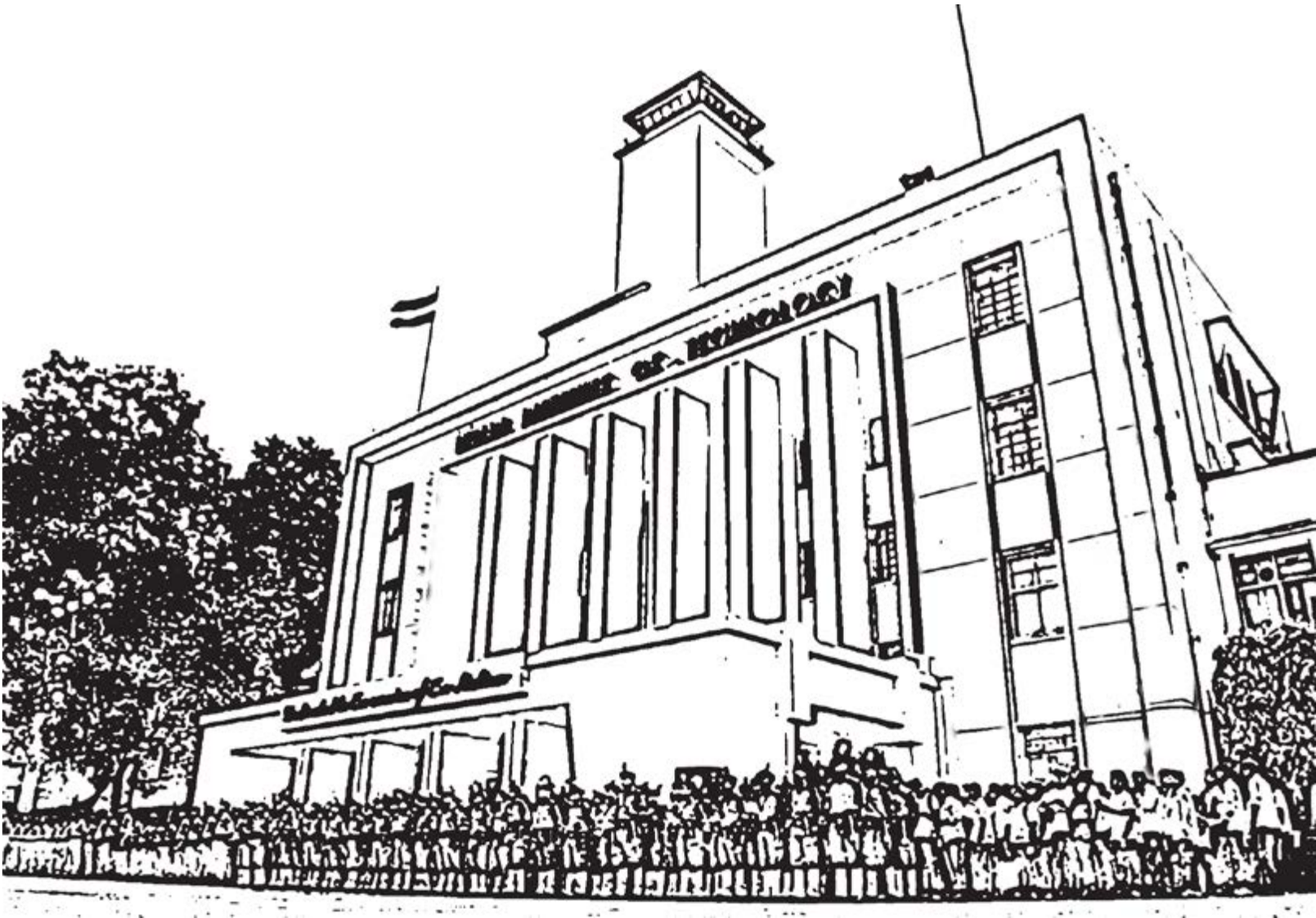
Research Areas

Education for Sustainable Development; Applied Econometrics; Asset-Liability Management; Asset Pricing; Banking and Decisions making; Banking Regulations; Banks' Capital and Liquidity Management; Behavioral Finance; Behavioural issues in Microfinance; Big Data Analytics; Bottom of Pyramid and Rural Marketing; Communication & Sustainable Development; Consumer Behavior; Corporate Finance; Corporate Social Responsibility; Customer Relationship Management; Cyber ethics : security and privacy; E-commerce Technology and Applications; Engineering Services Outsourcing; Ethics; Financial Economics and related Studies; Financial Markets and Risk Management; Game Theory; Geriatric Well-being & End of Life Care; Healthcare and Higher Education; Human Development; Information Security; Information security risk management; Knowledge Management; Labour Economics; Leadership; Machine Learning and Pattern Recognition; Management Information Systems; Manufacturing/Production Planning & Control; Marketing managment; Market Microstructure; Media & Communication Studies; Operations management; Operations Research (OR); Organizational Behavior; People Analytics; Predictive Analytics; Product Analytics and Modelling; Product Pricing and Product Risk; Project Management, Maintenance & Monitoring; Public Economics & Policy; Quality Management; Railway Analytics; Revenue Optimization; Risk-Based Pricing; Services Marketing; Short Selling and Informed Trading; Social Entrepreneurship; Social Media Marketing [eWOM]; Spirituality and Work place happiness; Statistical Decision Modeling; Supply Chain Analytics; Transportation and Logistics Management; World Class Manufacturing (WCM);

Academic Performance

New Acquisitions	01
Collaboration	09
Doctoral Degrees Awarded	09
Member - Professional Bodies	06
Member - Editorial Board	05
Awards & Honours	02
Fellowships	01
Sponsored Research Projects	09
Consultancy Projects	02
Visits Abroad by Faculty Members	06
Invited Lectures by Faculty Members	10
Seminars, Conferences and Workshops Organized	03
Short-Term Courses, Training Programmes and Workshops organised	33
Papers Published in Journals	50
Papers Presented in Conferences	18

CENTERS OF EXCELLENCE



Center for Excellence in Robotics

Head of the Department : *Dilip Kumar Pratihar*

Academic Performance

New Acquisitions	01

Deysarkar Centre of Excellence in Petroleum Engineering

Head of the Department : Anindya Sarkar

Associate Professor

Name	Highest Degree	Research Areas
Sandeep D Kulkarni	Ph.D.	Drilling Fluid Design & Characterization; Wellbore Pressure Modeling; Wellbore Fluids Rheology and Hydraulics.; Completion and Fracturing Fluids; Lost circulation, Sag and APB

Assistant Professor

Aditya Vyas	Ph.D.	
Ankur Roy	Ph.D.	Reservoir Characterization; Rock Fractures and Geomechanics; Geostatistics; Fractal Models

New Faculty Appointment

Name	Designation	Research Areas
Sandeep D Kulkarni	Associate Professor	Drilling Fluid Design & Characterization; Wellbore Pressure Modeling; Wellbore Fluids Rheology and Hydraulics.; Completion and Fracturing Fluids; Lost circulation, Sag and APB

Viting Faculty

Aditya Vyas	Assistant Professor

Brief Description of on-going activities

- Drilling Fluid Lab Equipments Purchased through Diamond Jubilee Institute Funds (Purchase of Approx. 20 lakhs) Equipments: Ageing cells, Digital viscometer, Digital Retort, Fluid mixer, LTLP filtration

- Reservoir Simulation Lab Workstations through Diamond Jubilee Institute Funds (Purchase of Approx. 41.8 lakhs ($ 61,076)) 12 workstations purchased and installed.

- Fracturing Fluids Equipments through donation of PfP Technology of USA: Donation received of Rs. 11 lakhs Oil field viscometer & mixer purchased and installed. Additionally, three 2nd-hand HT viscometers were received as donation and installed.

- Purchase through Departmental Asset Funds (Purchase of approx. Rs. 10 lakhs) Items: Computers (5), tables, UPS and books.

- International Student internship program with Texas A&M Universities: 2 students sent for summer 2019 internships 4 interns from IIPE, Vaizag worked at the Centre for summer 2019.
- ISIRD project (approved): "Fast oil and Gas Well history matching and well production prediction using novel reservoir simulation and machine learning techniques." PI: Dr. Aditya Vyas, Faculty, ADRACEPE.

- Pan-IIT ONGC project (in process): “Multiscale Modeling of Carbonate Reservoirs – A Fractal Approach” (PI: Dr. Ankur Roy, Faculty, ADRACEPE, Co-PI: Prof. Debasis Deb, Coordinator, ADRACEPE).
- Pan-IIT ONGC project (in process):"Modelling down hole (Deep water, High-temperature-high-pressure and Sub-hydrostatic scenarios) rheology for drilling fluids design and drilling automation." PI: Dr. Sandeep D. Kulkarni, Faculty, ADRACEPE.

- Pan-IIT ONGC project (in process): "Identify Suitable Weighting Material to Make and Maintain Water-based Drilling Fluids of Densities from 1.50 to 2.35 SG for temperatures up to 180 oC and higher." PI: Dr. Sandeep D. Kulkarni, Faculty, ADRACEPE Consultancy Project with Total (in

progress): "Drilling Fluid-Formulation Software Package". PI: Dr. Sandeep D. Kulkarni, Faculty, ADRACEPE

Research Areas

Completion and Fracturing Fluids; Drilling Fluid Design & Characterization; Fractal Models; Geostatistics; Lost circulation, Sag and APB; Reservoir Characterization; Rock Fractures and Geomechanics; Wellbore Fluids Rheology and Hydraulics.; Wellbore Pressure Modeling;

Academic Performance

Collaboration	02
Member - Professional Bodies	04
Sponsored Research Projects	02
Visits Abroad by Faculty Members	02
Invited Lectures by Faculty Members	07
Seminars, Conferences and Workshops Organized	01
Short-Term Courses, Training Programmes and Workshops organised	02
Papers Published in Journals	01
Papers Presented in Conferences	03

Rekhi Centre of Excellence for the Science of Happiness

Head of the Department : Priyadarshi Patnaik

New Faculty Appointment

Name	Designation	Research Areas
Saamdu Chetri	Assistant Professor	

New Academic Programmes

1. Micro Specialization in SCIENCE OF HAPPINESS

Brief Description of on-going activities

A. Research and Development Activities

The Centre has a multi-disciplinary team of faculty members and students drawn from various disciplines and specializations and is actively involved in research from (a) biological, (b) social (c) behavioural, and (d) ecological orientations.

It organizes training programs for corporate sectors and government agencies on happiness and well being, and plays a key role in the UG Induction program as well.

It offers 5 elective courses on different aspects of happiness and offers a micro-specialization on "Science of Happiness."

Academic Performance

New Acquisitions	01

DHI Centre of Excellence on Advanced Manufacturing Technology

Head of the Department : Surjya Kanta Pal

Brief Description of on-going activities

The Centre of Excellence in Advanced Manufacturing Technology has been established at IIT Kharagpur through the support of the Department of Heavy Industry of Ministry of Heavy Industries and Public Enterprises, Government of India, along with a consortium of top industry members in the country. The centre aims to stimulate the innovation to manufacture smart machines in the capital goods sector. The center will bring together various industries in this area to work in a synergistic way towards the common goals of infusing cutting edge technologies, and to come up with research and development for sustainable products having higher productivity with reduced cost.

This centre offers a unique platform for collaborative, consortium driven infusion of advanced technologies in the manufacturing area, which is in harmony with the 'Make-in-India' initiative of the Government of India. The centre will initiates innovative and top-quality research focused to the industries on Specialty materials, Design and automation, Additive manufacturing, and Digital manufacturing and Industrial Internet of Things. The centre will boost innovative interventions in the advanced manufacturing domain by enabling an ecosystem among Institutes of higher repute, heavy industries, and also the MSMEs and start-ups. The centre looks for active participation in this ecosystem for a collaborative research in the proposed areas.

The centre also houses an Innovation Lab to facilitate the culture of innovation and open engineering. The Innovation Lab invites MSMEs and the Start-ups to grab opportunities of getting an end-to-end support from the experts including access to various state- of-the-art facilities for early prototyping of their product. The centre also welcomes bright and talented scholars with high value doctoral fellowship to support its activities.

The Centre of Excellence has the lofty ambition of positioning itself as one of the primary knowledge centers on advanced manufacturing in the country. The broad objectives of the centre are as follows:

- Reinvigorating manufacturing in India through technological interventions
- Value additions in terms of innovations in materials, manufacturing processes, new technologies, and bringing academic rigor to industrial and organizational practices
- Inculcating modern concepts of IIoT, intelligent, and connected manufacturing through digital interventions, robotics and automation
- Creating an ecosystem for indigenization and innovations in the manufacturing sector involving small and medium scale enterprises
- Bringing in international expertise through partnerships with the best in the world
- Imparting skilling to industry people and inculcating start-up culture
- Securing Intellectual Property through IP protection and licensing

The Centre has got a total project funding of Rs 65.19 Cr. Presently, 6 industry members have joined the consortium, including Tata Motors, Tata Sons, Tata Consulting Services, Tata Steel, Heavy Engineering Corporation, Bharat Heavy Electricals Limited.

Alumni Affairs

Dean: Prof. Subrata Chattopadhyay

The Office of Alumni Affairs was set up in the year 2003. Since then the Office has expanded its activities across various domains such as alumni networking, alumni fundraising, alumni events etc. Following are the major activities undertaken during 2018-19 are given below.

Alumni Relations and Outreach

Close to 68% connectivity with the alumni has been achieved by the end of the financial year including registrations on the alumni website, during annual alumni meet, visits, social media platforms and other alumni engagement programs. Out of a total number of 64316 alumni, the Institute is connected with close to 43000 alumni and is able to network with them.

Alumni and Institute Events:

1. Annual Alumni Meet

We live our day to day lives oblivious to the beauty that surrounds us and by the time we do realize what exactly it is that we've been blessed with, it's generally too late. However, when the good old days call yet again, nostalgia surrounds us as we walk the hallowed boulevards of our youth. The Annual Alumni Meet brings to our alumni a chance to reconnect with their Alma Mater. It lets them relive the carefree days of their college lives as they get a chance to visit all the locations they once frequented.

Students' Alumni Cell organized the 16th Annual Alumni Meet from 11th Jan to 13th Jan 2019. This year the batches of 1969, 1979 and 1994 were the special guests of honor. The meet was attended by 368 alumni including special guests. The Meet is now a major event anticipated by both the alumni and the students. As the years pass by and winds of change keep blowing, the Alumni Meet too shall keep evolving with the pace of time, hoping to bring to the alumni an experience that they may cherish all their lives.

2. Homecoming

The first ever edition of Homecoming from 17th-19th August 2018 saw 47 Alumni registered and a total of 90 people including the accompaniments occupied the Technology Guest House. The Central Government had declared national mourning for 7 days in lieu of the death of Shri Atal Bihari Vajpayee and we feared that we would not be able to pull our act together. The exuberance with Kunal Rao, Musical Night with the Western and Eastern Technology Music Society, Friendly Football were the events that could not happen because of the same. We knew we couldn't let our alumni down, not when we had to stand up and fulfill our duties. After a brainstorming session, the team came up with 'Art Attack' and 'Hall of Fame' to replace the canceled events. Networking Lunch was followed by Campus Tour where all the alumni along with their families were taken on an emotional ride down the memory lane. Department Visit brought back memories of teachers, bunked classes, unfinished projects and sleepless nights. Through Hall Visit our Alumni got a golden chance to relive those memories associated with their halls. 18th August marked the Foundation Day for IIT Kharagpur and was celebrated with an award distribution ceremony for alumni, faculty, and students. The afternoon witnessed some intellectual arguments by students and teachers at the Foundation Day Debate.

Here are some of the lovely responses we received from our ever enthusiastic alumni:

"It's been like coming back home, this place is stuck in time. The new batches add to the place and culture and hopefully keep the tempo high."

-Sohail Khan

“Coming to kgp campus has always been an experience. I wish such events get us closer, make our life liveable in a larger fraternity of our brothers and sisters.”

-Partha Sur,2008

“Team Students’ Alumni Cell, it was a fantastic time at Kgp. I wouldn’t have been able to believe in the power of fairies and pixie dust.. but with the magic you weaved, I’m a strong believer (in pixie dust as well as the fact that Kgp holds possibly the brightest and most active student community). Rock on!”

-Chandrashekhar KG

“Team Students’ Alumni Cell, you all have put your heart on the job. It was a homecoming indeed. There are 10 things you did great and 10 others you could have done better. But honestly, we in our times could not have done even half as good as you all did. Relentless effort and responsiveness to every small bit of our request. Keep up the tempo. Cheers to your spirit. Love you all!”

-Saurabh Mukherjee

3. Alvida

"Goodbyes are only for those who love with their eyes… because for those who love with their heart and soul, there is no such thing as separation."

The atmosphere was tinged with a bit of sadness at Alvida, the annual farewell dinner, this time for the Batch of 2019. The evening started off on an amazing note as the Director and Dean, Alumni Affairs, began addressing the students. This was followed by the eagerly awaited Batch awards which the passing batch thoroughly enjoyed. A lovely dinner followed soon after at the Vikramshila complex. A wave of nostalgia hit the diners as they discussed the unending memories this campus had given them. There was no better way to end the night than dancing to IITKGP’s famous 'tempo' and signing off with love.

4. Convocation

The 64th Convocation of IIT Kharagpur brought together on stage several luminaries – Honourable President of India, Shri Ram NathKovind, the Honourable Governor of West Bengal, ShriKeshariNathTripathi, and the Honourable Chief Minister of West Bengal, Mamata Banerjee. Commending IIT Kharagpur for its pioneering role in engineering and technical education in the country, President Kovind said, “Over the years, IIT Kharagpur, and in fact the IIT network and community, has become an important window to the entire world.” The chief minister of West Bengal, Mamata Banerjee, won a thundering applause from students when she announced that she believed IIT Kharagpur was the number one IIT in the country. IIT Kharagpur gave out degrees to 2616 students, 295 of them doctoral and joint PhDs.

5. Foundation Day

The 68th Foundation Day of IIT Kharagpur saw the Young Alumni Achieve Award being conferred on 12 outstanding KGPians who are high achievers as professionals, academics, scientists, and mentors. Dr PurnenduChatterjee, Founder Chairman of The Chatterjee Group (TCJ) that runs Haldia Petrochemicals, was Chief Guest on the occasion. Three student awards and eight staff excellence award were given away by the Director. The day saw the Nina Saxena Award being conferred upon the Founders of Pathshodh Healthcare Pvt Ltd, a medical device research and development company incubated at the Indian Institute of Science. Several staff were also honoured for completing 25 years of service at the Institute.

Fundraising Campaigns

Under the Institutional Development (ID) Program several alumni fundraising campaigns are being carried out to build corpus through endowment and gift mode to ensure self-sustainability in the long run. For FY 2018-19 Rs.8.75 Crore was raised from the under mentioned various giving back initiative run by the ID Program.

Any batch together donating Rs 50 Lakhs is recognized as **'Founding Batch of Endowment'** and a class-room in the newly built Nalanda Classroom complex is named after the batch with all the donor names

displayed at the entrance. Grass-roots campaign contribution has long term impact as well as benefit KGP for years to come. Batch Endowment is ideal for both grass-roots and major donors as the principal would remain intact and only the interest generated would be used be for institute's growth.

1991 Batch has completed their journey of raising 50 Lakhs in a record breaking 3 months to become the first 'Founding Batch of Endowment' and then other grad batches successfully raised funds and they are - 1966, 1967, 1968, 1969, 1970, 1975, 1984, 1993, 1994 and 1997. Batches from different genres like 1962, 1963, 1964, 1965, 1987, 1988, 1989, 1996, 1990 are vying to be the next one. In 2018-19, the batch of 1969 and 1994 received endowed class rooms at the Nalanda Complex during "Annual Alumni Meet" January 2019.

Hall Gift is another campaign where alumni were appealed to donate for the development of their Halls. A primeval sense of loyalty binds KGP'ians to their respective Halls of Residence. This is where they spend their most joyous moments together with friends. The alumni are returning to care for these spaces as they would their family homes. Contribution for hall renovation have given way to an outpouring of grassroots involvement in reconstruction and renovation drives. The donation drive for Radha Krishna hall set the trend for giving back followed by Patel and Rajendra Prasad hall for their collective giving back. Alumni from various halls raised about Rs. 50 Lakh for hall development activities and the work is completed for Patel hall first phase, Nehru Hall model room pilot project, and others are underway.

IIT Kharagpur is helping students to learn without being unduly worried about expenses, shape their career and then give back to their Alma Mater through the grassroots campaign of **Learn-Earn-Return**. This scheme aims to create a financial support system for students so that they imbibe the culture of giving back. The awardees receive Rs 10,000 per month for 4 years as cash award. At the end of the first semester of the 1st year, the award will be given out on the basis of JEE Advanced rank. From the second semester onward, the recipients of the award would have to maintain a CGPA of 9. LER helps students to study without worrying about financial burden. Three hundred alumni from various batches raised about Rs. 59 Lakh till FY 2018-19 for under this initiative.

A new initiative which was started in 2018 to raise funds for various departmental events and campaigning. This program named as **"Alumni Department Engagement Program - ADEP"** is aimed to reconnect alumni with their departments. This program facilitate alumni and dept: for initiatives like - visiting faculty, special lectures, workshops, foreign and industry collaboration, PG and RS placement, internships and live projects. Under this campaign for the first time in the history of the Institute, a Geoscience seminar was organized at the Geology and Geophysics Dept totally from the resources contributed by the alumni. A special volume of the Geoscientific magazine - GEOS was launched during the seminar. It had 28 technical articles from the IIT Kharagpur alumni from 1956 to 2009, with contribution from both India and abroad.

In an initiative to strengthen the health and wellness program of IIT KGP. The alumni of the Institute have helped design and customized ambulance for safeguarding dynamic patient requirements and gifted an **Ambulance to KGP** and putting more efforts for the wellness program . Several doctors and super specialty hospitals were consulted to ensure best-in-class emergency medical fittings and effective vehicle design for long-distance journey. Custom fittings were fabricated, such as medical equipment, upgrading internal panels, electrical wiring for fireproofing and fire retardant components etc.

Class Gift is another inspiring giving back program at IIT KGP, where a batch funds a special initiative to create a signature place at the Institute. The batch of 1970 is the first graduating class who has endow a lasting legacy at their beloved Institute. An uniquely structured garden beside Tikka circle, **ADDA** is represented as place for students, faculties and other campus staffs to contemplate, meditate and discuss in an open lush green space. One more such initiative is undertaken by the alumni specially from the US side through IIT KGP US Foundation and driven by Distinguished Alumni Vinod Gupta. This is to add one more signature place to the campus a **Clock Tower.**

Endowed Chair Professorships are also a great initiative where illustrious alumni contribute. Endowed Professorship is one of the highest honors awarded in the academic arena and is reserved for the best faculty members as an acknowledgement of their contributions to research and teaching. Endowed Chair also lends an additional prestige to the departments. Thus, it is both an honor to the named holder of the appointment and also an enduring tribute to the donor who establishes it. Distinguished Alumnus Vinod

Gupta instituted "Prof A .S. Davis Chair", Shion Deysarkar [son of Dr. Asoke Deysarkar, Distinguished Alumni IIT KGP] instituted "Prof. P.K. Bhattacharya Chair" and also "Prof. N.K. Roy Chair.

Student Scholarships and Awards are also a great way to contribute to the institute. It often provide students a critical push in their academic career at different junctures, especially by giving them a much-needed financial cushion and support system while they pursue their goals, live their dreams and have a fulfilling career. Perhaps most importantly, scholarships make students aware of the importance of philanthropy or giving back. Under this initiative, **Karuturi Chakravarthy**, instituted the **"Shri Karuturi Ramamurty Endowment Award"** in the memory of his father. **The 1997 batch** of Mechanical Engineering (BTech) instituted the **Ritesh Ranjan Memorial Scholarship** in the memory of their batch mate, late Ritesh Ranjan. Institute visiting Professor and alumnae, Amita Sinha and her batch mates instituted "Prakasham Gupta Best Thesis Award" in memory of their friend and fellow batch mate Late Prakasham Gupta.

Distinguished alumni Partha Ghosh made contributions for a pioneering project launched by the Institute - **Partha Ghosh Leadership Academy** (with an endowment fund of 1 million USD). Distinguished alumni Arjun Malhotra is driving the campaign for the **Center for Classical Arts** and made a contribution and also, a grassroots campaign has been launched for the alumni to contribute towards this Center.

In the unique ecosystem of IIT KGP, senior classes play a role not commonly seen in any other institution of higher learning. **"My Imprint"** initiative is actually a "By the Students, for the Students" giving back initiative where graduating batches are given the chance to contribute their caution money deposits to the welfare of the Institute. Graduating students thus get a head start in contribution to their alma mater almost from the moment they step out into the world as IIT KGP alumni. 300+ graduating students donated their caution money under the My Imprint campaign which amounted close to Rs. 18 Lakh for building bus stands in the campus.

IIT Kharagpur is on a mission to help people reap the benefits of several of its research outcomes through its newly launched **Corporate Social Responsibility** program. The CSR, Institute is gearing up to partner with corporate houses and NGOs to help people to have a better life. The Institute received CSR funding through IDP from HDFC Bank Ltd and Tower Research Capital. HDFC Bank Ltd, a leading private bank in India has instituted a fund of Rs.60 Lakh for supporting start-up and incubation at the IIT KGP in the area of sustainable development, community empowerment and clean/renewable energy. Whereas Tower Research Capital, the renowned financial services firm, has instituted a fund of Rs.60 Lakh over two years for the "TRCI Meritorious Scholarships" for eight students of 2nd or 3rd year B.Tech of Computer Sciences and Engineering students.

B C Roy Technology Hospital

Prof-in-Charge : Prof. Rajib Mall

The Institute provides primary and emergency health care to the campus community through B C Roy Technology Hospital located strategically within the campus. Constant efforts are on to upgrade and improve the existing facilities at the B. C. Roy Hospital. Health Care remains a top priority in the activities of the Institute.

In addition to General OPD service, **special clinics are provided in General Medicine, Cardiology, Paediatrics, Chest, Skin, Psychiatry, General Surgery, Obstetrics & Gynaecology, Orthopaedics, Eye, ENT and Dental by various visiting consultants .32 Indoor Beds including 2 Bedded ICU and a seperate Isolation Ward are fully utilized by students & institute beneficiaries.** Physiotherapy is also offered.

Round-the-clock emergency manned by regular medical officers and medical attendants and a 24x7 pharmacy caters to the odd hour emergencies. Critical care ambulance support is provided in emergency situations to bring in or transport patients to higher centres as per need. The hospital is glad to acknowledge the generous contribution from the alumni in procuring these ambulances.
Medical Insurance coverage through the Institute is available for the students

OPD services are provided 6 days a week (Sunday and institute holidays being off days). Diagnostic services are provided in parallel with the OPD and frequent emergency services are also provided on On-call basis. The entire student community of IIT along with all faculty, non-teaching staff, hall employees and pensioners are the beneficiaries who receive medical treatment from BCRTH. Apart from that, any patient, even without treatment entitlement at BCRTH, is never refused in case of any emergency and are primarily treated at ER, BCRTH.

Presently there are two medical shops inside the campus which provides service to entitled patient, one being inside the hospital premises, which remains open 24 x 7 for 365 days.

Cooperative medical store is located in the tech market premises which remains open at particular times of the day. Beneficiaries are provided approved medicines free of cost, from this 2 out lets.

The arrangements for students and other members of the community are essentially same. The only difference being that there are separate wards in the indoor for students and employees and pensioners. The facilities extended to the beneficiaries are practically the same, irrespective of them being students or employees. The isolation ward though, reserved for contagious diseases is reserved usually for the students, though occasionally, in case of genuine need, an employee might be admitted .

BCRTH treats all kinds of cases that are brought under its purview. Most of the cases that require referral are the cases requiring surgical intervention of any sort, which cannot be done at BCRTH presently. Few medical cases requiring referral are cases of extreme life threatening emergency or cases requiring higher modalities of intervention which are presently unavailable at BCRTH.

In cases of medical emergency patients are usually referred to hospitals in Kolkata with whom the institute has tie ups. Trained medical assistant is sent along with that patient for tending to medical needs of the patient en route.

BCRTH presently has 12 Medical Officers, 29 visiting consultants, 10 operative nurses, 8 ATNM along with clerical staff and attendants (Regular and Outsource).

***Total Man Power of the Hospital**:*

1) Out source Mode : 38
2) Permanent Jr. Attendant/Attendant : 13
3) Ministerial Staff: 3
4) Pathology: 5+1
5) Radiology: 2+1

MMST Student Time : 6.30pm to 10.30 pm Total No. 10 as of now

OPD Timing : 9am to 12.30 pm & 4.30 pm to 8 pm

Ambulance

Institute has five number of ambulance (4 Institutes and 1 outsource). Institute Ambulance are under PIC Automobile Section. Drivers are also under Automobile Section. .

At present we have 5 ambulance (a) Critical Care 2 nos. one being donated by Alumni's (b) Outsource Ambulance (c) **CCU ambulance for local** (d)Tata Sumo which is used for campus in and around Kharagpur.

Operation Theater

1. OT Table	2. OT Light	3. Anaesthesia Work Station
4. Diathermy Cautery	5. HP Steam Steriliser	6. Suction Machine

ICU

1. Multipara Monitor	2. Computerise ECG Machine	3. Ventilator
4. Defibrillator	5. Syringe Pump	6. Crash Cart
7. Ambu bag	8. Suction Machine	

Emergency

1. Multipara Monitor	2. Pulse Oxymeter	3. Crash Cart
4. Ambubag	5. Suction Machine	

Pathology

1. Fully automatic biochemistry Analyser	2. Cell Counter (3 Parts)	3. Electro Microscope
4. Laminar Flow	5. Centrifuge Machine	6. Incubator

Radiology:

1. X-ray Machine (500mA)	2. CRU (Digital X-ray)	3. ECG Machine
4. USG Machine (not being operated due to technical reason)		

Ophthalmology

1. Refractometer	2. Slit Lamp	3. Ophthalmoscope

Physiotherapy

1. Pulsed SWD Machine	2. IFT Machine	3. UST Machine
4. Red Infra Lamp	5. Ankle Exerciser/Knee Exerciser	6. Shoulder Exerciser
7. Wax Bath	8. Traction	

Career Development Centre

Chairman **:** Prof. G.P.Raja Sekhar

The Career Development Centre (CDC) is responsible for arranging Industrial training for 3rd year B. Tech, 4th year Dual Degree and 4th year Integrated M.Sc. degree students as part of their curriculum. CDC also facilitates the job placement of final year students graduating from the Institute including PhD students. The Centre is actively engaged in forging synergistic relationships between the Institute and various industries. Based on these interactions, CDC gives feedback to the Institute on the academic programmes.

Summer Training Details

Eight weeks of summer Internship at the end of 3rd year B. Tech, 4th year Dual Degree and 4th year Integrated M.Sc. degree is a compulsory part of the 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 Internship through Career Development Centre with the support of departments/ schools/ centres of IIT Kharagpur. An emergent trend is that more and more students are seeking summer Internship abroad. Also students utilize opportunities due to various Universities with which IIT Kharagpur had signed MoU. These include S. N. Bose Scholar's Program, Viterbi-India Program, Khurana Program for Scholars, DAAD Scholarship Program, MITACS, NTU-Singapore.

For the current summer internships of our students during May- July 2019, 93 companies either visited the campus or conducted interviews through telephonic, Skype interviews and companies allotted seats after seeking nominations. The details of internship are as follows.

Period of Internship	Nos. of students enlisted for Internship	Nos. attending Internship in India			Internship at foreign Univ./Org.
		Selected by various companies	Nominations accepted by the companies	Self-arranged	
May-July 2018	1232	461	26	644	101

Placement Details

In the placement year 2018-19 more than 230 companies visited the campus and offered employment. The details of number of the students who had registered for placement and those actually placed through campus interviews are as follows:

Sl.No	Department	Registered	Placed	Percentage Placed (%)
1	B.Arch.	34	31	91
2	B.Tech.	463	397	86
3	Dual Degree	457	432	95
4	M.Sc.(5Yr Integrated)	139	119	86
5	LLB	17	14	82
6	Joint M.Tech-PhD (2yr)	523	287	55
7	Joint M.Sc.-PhD	89	7	8
8	MCP	21	1	5
9	MS	6	6	100*
10	PhD	23	23	100*
	Total	**1772**	**1317**	**74**

(*For Sl. No: 9 and 10 only placed students are shown as registered)

This year the students of the Institute have been able to fetch 261 PPOs, out of which 213 PPOs have been accepted. The overall placement percentage across all branches stands at 74%.

Student Participation

Career Development Centre at IIT Kharagpur has taken an initiative to harness the students' management skills through a formal system during the placement season since 2005-2006. The system has progressed extremely well and from year 2010 onwards, the CDC has immensely benefitted from students participating in placement process. CDC also conducts an in-house pre assessment test to prepare the students for the placement season. This test score is also used by some of the recruiters as one of their short listing criteria.

The organizational skill of students has helped CDC to host 30-35 companies on campus on a given day during the initial days and round the clock. During the placement season, students and CDC staffs play an active role from contacting the companies to the final selection at campus by providing complete logistic support with a close coordination from all the divisions of the Institute.

New Initiatives

In addition to the existing roles, Career Development Centre at IIT Kharagpur has taken some initiatives to help student take up a better career and also to strengthen the relation with the recruiters. These are

1. Faculty/ Corporate & Alumni interactions on various career options
2. CDC has introduced the Corporate Relationship Index (CRI) which reflects the relationship of CDC with a company based on certain parameters like number of offers in internship, PPOs, offers during placement, International offers etc. for providing better slots to them
3. From this year CDC has established M.Tech Desk which will specifically work for enhancing the PG placement index.

Achievements

1. Continuously achieved more than 1300 placements for the last three years.
2. Crossed the number of Internship offers as compared to last year.
3. Surpassed the number of Pre placement offers in comparison to previous year.
4. 1000 offers in day 6 of placement season making fastest 1000.

Central Library

Chairman : Prof. Suneel Kumar Srivastava

The Central Library, IIT Kharagpur is one of the largesttechnical libraries in Asia. It is fully automated and air-conditioned library with an aim to serve more than 12,000 students and1600number of employeeof the institute. The Library has its dynamic website (http://www.library.iitkgp.ac.in) with rich in content. The Central Library is having two building (main and annex) internally connected with a carpet area of about 8000 sq.m. The Central Library houses and maintains nearly 4.2 lakh of print documentscomprising of books and bound volume journals. As far as e-resources are concerned, there are huge collection of e-resources comprising of full text e-journals, e-books, online databases (full text and bibliographic) etc. As far as facilities are concerned, the Central Library has ten air-conditioned reading halls with 1500 seating capacity for the users. Moreover, the Central Library is ISO 9001:2015 certified library.

Academic Staff

Chairman

Prof. S. K. Srivastava	Ph. D (IIT Kharagpur), Dept. of Chemistry

Librarian

BabluSutradhar	Ph. D (V.U), M. Sc, MLIS, CCA

Deputy Librarian

Samir Kumar Jalal	Ph. D (B.U),M. Phil, MA (Econ), ADIS (ISI)
Mr.Atin Nandi	MLIS, M. Sc.

.

Assistant Librarian

Mr. Uma Shankar	MLIS, MA
Mr.SamratGuha Roy	MLIS, MCA,PGDLIM
Mr. M. Manivannan	MLIS, MCA
Mr.Hemanta Kr. Biswal	M. Phil, MLIS
Dr. Tapas Kumar Ghosh	PhD (SU), MLIS, MA

Retirement

Mr. A.K. Goswami : Assistant Librarian

Print Collection: Added during 2018-2019

Books		Print Journals	PhD Theses
General	Text Books		
1690	1048	57	315

List of e-Resources subscribed by IIT Kharagpur

Sl.No.	Name of the e-Database	Publishers	Type/ no. of e-journals
1.	Communication & Mass Media Complete	EBSCO Publishing	1029 journals
2.	PsycArticles	American Psychological Association	110 journals
3.	Hein Online	William S Hein & Co.	2376 journals
4.	Science Direct	Elsevier	2738 journals
5.	Business Source Complete	EBSCO Publishing	3704 journals
6.	GeoScienceWorld& Geo Ref Databases	GeoScienceWorld	46 journals
7.	IEEE Electronic Library (IEL)	IEEE	479 journals

	Online		
8.	Proquest-ABI/Inform Complete	Proquest	5440 journals
9.	Magillon Literature Plus	EBSCO Publishing	Literary Database
10.	Manupatra Online	Manupatra	Online database
11.	Bloomberg Professional Services	M/s Bloomberg Data Services	Online database
12.	CapEX (IP)	CMIE	Online database
13.	Economic Outlook (IP)	CMIE	Online database
14.	Indiastat.com	Datanet India, New Delhi	Online database
15.	Industry Outlook (IP)	CMIE	Online database
16.	PDF-4+2018 (CD Version) and Sleve+2017	ICDD	Online database
17.	Pearson's Crystal Data	ASM International	Online database
18.	Prowess (LAN to IP)	CMIE	Online database
19.	SciFinder Scholar	American Chemical Society	Online database
20.	Scopus	Elsevier Science	Online database
21.	Westlaw India	Thomson Reuters	Online database
22.	World Intellectual Property Search (WIPS)	WIPS Company Ltd.	Online database
23.	IEC Complete Set	International Electro technical Commission	Online Standards
24.	IS Complete Set (Online)	BSI	Online Standards
25.	SAE Standard (Ground Vehicle)	SAE International	Online Standards
26.	Grammarly@edu writing support suit (250 users)	Grammarly@edu	Software
27.	Turnitin2 – – Anti Plagiarism Web Tool	iParadigms, LLC	Software
28.	ProQuest Dissertation & Theses	Proquest	Theses

List of major e-Resources subscribed by IIT Kharagpur

S.N	Name of the e-Resource	Publishers	No. of e-Journals
1.	ACS-All Publications Package (including Archive)	American Chemical Society	52
2.	ASM Package	American Society of Microbiology	11
3.	AMS Package	American Mathematical Society	15
4.	ASME Standards (Complete Set)	American Society of Mechanical Engineers	Online Standards
5.	ASTM Standards + Engineering Digital Library	American Society for Testing and Materials	Online Standards
6.	Cambridge University Press	Cambridge University Press	13
7.	Globe Online Journals	Globe Publication	32
8.	Taylor & Francis Core Journals	Taylor & Francis	47
9.	Taylor & Francis S&T Collection	Taylor & Francis	448
10.	Taylor & Francis SSH Collection	Taylor & Francis	1280

11.	Emerald ESS Collection	Emerald Publishing	310
12.	IOP Journals	Institute of Physics	75
13.	OnePetro Journals	Society of Petroleum Engineers	34
14.	Optical Society of America (Optics InfoBase)	Optical Society of America	18
15.	PNAS	National Academy of Sciences	1
16.	RSC Gold Package	Royal Society of Chemistry	51
17.	SAE Journals + Archive	SAE International	13
18.	Sage (HSS)	Sage Publications	629
19.	Sage (EMS)	Sage Publications	78
20.	Science Online (AAAS)	American Association for the Advancement of Science	1
21.	SIAM - eSS Collection	Society for Industrial and Applied Mathematics	17
22.	SPIE Digital Library	Society of Photographic Instrumentation Engineers	11
23.	Total IT Solutions (Online Journals)	Total IT Solutions	28
24.	Wiley Journals	Wiley	Custom- 223 and Core- 75

List of e-Resources Available from ESS Consortium

Sl.No.	Name of the e-Database	Publishers	No. of e-journals
1	American Institute of Physics - eSS Collection	American Institute of Physics	19
2	MathSciNet	American Mathematical Society	Database
3	American Physical Society - eSS Collection	American Physical Society	13
4	ASCE Journals Online	American Society of Civil Engineers	36
5	ASME Journals Online	American Society of Mechanical Engineers	29
6	Annual Reviews - eSS Collection	Annual Reviews Inc	43
7	ACM Digital Library	Association for Computing Machinery	1,143
8	Institute for Studies in Industrial Development (ISID) Database	ISID	Database
9	JGate Plus (JCCC)	Informatics India Ltd.	Bibliographic Database
10	Project Muse	Johns Hopkins University Press	676
11	JSTOR Full-text	JSTOR	3,165

12	Economic & Political Weekly	Sameeksha Trust	1
13	SpringerLink 1700 Collection + Nature Journal	Springer	1,701
14	Oxford University Press eSS Collection	Oxford University Press	262
15	Web of Science	Thomson Reuters	Bibliographic Database

Print Journals Subscription: 57

E-Books Databases

- Springer Link e-books till 2019
- Taylor & Francis e-books (2004-2019)
- Wiley e-books 2016-2018

Bibliographic Databases

1. MathSciNet
2. SciFinder Scholar
3. Scopus
4. Web of Science

Financial Databases

1. Bloomberg Database – Accessible Online
2. IndiaStat
3. CMIE's Database (CapEX, Economic Outlook, Industry Outlook, Prowess)

Law Databases

1. Hein Online
2. Manupatra Online Legal Database
3. Supreme Court Cases Online
4. Westlaw India
5. WIPS - Worldwide Intellectual Property Search

List of Standards Subscribed by Central Library

Following standards may be accessed through the links of library websites within LAN after Disable Proxy:

1. ASME Standards
2. BSI Standards
3. IEC Standards
4. ASTM Standards
5. ISO Standards
6. SAE Standards (Ground Vehicle)

Theses & Dissertation

- ProQuest's Theses & Dissertation

Databases and Software

1. Grammarly@eduwriting support suit
2. ICDD's PDF-4+ 2016
3. TurnitIn2 – Anti Plagiarism Software
4. Pearson's Crystal Data

NDLI E-resources

- World e-Book Library (September 2016 to August 2017)
- South Asian Archive (SAA) (Perpetual)

Digital Library

Following section provides information on services provided by Digital Library to the users for the period April 2018 to March 31 2019.

- Total No. of Document Delivery Service **: 75 out of 197**
- Total No. of Book Accompany CDs : **25**
- Total No. of Turnitin Anti plagiarism checking Service
  - Student Id **: 2756**

- Instructor Id **: 36**
- Report Delivered **: 85**

- Total No. of ICDD's PDF-4+ (Offline) :**271**
- Total No. of Ph.D. Theses Digitized : **562**
- Kindly e-Book Reader **: 68**
- Audio Visual Lounge :**38**
- Grammarly service Provided to users **:498**

Institutional Digital Repository (IDR)

- The Central Library has developed an Institutional Digital Repository (IDR) using open source software namely DSpace. The IDR collects, preserves and disseminates in digital format of the research output (PhD theses, Technical Reports, Faculty Publications, etc.) within IIT Kharagpur Research Community. It enables the Institute community to deposit (self-archiving) their pre-prints, post prints and other scholarly publications using a web interface and organize these publications for easy retrieval. We are having 4010 PhDthesis both full text and abstract level uploaded in our IDR which is rapidly growing day by day. The Institute research scholars are also using the IDR regularly. The Library also gets many requests from other universities to provide access to full text content of PhD thesis. The present URL of the IDR is http://www.idr.iitkgp.ac.in/xmlui/
- **Web Scale Discovery Service:** It is being introduced in our library where the users can search and browse the full text subscribed e-resources using open source software VuFind integrated with Summon Solution from ProQuest.
- **eSearch Portal Link**: http://www.library.iitkgp.ac.in/pages/eSearch2.1/
- **VuFind eBook Search**: http://www.library.iitkgp.ac.in/vufind

Facilities Created for Library Users

- **Library Facilities- 24 x7 during Semester Exam:** The Central Library introduced the facility of 24 x 7 hours reading room facility for 15 days during Semester Examinations of the Undergraduate Students and Post Graduate Students.
- **Pay Library Dues through Debit Card:** Library users can make payment for their Library fines, photocopying, printing and scanning through debit and credit card.
- **Web Scale Discovery Service:** It is being introduced in our library where the users can search and browse the full text subscribed e-resources using open source software Vufind through eSearch portal:http://library.iitkgp.ernet.in/sites/eSearch/index.html
- **IDR Service and CCTV Service is also provided to the user**

List of Workshops Organized by Central Library

Workshop on "Indian Citation Index and Demonstration on Indian Journals" was organized by **Central Library of IIT Kharagpur** on 4th October, 2018.

- International Short Term Course on **"Open Source Software for Library Management (OSSLM)**" Dated 7-12 May 2018**.** Total 110 participants from different parts of India, Sri Lanka and Bangladesh were participated in the Training Programme.

National Digital Library (NDL)

MHRD, under its NMEICT mission, has entrusted IIT Kharagpur to host, coordinate and set-up National Digital Library (NDL) towards building a national asset. The objective of the project is to integrate all the existing digitized and digital contents across educational institutions of the nation to provide a single-window access with e-learning facility to different groups of users ranging from primary level to higher education level of our county. NDL will harvest metadata and contents from all the Institutional Digital Repositories (IDR) of Universities and Institutions, all other digital library initiatives, and NMEICT projects and index in the National Digital Library

Server so that all the e-contents can be searched and accessed in the full-text by the users through a single window. The NDL project workstation is situated in the Central Library, Annex Building. For details, visit NDL website: ndl.iitkgp.ac.in

Publications

1. ***Jalal**, S. K (2019)***.Exploring web link analysis of IIT websites**.*DESIDOC Journal of Library and Information Tec*
2. *hnology, 39(1), p.3-9. ISSN:09740643*
3. ***Jalal**, S. K (2018).* **Visualization of nanoscience research in India during 2001-2016 using Vosviewer.** *RBU Journals of Library and Information Science ,Vol. 20 ISSN:0972-2750*
4. **Manivannan**, M &**Sutradhar**, B (2018)**. "Digital Conversion and Preservation of old Ph.D. Theses: A Study at Central Library, IIT Kharagpur**". *11th Convention PLANNER 2018, **INFLIBNET** Centre & Tripura University, Agartala, Tripura*, November 15-17, 2018.
5. **Manivannan**, M &**Sutradhar**, B (2018)**."Document delivery service: an online service at Central Library, IIT Kharagpur".***In PLANNER-2008. International Conference on Knowledge Organization in Academic Libraries, I-KOAL-2018,* University of Hyderabad, November 26-27, 2018.
6. **Manivannan**, M &**Sutradhar**, B (2018)**.** "**Online content delivery from different standalone digital storage medium: a service".***MANLIBNET 2018-International Conference on Emerging Trends in Librarianship Role of Libraries in Learning Environment, IIM Trichy*, December 10-12, 2018.
7. **Nandi***,* A(2018).**Library services for specially-abled users***. In the proceedings of the International Conference on Marching Beyond the Libraries: Managerial Skills & Technological Competencies, Organized by KIIT, Bhubaneswar, 16-17 November, 2018, pp. 581-588.*
8. **Roy,** S.G(2018). **Workshop Manual on DSpace and Koha Tutorial,** *International Short Term Course on Open Source Software for Library Management on Dated 7-12th May 2018.*

Invited Lectures/ Workshops

1. **Sutradhar**, B (2019). Delivered an invited talk on **Open Source Software and tools to measure the research output** in the two days *National Workshop on Academic writing and research productivity organized by Punjab Technical University, Jalandhar, Punjab* during 4-5 February, 2019
2. **Sutradhar**, B (2019). Invited talk on **National Digital Library of India** in the two days *meeting in the Hague, the Netherlands, organized by WDL, CLR, CLIR and European Foundation* during 21-22 March, 2019
3. **Sutradhar**, B (2019). Invited talk on **Digital Library and resources** in the *national level seminar on Librarianship in Digital Environment: Pedagogy, ethic and cohesionorganized by Vidyasagar University* during 28-29 March, 2019
4. **Sutradhar**, B (2019). Invited talk on ***National Digital Library of India*** *in the IFLA -2018: World Library and information Congress- 84th IFLA general conference and assembly at Kuala Lumpur*, Malaysian during 24-30 August, 2018
5. **Sutradhar**, B (2019). Delivered an invited talk on **National Digital Library of India** at the *1st International conference on information and knowledge management (IKM-2019)organized by East West University and BPAC , Dhaka, Bangladesh* during 25-27 April, 2019
6. **Jalal**, SK (2019). Invited Lecture on **"Library Automation, Digital Library System and Open Source Software"** *at Integrated Test Range (ITR), Chandipur, Balasore, Orissa* dated 25-26 March 2019**.**
7. **Biswal**, H.K (2019). Invited as Resource Person for CEP on**"Application of open source software's** in *TIRC/KC of DRDO" on 27th-28 March 2019 organized by ITR, DRDO, Chandipur, Balasore*
8. **Roy**, Samrat Guha (2018). Invited as Resource Person to Deliver a Lecture on Topic **"Building Institutional Digital Repository Training**" in *Regional (North-VI) IDR Workshop on 6-7th Apr 2018, organized by National Digital Library of India & Central Library, University of Jammu.*
9. **Roy**, Samrat Guha (2018). Invited as Resource Person to Deliver a Lecture on Topic **"DSpace, Koha and Vufind Training"** in *International Short Term Course on Open Source Software for Library Management on Dated 7-12th May 2018, Organized by Central Library IIT Kharagpur & National Digital Library of India.*

10. **Roy**, Samrat Guha (2018). Invited as Resource Person to Deliver a Lecture on Topic **"Building Institutional Digital Repository Training"***in Regional (North VII) IDR Workshop on Dated 7-8th Sep 2018, organized by National Digital Library of India & Central Library, IICA , IMT Manesar*

Central Research Facility

Chairman (Material Science Division) : Prof. Jyotsna Dutta Majumdar

Chairman (Life Science Division) : Prof. Amit Kumar Das

Aims and objectives

Extending access to multi-material state-of-the-art micro and nanotechnologies for users from industry, R&D and academia, either national or international level .
Training of students at the UG/PG/RS level.
Organizing workshop/training program to the engineers outside Institute on specific equipment.

Facilities

CRF is equipped with 36 laboratories with 30 associated faculty members and 30 technical staff. We are equipped with sophisticated instrumentations like (detailed are presented in brief report):

- Field emission scanning electron microscopes
- Dual beam FIB-FEG microscopes
- Transmission electron microscopes
- X-ray diffractometers
- X-Ray Micro-CT
- Scanning Auger Nanoprobe
- Fourier Transform Infrared Spectrometer
- Atomic Force Microscope
- Nano- triboindenter
- Raman Spectrometer
- Thermal Analyzers
- SQUID-VSM
- Hall- effect measurement, etc.
- MALDI, X-ray, ITC, FACS .

Seminars/ Workshops/ Training Programmes/ Symposia/ Conferences Organized

From 3D Images to Models - Introduction to Simple ware Software Workshop.
Workshop: Rietveld Analysis – Application Training.
Advancement on High Resolution Transmission Electron Microscopy.

Computer and Informatics Centre

Head : Prof. Arobinda Gupta (upto 31.12.2018)
Prof. Shamik Sural (From 01.01.2019)

CIC has extended the existing private cloud computing infrastructure by buildinga new OpenStack based cloud system (Meghamala-II).

Wi-Fi infrastructures at Nehru, Patel, Azad, LLR, RK and RP halls have been upgraded.

CIC has connected the Institute to eduroam, a global service that enables students, researchers and staff from participating institutions to obtain Internet connectivity across campus and when visiting other participating institutions by simply opening their laptop or activating their smartphone or other portable device through Wi-Fi.

CIC has started Internet access without proxy servers from the residential area and Technology Guest House.

The centre has completed the extension of Institute networking facility to various laboratories of different departments,newly constructed Annex Buildings (Annex of JCB Lab Complex, Annex Building of the Department of Aerospace Engineering, and Extension of Mining Engineering), hall of residences(VSRC G+7 blocks for Boys and Girls) and buildings (4 nos. NFA Blocks), new centers (Centre for Artificial Intelligence, Rekhi Centre of Excellence for the Science of Happiness).In addition to these the existing network infrastructure has been upgraded at Central Library and IIT Kharagpur extension centre Kolkata for NDLI project.

CIC has laid the underground cable duct to connect Dr B C Roy Institute of Medical Science & Research through OFC with redundant path. Considering the availability of dark fiber in the existing OFC cable plant, CIC has also laid the additional cable duct to setup OFC links for JC Ghosh and PC Roy Science Block, Diamond Jubilee Complex, VSRC (G+7) blocks, Nalanda Class Room Complex, Sir J C Bose Laboratory Complex Department of E&ECE, Central Library, RMSoE, Department of Mining Engineering and Hall of Residences.

CIC also provided temporary IT infrastructure during several events like SIH2019 software and hardware editions, Spring Fest, Kshitij, Alumni meet, Convocation and different national/international academic conferences.

The laboratories in CIC (5 Nos) have been utilized for Institute academicactivities like conducting lab classes along with various online tests like GATE/JAM,JEE-Main, JEE(advanced),NPTEL, UGC NET, Moodle based online class tests, ACM-ICPC Asia Regionals 2018 Kharagpur and online examinations conducted during placement.

Central Workshop And Instruments Service Section

Chairman **:** Prof. A. Roy Choudhury

AWS **:** Dr. S. Patra

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, experimental set-ups and samples for sustenance of laboratory work and experimental research activity in the Institute for all the departments and Centres.

It is one of the major service sections of the Institute having following units:

(1) Mechanical
(2) Glass Blowing
(3) Carpentry
(4) Electronic Repair Section
(5) Audio Visual

Mechanical Section

a. Dr.S. Patra, Assistant Workshop Superintendent

Mechanical Section in CWISS comprises Mechanical fabrication and Glass Blowing Section.

b. Mechanical Fabrication Section

It is equipped with various types of machines like CNC Lathe, table mounted CNC Lathe, CNC Engraving, CNC Milling, 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, Power Saw, Shearing Machine, Polishing, Press, Arc Welding, Brazing and Soldering, etc. CNC WEDM and Laser welding machine, have enhanced our fabrication quantity and quality as well. Recently one 5-Axis CNC Machine has been purchased which has significantly improved the capability of CWISS to serve the institute.

The Mechanical Fabrication Section caters to all the departments of the Institute for any type of precision and complicated mechanical fabrication or repair with various types of metals with the machines available in the section mostly for research and project works and regular experiment classes for B. Tech. and M. Tech. as per design.

In CNC Machines different types of software are used for drawings, like Auto CAD, Rhinoceros, 3D Studio Max etc. works of the components to be fabricated and also use different types of CAM software for their fabrication.

During the year 2018-19 the Mechanical Section has performed jobs of about 320workorders in addition CNC Wire Cut EDM has completed 101 Work Orders.

Some of the notable fabrications successfully completed by CWISS are as follows**:**

1) Fabrication of Die-Punches of different sizes.
2) Fabrication of different sizes tensile, Chirpy specimens with different materials.
3) Fabrication of Heat Sink.
4) Fabrication of Wire Grip.
5) Fabrication of Micro- channel of various sizes& notches.
6) Fabrication of various types of crossed horn.
7) Fabrication of 3-D Printer Support.

8) Fabrication of mould part.
9) Fabrication of Rotary feed control valve.
10) Fabrication of Aerospace Swirler (Blisk).
11) Fabrication of Propeller.
12) Drone balancing platform.
13) Mask fabrication.
14) Transducer wash.er
15) Various type of fabrication for laser lab.
16) Fabrication of Electro chemical shell/cell.
17) Experimental set up of dust impact on PV installation.
18) Fabrication of brackets for 3D Printer.
19) Fabrication of Flange Plate for 9C Engine Lab.
20) Angular cutting by Milling Machine.
21) Fabrication of Die-Punch for SMST Lab.
22) Prototype design of Medical Screening Tool.
23) Fabrication of Aerodynamic Axisymmetric: Ramped spike & blunt body of Aerospace Engineering (Material – Brass)
24) Fabrication of M8 Creep/stress Rupture Test SpecimenMaterial- Ni-Besc Super alloy
25)Fabrication of Fatigue Sample Test.
26)Fabrication of Complicated Machine Fixture,
27) Fabrication of Roller Holder Fabrication for Aerospace Engineering Dept.
28) Saddle Fabrication for Aerospace Engg. Dept.

Glass Blowing Section

This section is equipped with glass blowing lathe, glasscutter, glass grinder, glass annealing chamber, etc. Mainly of Borosilicate glass work is done here with the help of oxygen & LPG. The main fabrication jobs include different type of condensers, Dewars, different volume capacity F.B, R.B., Flask with neck joints, manometers, 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.

During the year 2018-19 the this section has performed jobs of about 55workorders

Carpentry Section

Housed in the workshop complex behind Chemical Engg.& Automobile Section, This section has Wood Lathe, Auto Planer, Joints Nature's machinery, Vertical Band Saw and Multipurpose Machine. Apart from carpentry jobs, as per requirement of the Institute. It also undertakes construction of MS Frames, Hand painting, Spray painting, Polishing, Writing of name plates, display board &jobs as required by students' projects.

This section also meets the major requirements of furniture in the Institute. During the year 2018-19, this section has completed 101Workorders of various
Departments of the Institute.This section has manufactured teacher's tables and chairs for 44 class rooms at NCRC and also attended the repair work for stage for Convocation.

Electronics Section

Electronics section of CWISS has been revived and has facilities for repair of different types of electronic equipments. It also helps users in their design and development activities. A LPKF PCB Prototyping machine is available in this section which helps the users of different departments in fabrication of double sided PCBs.

During the year 2018-19 the Electronics Section has performed jobs of about 24 Work Orders.

Audio Visual Section

Audio Visual Cell is primarily involved in providing audio visual support for conducting regular classes at different lecture halls (approximately 1178 classes per week). It supports audiovisual facilities with Multimedia projectors, Document cameras, PCs and PA system with wireless microphones for the following class rooms: V1, V2, V3 & V4 at Vikramshila complex, F116, F127, F142, F232 & F244 at main building area and all 44 classrooms at Nalanda classroom complex.

AV Cell used to provide support about 34,162 regular classes throughout the year in aforesaid classrooms. Besides these the Cell provides AV facilities for all seminars, symposiums, workshops, short term courses and meetings at Gargi,Moitrei, S. N. Bose Auditorium and associated programme at Netaji , Kalidas Auditorium, Senate hall, Committee room. All the T. S. G. activity programmes are also supported by the Cell. AV Cell also provides support to various student activities like Quiz, Plays, Spring festival, Kshitij, Inter Hall competitions, T&P activities and other Tech Fests from different Departments.

It also helps in various other academic activities like Convocation, Senate Meeting, National & International seminars, Conferences and Workshops and also JEE & GATE programmes. AV Cell also render technical support for pre-placement talk during office hours & beyond office hours and sometime overnight for special cases.

The Audio Visual Cell has a good number of sophisticated equipments like Multimedia Projectors, Document Cameras, High quality Amplifiers and Mixtures, Wireless Microphones & Conference Systems and other peripheral supporting systems. Primary maintenance of these equipments are also asserted by AVCell staff itself. At Nalanda Phase II, audio visual installation with most modern AV equipments with video camera and recorder for virtual classroom facility and Digital signage also, is in progress. Classes of VGSOM has already been started in 4 nos. rooms of Nalanda phase II. Procurement process is under progress for Video wall at Gargi & Maitree, powerful MM projectors for Kalidas auditorium and modern audio system at Raman & Bhatnagar auditorium.

Outreach

CWISS has conducted a number of Short Term Courses on CAD-CAM applications & advanced CNC programming at IIT Kharagpur. These courses have disseminated knowledge among Teaching Faculty, Staff & Students of TEQIP colleges under the TEQIP-II programme.

The Short Term Course Principal Coordinators were Professor A. Roy Choudhury (Chairman, CWISS) and Co-OrdinatorsDr. SuprakashPatra (AWS, CWISS) and Mr. Santanu Das/Sr. Tech. Supdt., CWISS.

CWISS has also carried out work for sponsored projects and for other institutions in consultancy mode through SRIC.

Continuing Education Programme

Dean : Prof. Adrijit Goswami

The Continuing Education Programme is a significant academic activity of the Institute. Over the years, it has diversified in terms of variety of programmes, coverage of disciplines, mode of teaching, duration, and the range of industries and academia served. The activities includes providing continuing education and training to professionals from industries, R&D organisations and academia, providing opportunities to teachers and students of Engineering Colleges to update their knowledge through short term courses and for pursuing MTech and PhD programme under Quality Improvement Programme (QIP) of MHRD. Facilities provided by the Office of Continuing Education include Video-Conferencing Studios at Kolkata, Bhubaneswar and Kharagpur.

During 2018-2019the Office of Continuing Education organised **14(fourteen)** QIP short term courses with **312** participants, **13 (thirteen)** TEQIP-III sponsored courses with **419** participants; while the number of sponsored and self-sponsored short term courses conducted were **93** with as many as **2412** participants. Also, during this period **26 (twenty six)** conferences/workshops were conducted with **1476** participants. The **3(three)** year executive **EMBA** programme organised by the unit had **28** students in its Kolkata centre. During this year **09(nine)** QIP scholars were awarded PhD degrees.

Under the scheme TEQIP-III the number of Faculty Induction Workshops conducted were **04(four)** and the number of faculty participants trained were **241**(two hundred and forty one). Additionally UG and PG students from CANADA are also trained under the MITACs programme of TEQIP-III, MHRD.

Indian Institute of Technology Kharagpur initiated **Global Initiative for Academic Networks (GIAN)** which is a flagship programme of the Govt. of India in the winter of 2015. These courses of 2 weeks or 10 working days duration were designed around current and multidisciplinary themes of Science, Engineering, Management and Law with a judicious blend of lectures and tutorials per day. A total of **577** national and international participants from the academia and industry participated in the **24(twenty four)** GIAN courses during 2018-2019. The GIAN courses provide an excellent platform to our students, faculty and industry professionals to seek knowledge and experience from international faculty. It also provided them an opportunity to interact and learn subjects in niche areas through collaborative learning process. High quality course material, both through print and video are developed under the GIAN programme so as to be used by a larger body of students and teachers.

One credit courses on micro specializations are being conducted successfully for the last few years. **15(fifteen)** micro credit courses were conducted during 2018-2019. Recently a **6(six)** month certificate course on Foundations of Artificial Intelligence and Machine Learning has been launched in March 2019. Live, interactive classroom sessions are conducted simultaneously from Kolkata, Bangalore, Hyderabad and Kharagpur.

IIT Kharagpur has been the largest contributor of online certification courses in the **SWAYAM-NPTEL MOOCs** platform. A total of **152** courses have been offered by the
Institute Faculty members during the Jul-Oct 2018 (77 courses) and Jan-Apr 2019 (75 courses) semesters. While **9,24,619 learners enrolled** for these free open online courses, 1,49,625 learners appeared for the proctored certification examination. In order to raise the awareness of the MOOCs program, **12** awareness workshops were conducted during 2018-2019 in the Eastern region.

Civil Construction & Maintenance Section

Chief Engineer *:* Vivek Prakash Srivastava

As a part of the ongoing infrastructural development, various construction projects have been taken up by Civil Construction and Maintenance Section. Current status of those projects is as follows:

J.C. Ghosh Science Block & P.C Roy Laboratory Block
Total – 16floors.All the floors have been handed over with 2 floorsto SIDM, 2 floors to CORAL, 2 floors to Petroleum Engineering and 10 floors to ChemistryDepartment. HVAC works is in progress.

Expansion Work In Academic Buildings
Expansion of Aerospace Engineering Building is completed and handed over in August, 2018.
New Annex Building of Mining Engineering Department is completed and handed over in July, 2018.
JC Bose Annexe Laboratory Building has been handed over in June, 2019.

Construction Of B-Type Faculty Aparments
RCC structural work underprogress.

Expansion of Vikram Sarabhai Residential Accommodation
The building with164 rooms for Boys and 164 rooms for Girls have been handed over in November, 2018.

Construction of Super Speciality Hospital
The Main Hospital Building, Electrical sub-station, AC Plant room, pump house and STP has been completed. MGMS, CSSD, Signage work, testing commissioning of lifts & HVAC work are inprogress. The Institute has initiated the process of taking over of the facilities.

Construction of Research Park at Rajarhat Kolkata:
The Main Building including Auditorium and sub-station of IIT Kharagpur Research Park at Rajarhat has been completed. The testing commissioning of HVAC is in progress. The Acoustic work for Auditorium and Classrooms has been awarded by CPWD.

66 Units Of New Faculty Accommodation
Out of 66 units of New Faculty Accommodation, 24 units have been handed over in March, 2018.
Balance 42 units will be handed over shortly.

New Water Supply Project
Total pipe laying done 12.10 Km out of 12.600 km. The work is in progress in SE Rly Area where total of 5.316 km has been laid out of 5.500 km. Approach Bridge Fabrication and Erection is in progress.

NANO CRF & Life Science Building of Diamond Jubilee Complex
Handing over of Life Science Building is under progress.

100 Units of Post Doctoral Accommodation
Handing over is under progress.

Foreign Visitors' Accommodation
Finishing works are under progress.

Infrastructure Development of Technology Students Gymkhana
Synthetic Athletic track has been completed. Basketball, Volleyball and Tennis Court worksare under progress.

Extra Academic Activities

The extra academic activity (EAA) at the Institute involves undergraduate students in the National Service Scheme (NSS), National Cadet Corps (NCC) and sports and fitness activities over four semesters. In each semester, students get involved in approximately 45 hours of field work in EAA. Specific Highlights of the EAA program in the year are as follows:

National Service Scheme

National Service Scheme of EAA covered about 1000 students in this year. The students typically spent three hours per week over entire semesters working on social issues in the nearby villages and slums in and around Kharagpur. They participated in facilitating education for the underprivileged school children by organizing scholarships, prizes, study materials, stationery, bicycles and utensils. They monitored drinking water quality at villages and provided nutritional supplements to primary school children to ameliorate endemic malnutrition among tribal population. They also organized blood donation and medical camps and awareness programs on issues such as substance abuse, health and hygiene and nutrition. They planted and maintained saplings and participated in facility and infrastructure maintenance, e.g., repair of rural roads, painting and maintaining school buildings and furniture.

NCC

Both 3 Bengal Tech Air Sqn NCC and one Bengal EME Coy NCC units are dedicated NCC units designed to impart NCC training to students of the Institute as an allotted EAA (Extra Academic Activity) subject for undergraduate students (1st& 2nd Year). During the training year 2017-18 a total number of 159 students were enrolled (129 Boys and 30 Girl cadets) in 3 Bengal Tech Air Sqn NCC and 161 cadets in one Bengal EME coy NCC.

Training Activities

Considering their importance and requirement various training activities were conducted by this unit for first and second year cadets. All these activities include (i) Drill; (ii) NCC & Aircraft Technical subjects; (iii) Aeromodelling;

Institutional Training

I.	NCC Syllabus (Theory & Practical)	:	05 periods on all planned Saturdays
II.	Combined Annual Training Camp	:	28 Nov 18 -07 Dec 18
III.	Range Firing (.22” Rifle)	:	09 Mar 19
IV.	‘B’ Certificate examination (Appeared-44, Passed-43)	:	30 Mar 19

Ceremonial Parades

I.	Independence Day parade	:	15 Aug 18
II.	Rastriya Ekta Diwas	:	31 Oct 18
III.	Republic Day Parade	:	26 Jan 19

Social Service and Community Development activities conducted

I. Sadbhavna Diwas Run - 25 Aug 18
II. Tree Plantation (**40 Sapling planted**) - 25 Aug 18
III. Swachhta hi Sewa - 29 Sep 18
IV. Cycle Rally organized to Purbapatri village & back
V. Blood Donation Camp (**Total 92 donors**) - 06 Oct 18
VI. Eco Conservation Drive &Swachh Bharat Abhiyan - 17 Nov 18
VII. World AIDS Day (**Awareness lecture**) - 01 Dec 18
VIII. National Youth Day (**Lecture conducted**) - 12 Jan 19
IX. Anti Female Foeticide & Anti Dowry Campaign - 16 Feb 19

X.	(**Awareness Rally organized**)	(a) Swachh Bharat Abhiyan - 29 Sep 18,
XI.	Activities at Adopted Village **Purbapatri**-	17 Nov 18, 09 Feb 19 (b) Distribution of stationary to school children - 09 Feb 19

NCC training year 2018-19 was successful in all aspects. Cadets' response towards the training was highly enthusiastic. The unit is alive to the requirement of improving the infrastructure so as to keep in tune with the needs of present environment. The Training pattern is also updated to accommodate the present socio-economic environment of the society. A sincere effort is made by the unit to groom the students of IIT into responsible and sensible young citizens who will be able to take Leadership roles in future and be the ambassadors of social causes.

NSO (Health and Fitness)

The NSO (Health and Fitness) program of IIT Kharagpur served 890 UG students in the year 2018-2019 as a part of Institute's mandatory extra academic activity. The program was supervised by ten faculty members who serve as program officers of individual units comprising of about 100 students each, a program co-coordinator and a program coordinator. Every wednesday and saturday, the students assembled in the Tata Sports Complex at sunrise for workout sessions. In this, physical training was conducted under strict supervision of qualified physical training instructors drawn from Students' Gymkhana. Apart from the routine activities, the students also took part in several special activities:

- Foundation Day Programme (18th August 2018, conducted for 890 students)
- Cleanliness drive for plastic waste removal in the campus area as a part of Gandhi Jayanti(2nd October 2018, conducted for 890 students)
- Art of Living Yoga Programme conducted by Prof. Suman Kalyan Samanta, Dept. of Chemistry(16th March 2019, conducted for 456 students)
- Disaster Management TrainingProgrammeby Sri Sathya Sai SevaOrganisation, West Bengal (16th March 2019, conducted for 434 students)
- Heartfulness Meditation (9thand 10thMarch 2019, conducted for 890 students)
- Anapana Meditation (31stMarch 2019, conducted for 100 students)

In addition to these, to serve a greater cause of spreading the message of health and fitness beyond the physical reach of IIT Kharagpur, a blog with URLhttp://healthandfitnessiitkgp.blogspot.in/ is maintained under this program.

Institute Information Cell

Head: Prof. SoumyaKanti Ghosh, CSE

Associate Head: Dr. PralayMitra, CSE

The Institute Information Cell (IIC) has been the hub of academic information service of the Institute throughout the year. In the past year, the IIC has maintained the IIT Kharagpur website data and added new features. The cell is continuously adding new features to display more and more information on departmental pages, academic programmes, profiles of all faculties, halls of residences and administrative positions in the Institute. The website database has been interfaced with the Institute ERP system which has facilitated maintenance and updation of information in a seamless manner.

The existing internal noticeboard have been updated to *Apna website*(http://www.apna.iitkgp.ac.in), which fetches data from ERP system at regular intervals. The contents of the group mail service of IIT Kharagpur internal users are now be listed in specific categories in the *apna* website (internal website). The latest doctors' roster of BC Roy Technology Hospital are published in the internal website with proper interfacing with the Institute ERP. Other facilities of internal noticeboard like Academic/ Administrative/ Estate/ Hospital notices, Document/Forms, Rules & Regulations have are also available in the "apna" (internal) website. Provisions have been made to display the notices in the ERP so that it can be viewed using ERP login.

The cell also helps the Institute to upload tenders in the Institute website and CPPP portal of Government of India. IIC has published the new communication directory (bi-lingual) of IIT Kharagpur in December 2019. IIC also prepares the Annual Report of the institute under the guidance of Dean (Planning & Co-ordination).

Office of International Relations

Dean : Prof. Baidurya Bhattacharya

The Office of International Relations was set up in the year 2003. Since 2014, the Office has grown significantly with the range of activities with regards to the signing of international MoUs and collaborations, outreach programs, facilitation of faculty and students visits etc. The Office has also been made responsible for the Institute's branding and corporate social responsibility program. Following are the major activities undertaken during 2018-19 by the Office of International Relations:

4 international students were hosted for degree programs from Russia, Columbia and Bhutan, South Korea, and 29 international students for short-term programs. Funding opportunities were made available under Shri Gopal Rajgarhia International Program (SGRIP), Asoke Deysarkar International Program, ICCR and other funding programs. The flagship program of Office of International Relations, SGRIP supported 9 International Faculty, 2 International Research Scholars: 2, 3 scholarships for international students, 2 International Workshops and Meetings. International MoUs were signed with 35 foreign universities including with special emphasis on student exchange. Work is in progress for Multi-institutional Dual Degree programs with James Cook University, Australia, University of Auckland, University of Alberta, University of Massachusetts, Dartmouth, Rutgers University. Apart from these, there were several inbound visits, the foreign training program was conducted for students of IIT Kharagpur, e-newsletter was published for students and faculty for news dissemination.

Activities undertaken by Dean, International Relations for Branding and CSR include the following:

a) Launching the IIT Kharagpur news website, The Kgp Chronicle, www.news.iitkgp.ac.in, relaunching R&D and alumni magazines, increasing the reach of social media through Facebook, LinkedIn and Twitter, making of IIT Kharagpur short film for the national television channel of Doordarshan, internationalization of the science and technology competition for school students, Young Innovators Program and offering a large range of brand memorabilia.

b) Raising CSR funding for merit scholarship from Tower Research Capital, innovation incubation from HDFC Bank, for Centre for Classical Arts from AKS System Pvt Ltd. and Magic Software.

Kalpana Chawla Space Technology Cell

Chairman : Prof. Dipanwita Roy Chowdhury, CSE (pto 31.12.2018)
Prof. Santanu Chattopadhyay, E&ECE (From 01.01.2019)

Brief description of on-going activities:

Space Technology Cell, IIT Kharagpur was renamed as KalpanaChawla 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, Bangalore. Currently, the cell handles thirty five on-going research projects whileseven new projects have been approved in 2018-2019.These collaborative research projects are carried out in the following broad areas :

1) Liquid Combustion, Propulsion and Cryogenics
2) Space Communications and EMI/EMC
3) Micro-machine Sensors
4) Control, Navigation and Guidance
5) Embedded Systems and IP-Cores
6) Cryptography and Security
7) Remote Sensing
8) Life Support Engineering
9) Smart Materials & Exotic Materials
10) Power Electronics
11) Space Education
12) Electronics Devices
13) Quantum Communication

As an outcome of the research work, approximately forty onepapershave been published in reputed national and international journals and conferences. The cell has offered two courses on 'Fundamental Concepts of Digital Image Processing for Interpretation of Remote Sensing Data' &'Special Topics on Antenna Theory &Practice' in the academic year of 2018-2019.

Infrastructure Development and new Acquisitions

A number of software and hardwaremodules have been procured under KCSTC projects to enhance the research platform of KCSTC as well as different departmental laboratories. A few of these are as follows :

1. CST software for Electromagnetic simulation tool
2. GPU Computing Platform
3. Map Downloader software
4. GPS L1 IF data recorder- cum – software
5. High voltage differential probe, 500MHz 12 BIT ADC Digital Storage Oscilloscope, Rogowski Coil Current Probe, 80V, 25A Regulated DC Power Supply
6. PotentiostatGalvanostat- Princeton Applied Research VersaSTAT4, Linear Micro/Nano Positioner-SmarAct SLC 2445
7. FLOWNEX Software
8. GFSSP

Rajbhasha Vibhag

Chairman **:** Prof V.R.Desai

Senior Hindi Officer **:** Dr. Rajeev Kumar Rawat

On Going Activities of Vibhag

Translation

All the documents, correspondence, Institute's Annual Report and Annual Accounts statement are translated by Rajbhasha Vibhag apart from the routine translation of various technical / non-technical documents, administrative orders,RTI and letters from English to Hindi and vice versa. In addition to the translation of documents, the Vibhag ensures the bilingual display of different nameplates, notice boards, rubber stamps, and preparation of Degrees / Diplomas certificates awarded by the institute.

Hindi Training

Rajbhasha Vibhag has initiated Hindi Training to Institute employees for Praveen, Pragya and Parangat course under Hindi Teaching Scheme. The classes are arranged in Institute with the help of Sri K K Pathak, Hindi Pradhyapak, Hindi Teaching Scheme. The Vibhag has also initiated Hindi typing training under Hindi Teaching Program and up and set up a small Hindi Typing Training Centre where our employees are being trained for doing their official work in bilingual. This year the department has trained 76 employees inPraveen, Prgaya and Parangat with 15 employyes trained in Hindi Typing)

Hindi Workshops and Seminars

With a view to create awareness for use of Hindi as Official Language in official work as well as to accelerate the pace of its progressive use, Rajbhasha Vibhag used to organize various training programmes, Workshops and Seminars for the employees / Officers of the Institute throughout the year. In the previous year 2018-19 the following events took place:-

On 14 Sep 2018, 18-22 Jun 2018, 05-11 March 2019 Hindi workshops and HR Training were organized for the Officers and employees of the Institute. In these Dr. Rajeev Kumar Rawat, Senior Hindi officer, Sri K K Pathak, Sri Balendu Sharma Dadhich, Dr Rishi Kesh Rai, Sri Arvind Kumar Tiwar and other invited guest speakers briefed the employees about the techniques for doing their day to day official work in Hindi and also hands-on training was given to them to be able to work on computer in Hindi, noting and drafting. All the secretaries working in Dean’s office, Establishment, Coordination sections were trained by Hindi Officer for Hindi typing by going to their desk.

Celebration of Hindi Divas & Vishwa Hindi Divas

During the month of Sep 2018 the Institute celebrated "Hindi Divas" on 14th Sep 2018. Several programmes and competitions in Hindi were organised for employees and students of the Institute as well as for the students of nearby schools. Winners were motivated with certificates and Hindi books as prizes. A well known speaker, motivator and Hindi Icon for IIT JEE Sri Anand Kumar, Founder of Super 30 gave the Hindi Divas lecture on 14 Sep 2018 and motivated that “HAAN SAB SAMBHAV HAI” to the students of IIT and nearby schools. He interacted with the B Tech, M Tech and Ph D Scholars of the institute and motivated them to do their research in their mother tongues and Hindi.
The institute celebrated Vishwa Hindi Divas on 10 Jan 2019 and invited Dr A N Trivedi, Chief Manager UCO Bank Kolkata delivered the lecture on The world scene of Hindi.

Publication

Rajbhasha Vibhag publishes a monthly News Magazine "Jharokha" in Hindi covering all the academic, cultural, extra-curricular activities of the institute with the rules, regulations, policy matters related to Rajbhasha.

Resources and Achievements, Softwares

Rajbhasha Vibhag has several Hindi Softwares like i-leap, ISM Publisher, ISM Office, Leap Office etc. Vibhag also uses the tools, PARIVARTAK, MANTRA, TRANSLITERATION, etc developed by Department of Official Language , MHA, Government of India, C-DAC and other agencies. Recently ISM V.6 was procured which is Unicode compatible.

UNICODE

The Vibhag has activated UNICODE in all the computers of departments and trained the employees to work in Hindi.

Rajbhasha Library

Rajbhasha Vibhag has a full-fledged Library with a collection of more than 1500 books of different writers on literature, fiction, poetry, prose, play and various subjects of translation and language.

Bilingual web site

The Rajbhasha Vibhag has made its website bilingual. Useful information links are available on Vibhag Website regarding training programmes, incentives schemes, different tools etc. The Rajbhasha Vibhag has also made the Institute's website bilingual and efforts are being made to make the contents of the website also bilingual.

Committees

Official Language Implementation Committee and Progress Measurement Committee

The Institute has constituted Official Language Implementation Committee (OLIC) for the implementation of Rajbhasha Policies and to monitor the progressive use of Hindi in the Institute in day-to-day work. A meeting of the OLIC is held quarterly and is chaired by the Director. This year four meetings were held to discuss various issues.

Town Official Language Implementation Committee (TOLIC)

In addition to this, Rajbhasha Vibhag, IIT Kharagpur plays a vital role in co-ordination for implementing the Official Language policy in the town. As the Director of the Institute, is the senior most officer of the Central government posted in Kharagpur, Rajbhasha Vibhag, Ministry of Home Affairs, Government of India has nominated him as Chairman of Town Official Language Implementation Committee (TOLIC). All the central government offices, Banks, Corporations, Autonomous bodies and enterprises are the members of TOLIC. At present there are 54 member Offices in the committee. The committee has been assigned the task of implementing the Rajbhasha policies and ensuring the orders and directives of government. The Chairman TOLIC Kharagpur has nominated Dr Rajeev Kumar Rawat,Senior Hindi Officer as Member- Secretary of TOLIC to look after the routine work of committee. As per the calendar, the meetings of TOLIC Khargpur are fixed to be held in January and August every year. In the previous year two meetings were held on 13 Aug 2018 and 10 Jan 2019. The meetings were chaired by the Chairman TOLIC and attended by Heads of the member offices with their Hindi Officers and Staff. Rajbhasha Vibhag invites the employees of TOLIC member offices to participate in the workshops, seminars and training programmes organized in IIT Kharagpur.

Science & Technology Entrepreneurs' Park (STEP)

Managing Director : Prof. Satyahari Dey

Major Activities

Infrastructure facilities created:

1) Shed area at STEP Gopali Campus has been renovated for civil works, water connection, electrification to provide better facilities to incubatees.
2) Phase-II boundary wall in Gopali mouza is being constructed to improving security measures of STEP Gopali campus.
3) Animal Cell Culture Based Testing Laboratory is ready for operation.
4) Ultra High Temperature furnace (3000 ^{0}C) for mono-atomic layer graphene (first time in our country), Raman Spectrometer and Universal Testing Machine are in the process of installation.
5) Infrastructure for internship program for students from textile colleges is ready.
6) Tissue cultured pineapple and banana plantation will now be expanded to 40 acres (all fruits will mainly be delivered to students in Halls of residence) and development of natural fibre based cloth and footwear (bonded with graphene-derivatives) will be undertaken

Committee Meeting for Incubation and Seed Loan

A screening Committee meeting for incubation was held on May 8, 2018. Five companies presented their proposal namely M/s Bhadoria Rural Technologies Pvt. Ltd., M/s Vitae Science Pvt. Ltd., M/s AniGiene Technical Textile Pvt. Ltd., M/s Setu Agrobiotech and Technical Textile Pvt. Ltd. and M/s Zelence Industries Pvt. Ltd. attended the meeting. None of them have been selected for incubation or seed support. The committee approved incubation to first four companies listed above out of which two companies M/s Vitae Science Pvt. Ltd., M/s AniGiene Technical Textile Pvt. Ltd. have completed their process of registration at STEP, IIT Kharagpur and the other two companies namely M/s Bhadoria Rural Technologies Pvt. Ltd. and M/s Setu Agrobiotech and Technical Textile Pvt. Ltd. have withdrawn their application. Further, seed loan was approved for M/s Zelence Industries Pvt. (Rs. 25 Lakhs).

The 2nd Committee Meeting for incubation was held on September 11, 2018. Two companies presented their proposal namely M/s SensorDrops Networks Pvt. Ltd. and M/s DOS Instrumentation and Automation Pvt. Ltd.. The committee approved incubation of both the companies and they have completed the process of registration.

The 3rd Committee Meeting for incubation was held on February 20, 2019. Four companies presented their proposal namely M/s Lignin Biosciences Pvt. Ltd., M/s. Redpine Signals Inc., M/s. Proficient Vision Solutions Pvt. Ltd. and M/s Weber ElectroCorp Pvt. Ltd.. The committee approved incubation of all the companies and M/s Lignin Biosciences Pvt. Ltd. has completed the process of registration.

M/s HDFC Banks Pvt Ltd has supported incubatees of STEP with Rs. 60 lakhs grant. M/s Ansys Software Private Limited has supported STEP green house project with Rs 8 lakhs grant.

Workshop/ Outreach Camp [Self Help Group women from 42 villages have been trained on organic oyster mushroom cultivation technology]

Sl. No.	Name of Workshop	Venue	Date
1	PRISM Outreach	SN Bose Auditorium, IIT Kharagpur: Motivating Lectures by Director, Dy Director and Deans IIT Kharagpur and MD, STEP, IIT Kharagpur	16.05.2018
2	ENTREPRENEURSHIP-THE ZEAL Part I	STEP,IIT Kharagpur (in collaboration with Institution of Engineers)	19.05.2018
3	ENTREPRENEURSHIP-THE ZEAL Part II	STEP,IIT Kharagpur	20.05.2018
4	PRISM Outreach	Bengal Institute of Technology and Management (BITM), Shantiniketan	02.06.2018
5	PRISM Outreach	Techno India, Salt Lake	03.08.2018

6	Entrepreneurship workshop on technical textiles	STEP, IIT Kharagpur	22.09.2018
7	Entrepreneurship workshop on technical textiles	STEP, IIT Kharagpur	06.10.2018
8	Entrepreneurship workshop on technical textiles	STEP, IIT Kharagpur	10.11.2018
9	Technical textiles- rural innovation	STEP, IIT Kharagpur	08.12.2018
10	Skill development/ entrepreneurship workshop on oyster mushroom cultivation & tissue culture based plant propagation technology	STEP, IIT Kharagpur	05.01.2019
11	Skill development/ entrepreneurship workshop on oyster mushroom cultivation & tissue culture based plant propagation technology	STEP, IIT Kharagpur	16.02.2019
12	PRISM and FIC Serial Weekly Workshops	STEP, IIT Kharagpur	06.03.2019
13	PRISM and FIC Serial Weekly Workshops	STEP, IIT Kharagpur	13.03.2019
14	PRISM and FIC Serial Weekly Workshops	STEP, IIT Kharagpur	27.03.2019

Brief descriptions of on-going entrepreneurial activities

Total No. of existed companies: 16 STEP IIT Kharagpur Campus: 1.
No. of Companies registered in 2018-19: 5 STEP Gopali Campus: 4.

New Companies inducted at STEP-IIT Kharagpur

Name of the companies	Major Entrepreneurial Activity
M/s M/s SensorDrops Networks Pvt. Ltd.	Providing intelligent connectivity for enhanced continuity.

Companies incubated at STEP-Gopali campus

Name of the companies	Major entrepreneurial activity
M/s Vitae Science Pvt. Ltd.	Manufacturing of IOT based sensor for monitoring soil extracellular polymer substances and allied equipments for maintaining the eps biomas
M/s AniGiene Technical Textile Pvt. Ltd.	Manufacturing of a bed beneath the rat cage: innovative product related to technical textile.
M/s DOS Instrumentation and Automation Pvt. Ltd.	Design and development of industry 4.0 enabled micro fiction stir welding machine.
M/s. Lignin Biosciences Pvt. Ltd.	Production of medical mushroom based nutraceuticals and edible mushroom from agro waste

Seminars/Workshops/Conferences

Seminars / Workshops/ Conferences/Symposia	Date
Workshop / Symposium	16th May, 2018; 19th May, 2018; 20th May, 2018; 2nd June, 2018; 3rd August, 2018; 22nd September,2018; 6th October, 2018; 10th November, 2018; 8th December, 2018; 5th January, 2019; 16th February, 2019; 6th March, 2019; 13th March, 2019 and 27th March, 2019
STEP GBM & AGM	8th November, 2018
Committee Meeting for Incubation and Seed Loan	8th May, 2018, 11th September, 2018 and 20th February, 2019

Sponsored Research And Industrial Consultancy

Dean: Prof. Pallab Dasgupta

The Sponsored Research and Industrial Consultancy (SRIC) Cell is the primary conduit for all sponsored research and consultancy in the institute. It also plays a pivotal role in the preparation and execution of the research roadmap of the institute, and in managing the internal mechanism of the institute for disbursement of its research funds. As research is one of the key indicators of institutional excellence, and as the government increasingly leans towards the IITs to infuse its technology towards industrial application and social responsibilities, SRIC has become primary handle for a wide variety of technology interventions. .

The huge diversity of engineering and science disciplines at IIT Kharagpur offers a single window for all types of educational and research service required by the industry. The diversity of in-house expertise at IIT Kharagpur has also catalyzed the development of a healthy ecosystem for large scale industrial collaborations in multi-disciplinary areas including AI, Advanced Manufacturing Technology, Intelligent Transportation Technology, Affordable Healthcare Technology, Geosciences for the Future of Earth, Innovative Infrastructure Design, Industrial Internet of Things, Industrial Robotics etc.

SRIC IIT Kharagpur played a key role in catalyzing the submission of a large number of proposals from IIT Kharagpur under the UchchatarAvishkarYojana (UAY), IMPRINT, and SwatchtaAbhiyanand worked with the other IITs in carrying out the selection process. Under UAY-I (2016-2017), the institute has received funding to the tune of INR66crores spread over 12 projects. In the year 2017-2018, under UAY-II, 14 projects were submitted and 7 were selected, total amount being INR 11.85 crores.Under IMPRINT-1 and IMPRINT-2, the Institute has already received a fund-commitment in the tune of **INR 123 crores spread over 27 projects and INR 9 crores spread over 12 projects.** The Institute has also received a fund-commitment of **INR 251.09** crores under SPARC Programme.

Since its inception of Global Initiative of Academic Networks (GIAN) program in 2015-16, IIT Kharagpur is coordinatingthis program nationwide. Aimed at tapping the talent pool of scientists and entrepreneurs worldwide and garnering the best international experience into our systems of education, the GIAN initiative has attracted an astonishing advanced courses involving international experts in 2018-2019 These courses have been made available online for attendees all across the nation.

Additional educational initiatives under the leadership of IIT Kharagpur include the National Digital Library initiative, the National Initiative for Design Innovation, the Teaching Learning Center for Pedagogy Design & Research, and the MOOC compliant e-content creation initiative. Major MHRD supported initiatives include the E-Business Centre of Excellence, Virtual Labs, and Real Time Virtual Labs.

During the year 2018-2019 the Institute received **257 research projects** from the Government, private and international funding agencies/enterprises for a total value of INR **493.34 crores** and **154 consultancy projects worth 30.56 crores**. This includes a number of high-value and flagship projects from the government and the industry, such as:

1. Development of Filament Wound Type 3 Composite Cylinder for the Storage of Compressed Hydrogen Gas
2. Road Safety Audit on Five (5) State Highways in the State of West Bengal
3. A Formal Coverage Management Framework for AMS Design Verification (GRC Proposal ID: P32524)
4. LUDCP for Newly Added Haldia Planning Area (Phase 1)
5. Health Study of Main and Annex Building of Honourable High Court, Kolkata
6. Scientific Study Related to 04 Zones of Handidhua Colliery
7. Cryptography and Cryptanalysis
8. Preparation of Human Resources (HR) Plan of SECL Including Executives for Next Five Years taking into Consideration the Man-Machine Combination, Training Needs for Different Disciplines to Augment the Production and Productivity for the Next 05 (five) Years
9. Study to Assess Stability for an Unstable Part of NH-2 Bypass near Dalmia under the Jurisdiction of Salanpur Area of ECL for Implementation of Raniganj Master Plan
10. Specifications for Design of De-dusting System for 1X800 T. P. D. Calcined Petroleum Coke Rotary Kiln at Paradeep, Orissa

The Intellectual Property Rights and Industrial Relations (IPR & IR) Cell under SRIC is responsible for the filing and maintenance of Intellectual Property Rights, and also forlicensing and the transfer of technologies developed by researchers at IIT Kharagpur to the commercial sector. In the financial year 2018-19, a total number of 63 intellectual properties (national and international) have been filed and a total of 5 intellectual properties were granted. Several technologies have been transferred to industries.

A two day IPR Workshop on 'Innovation, Invention and Creativity – Roadmap for Patent Creation' was organized on 25th August and 5th September 2018 by IPR & IR Cell, SRIC, in association with RGSoIPL, IIT Kharagpur, where lecture was given by Dr. GouriGargate, Professor, RGSOIPL, IIT Kharagpur.

An IPR Special Lecture on "The multiple facets of IPR : An Engineers's Perspective" was delivered by Prof. Ravinder David Koilpillai, Qualcomm Institute Chair Professor, Department of Electrical Engineering, IIT Chennai, on 26th of February, 2019 which enriched the students and faculties of IIT Kharagpur at large.

An Institute lecture on "Commercializing Innovations – why do inventors patent their invention?" and a One day Workshop on "IP Powerhouse: the fuel for startups" was organized on 1st March 2019 and 2nd March 2019 respectively, by IPR & IR Cell, SRIC, in association with RGSoIPL, IIT Kharagpur, which witnessed the lectures of Dr. Malathi Lakshmi Kumaran and Mr.Dipan Banerjee, of Lakshmisri Law Firm, New Delhi along with Institute Law School faculty members, PIC- IPR & IR Cell, with encouraged and discussed upon queries from members of the audience.

The world Intellectual Property day was celebrated on 26th April 2019, raising IP awareness among students and researchers and felicitating the inventors whose patent has been granted.

The world Intellectual Property day was celebrated on 26th April 2018 with the theme "Powering change: Women in innovation and creativity" encouraging more women inventors of the Institute. The IP day celebration started with the inauguration of the Technology Transfer Brochure of the Institute.

The Entrepreneur Cell under SRIC supports a variety of incubation programs funded by the Government.

Various student activities are encouraged and supported through SRIC. Notable activities include the following:

- **TeamAGV** activity for design and implementation of autonomous ground vehicles.The team has designed, fabricated and operated autonomous vehicle with multiple sensors data processing and fusion incorporating sophisticated control steps to participate in various competitions in India and abroad. It is indeed is a matter of pride to note that Team AGV, IIT Kharagpur have secured second position in 26th International Ground Vehicle Competition (IGVC) held at Oakland University in Rochester, Michigan on June 1 - June 4, 2018, organized by the Association for unmanned vehicle system international (AUVSI).
- **TeamKART** designs and manufactures formula style racing cars. The team has successfully made 6 cars and is on its way to make the 7th car. The team bagged **9th position out of 74 teams** in the Formula Bharat rulebook quiz. The team was **one of the 16 teams out of 77 teams** that participated, to clear the Mechanical Scrutiny, tilt and the noise test in Formula Bharat 2019. Also for the first time team participated in the 3rd FSEV Concept Challenge and bagged **overall 4th rank**.
- **RoboSoccer** activity for design and implementation of a team of soccer playing robots. This activity is coordinated under a students' group named "Kharagpur Robosoccer Students' Group" (KRSSG). It regularly organizes robo-soccer competition during the techno-management fest "Kshitij".KRSSG qualified for RoboCup SSL 2019 and Humanoid Simulation League held in Sydney, Australia. In July 2018, KRSSG won the second place in Goalie Skills Challenge of Humanoid Simulation League, in Montreal, Canada.
- **Swarm Robotics** IIT Kharagpur took part in DRDO's DRUSE 2018 (DRDO Robotics & Unmanned Systems Exposition) which was held in Pune from 23rd May to 25th May 2018 and won the First Runners Up position to win a cash prize of 1 Lac Rupees for further research and implementation. This was the culmination of the national level challenge which had over 1000 entries out of which 164 qualified for the Zonals on 28th March 2018 where they were crowned the runners-up in the 30 teams selected for the finals.
- **Aerial Robotics Kharagpur (ARK)** is a students' group working for building autonomous aerial vehicles. The group was formed in February 2015. They are developing a system for flight control of a drone for participating in International Aerial Robotics Competition (IARC).

- **TeamAUV** activity for design and implementation of autonomous underwater vehicle. The team has designed and operated an upgraded underwater vehicle with multiple sensors and sophisticated control computers to participate in various competitions in India and abroad.
- Signals and systems for Life Science, a thrust area of Research at IIT Kharagpur, organized a one week long orientation programme during May 8-12, 2017 at IIT Kharagpur for selected ICMR-IITKGP MedTech interns of this year. In the 8 week long internship, 2 ICMR Scientists and 4 medical college students from 3 different AIIMS were to work at IIT Kharagpur laboratories while 7 IIT Kharagpur engineering students were to report different centers of ICMR namely, NCDIR, Bangalore, NIRRH, Mumbai, NARI, Belgavi, RMRC, Bhubaneswar.

Technology Students' Gymkhana

President : Prof. William Mohanty

Students' Affairs

Technology Students' Gymkhana is the hub of the numerous extra-curricular and co-curricular activities in IIT Kharagpur ranging from Sports, Socio-Cultural to Technology. From its inception in 1952, the Gymkhana has played a key role in the everyday lives of Kgpians cultivating and nurturing their extra-curricular talents. The students under the auspices of TSG participated in a variety of activities during their leisure time for fun, fitness, enjoyment and reviving their energy after academic workload and also for their overall development. The highlights of the year 2018-19 are as follows:

Inter-IIT Meet

The 34th Inter IIT Aquatics Meet and 53rd Inter-IIT Sports Meet held at IIT Guwahati during 03-07 October 2018 and 13-21 December 2018, respectively. The participating students of the Institute in the Inter IIT Aquatic Meet exhibited great performance with 2 gold medals, 7 silver medals and 2 bronze medals for men and 2 silver medals and 1 bronze medal for women's team of IIT Kharagpur, leading IIT Kharagpur to finish at 2nd in Overall G.C for swimming. Indresh Performed exceptionally well by bagging 4 silver medals. Water Polo team has also brought us glory by securing 1st Position. Amlan Sil has been awarded with best player of the tournament and Raj Prabhu has been awarded with best scorer of the tournament.

In 53rd Inter-IIT Sports Meet, IIT Kharagpur secured 3rd position in March past, Badminton (Men) won Gold medal. Athletics (Boys & Girls), Badminton (girls), Chess, Squash, Table Tennis (Boys) won Silver medals. Tennis (Men) won Bronze medal.

IIT Kharagpur Cultural team secured 3rd Position in the 3rd Inter-IIT Cultural Meet which was held at IIT Roorkee in December 2018. IIT Kharagpur team bagged overall trophies in Music Cup- Band Performance, Dramatics- Monologue, Quiz- Business, India, Mela, Film Making-Online Film Making and Literary- Parliamentary Debate. Team secured silver medal in Music- Pair on Stage, Dance- Street Battle, FAD- Charcoal Art, Quiz- Scitech, Sports, Culinary- Cook off, Literary- English Poetry Slam and story writing, Word Games. Team also secured bronze medal in Quiz- Mela, Culinary- Tag Team, Literary- Online Hindi Writing.

The 7th Inter-IIT Tech Meet was hosted by IIT Bombay in Jan 2019. After five successful Inter-IIT Tech meets, IIT Kharagpur continued the winning spirit and secured 3rd position in this Tech meet bringing out the best in each category. With 21 participating IITs competing in ten events, this meet was grander in scale, higher in quality and tougher in competition than ever before where a total of 1465 points were scored by IIT Kharagpur with 3 Gold medals (Case Study, BETiC Medical Innovation Challenge and TV Audience Measurement) & 1 bronze medal (Campus Sustainability Challenge).

Institute Awards and Medals

Event	Inst. Blue/ Order of Merit	Honorable Mention	Special Mention	Alumni Cup
Sports & Games	22	20	09	02
Social & Cultural	06	11	13	01
Technology	12	11	-	01

Bhandarkar Cup was awarded to Abin Devassia Poovathottathil (14NA30029) (Athletics). Shrimati Chandiramani Cup was awarded to Arkapravo Saha (14ME33029) for Soc. and Cult. G.S. Sanyal Cup was awarded to Harsh Agarwal (15NA10001) for Technology. Amrit Barman Memorial Award as cash prize of Rs. 15000 was awarded to Vishal Kumar Singh.

Overall General Championship Results

Sports and Games	Social and Cultural	Technology
Azad Hall of Residence (Men) and Mother Teresa Hall of Residence (Women)	Rajendra Prasad Hall of Residence	Rajendra Prasad Hall of Residence

Alumni Cup

ALUMNI CUP in sports was awarded to Eslavath Jagadeesh in Athletics and Devanuj Deka in Badminton.
ALUMNI CUP in Social and Cultural was awarded to Utkarsh Sinha.
ALUMNI CUP in Technology was awarded to TYSS Santosh.

Major Events

Like every year, the TSG organized National Yoga Day on 21 June 2019 which was conducted by Mr. Sudhir Kumar. Yogathan has also been organized at TSG premises. Quiz on Yoga, Health & Fitness was organized on the pre International Yoga Day Program. TSG has organized two EK BHARAT SHRESTH BHARAT program an initiative by MHRD govt. of India. In this program Cultural Exchange Activities, Food Festival and Merchandise Sell were initiated. The different paired states are Arunachal Pradesh, Meghalaya and Uttar Pradesh and Jharkhand and Goa. TSG has successfully organized Kharagpur Open in Tennis, Training Program on Life saving skills in water, Navneet Memorial Tournament, Fancy Football Tournament on Foundation day in Football, Annual children's Aquatics meet. TSG successfully organized Run for unity on 31st October 2018, 26th January, 15th August, World Environment day and Vigilance awareness week with South Eastern Railway. Mir Ranjan Negi (Former Captain Indian Field Hockey Team) delivered a motivational lecture during Freshmen induction at IIT Kharagpur. Technology Adventure society, TSG has organized adventure events and trekking trips. Kshitij, Spring Fest, Robotix events, Robosoccer, in-house workshops, Indian case challenge 2018, TSG elections were successfully conducted throughout the year. Rangoli and Illumination was celebrated on 8th November 2018 where different Halls of Residence participated for a month to get their hostels illuminated on the day of Diwali along with the signature Rangolis created in the Halls of Residence.

Technology Telecom Centre

Prof-in-Charge: Prof. Raja Dutta

Technology Telecom Centre (TTC) provides the voice communication services to subscribers in the academic as well as in the residential campus on conventional copper wires as well VoIP and Digital Telephony and the value added services like Audio Conferencing bridge and mobile extensions etc. It is having the state of art Centralized EPABX at Technology Telecom Centre and a satellite exchange at New Guest House. It is also providing the centralized fax services to Institute community.

In the financial year (2018-2019) TTC completed the installation and commissioning of upgrading of existing MD-110 EPABX at JCB lab complex (Annex building) with server based system. Restructuring of telephone cables in Dept. of Agfe and BC Roy Technological Hospital was completed. The Renovation work of Pillar boxes (painting and repairing) in the Campus is also going on.

One major work that has been taken up is the voice communication in the upcoming “Dr. B. C. Roy Institute of Medical Science and Research”. TTC has planned to upgrade the present EPABX system so that it can take up the load of the massive (2000 lines in future) and important telephone connectivity of the super-speciality hospital. Already the upgradation of the system has been initiated and is waiting for approval of the concerned authority.

Estimation of telephone cabling work at admin block of Nalanda Class Room Complex is done and a composite work has been completed by CCM. In the same manner restructuring of telephone cables work also completed by CCM as composite work. In near future, telephone-cabling work at the newly constructed buildings like Diamond Jubilee Complex, New Faculty Accommodations (NFAs), International Guest House, etc. will be taken up with respective PMC.

Water Works Section

The water works & sanitary section of IIT Kharagpur is one of the most important sections. It takes the major responsibility in managing and providing water of high quality to all sections of the Institute as well as manages the drainage.

The achievements include high quality drinking water through a recently constructed state of art technology water treatment plant. There is also plan for another source of water by construction of a well from a nearby river,Kangsabati.

The vision is to provide high quality water for all purpose.

Future plans:

- Even for additional demand of water from the community we take up the challenge to meet the demand through working hard and our aim is to satisfy every one of the community.

- PMC has been appointed to prepare a draft proposal report for improving the sewerage network which is quite old to enable the present load (Sewer) to be treated. It is in the discussion stage and things are moving as per the direction of the authority.

STATISTICS

Table A-1

Admission to Undergraduate Courses

A. BTech

Sl No	Course	Sanction Strength					Admission Offered					Actually Admitted				
		GN	OB	SC	ST	Total	GN	OB	SC	ST	Total	GN	OB	SC	ST	Total
1	AEROSPACE ENGINEERING	16	9	5	2	32	16	9	5	2	32	16	9	5	2	32 + 1*
2	AGRICULTURAL AND FOOD ENGINEERING	18	11	5	2	36	18	11	5	2	36	18	11	5	2	36
3	BIOTECHNOLOGY	14	7	4	2	27	14	7	4	2	27	12	7	4	2	25
4	CHEMICAL ENGINEERING	30	16	8	5	59	30	16	8	5	59	30	16	7	5	58 +1*
5	CIVIL ENGINEERING	34	17	9	6	66	34	17	9	6	66	32	17	9	6	64+1*
6	COMPUTER SCIENCE & ENGINEERING	31	16	9	5	61	31	16	9	5	61	31	16	9	5	61+1*
7	ELECTRICAL ENGINEERING	31	16	8	6	61	31	16	8	6	61	30	16	8	6	60
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	35	19	10	5	69	35	19	10	5	69	35	19	10	5	69
9	INDUSTRIAL AND SYSTEMS ENGINEERING	16	9	5	2	32	16	9	5	2	32	15	9	5	2	31+1*
10	INSTRUMENTATION ENGINEERING	17	8	5	2	32	17	8	5	2	32	17	8	5	2	32
11	MANUFACTURING ENGINEERING	17	10	5	2	34	17	10	5	2	34	17	10	5	2	34
12	MECHANICAL ENGINEERING	37	20	11	8	76	37	20	11	8	76	37	20	11	8	76
13	METALLURGICAL & MATERIALS ENGINEERING	24	13	7	3	47	24	13	7	3	47	23	13	7	3	46
14	MINING ENGINEERING	23	13	5	3	44	23	13	5	3	44	23	13	5	3	44+2*
15	OCEAN ENGG AND NAVAL ARCHITECTURE	18	9	5	3	35	18	9	5	3	35	17	9	5	3	34
	Total (A)	361	193	101	56	711	361	193	101	56	711	353	193	100	56	702+7*

B. B Arch

Sl No	Course	Sanction Strength					Admission Offered					Actually Admitted				
		GN	OB	SC	ST	Total	GN	OB	SC	ST	Total	GN	OB	SC	ST	Total
1	ARCHITECTURE AND REGIONAL PLANNING	18	13	6	1	38	18	13	6	1	38	17	13	6	1	37+2*
	Total (B)	18	13	6	1	38	18	13	6	1	38	17	13	6	1	37

C. Integrated MSc

Sl No	Course	Sanction Strength					Admission Offered					Actually Admitted				
		GN	OB	SC	ST	Total	GN	OB	SC	ST	Total	GN	OB	SC	ST	Total
1	CHEMISTRY	19	8	4	0	31	19	8	4	0	31	16	8	2	0	26+3*
2	EXPLORATION GEOPHYSICS	18	8	5	0	31	18	8	5	0	31	17	8	5	0	30+1*
3	APPLIED GEOLOGY	22	9	6	1	38	22	9	6	1	38	17	9	5	1	32+2*
4	HUMANITIES & SOCIAL SCIENCES	22	13	6	3	44	22	13	6	3	44	21	13	6	3	43
5	MATHEMATICS	27	14	8	4	53	27	14	8	4	53	27	14	8	4	53
6	PHYSICS	19	10	5	0	34	19	10	5	0	34	17	9	5	0	31+3*
	Total (C)	127	62	34	8	231	127	62	34	8	231	115	61	31	8	215+9

D. Dual Degree

Sl No	Course	Sanction Strength					Admission Offered					Actually Admitted				
		GN	OB	SC	ST	Total	GN	OB	SC	ST	Total	GN	OB	SC	ST	Total
1	AEROSPACE ENGINEERING	9	5	4	1	19	9	5	4	1	19	9	5	4	1	19
2	AGRICULTURAL AND FOOD ENGINEERING	17	9	4	0	30	17	9	4	0	30	17	9	3	0	29+3*
3	BIOTECHNOLOGY	13	7	4	0	24	13	7	4	0	24	13	7	3	0	23+2*
4	CHEMICAL ENGINEERING	14	7	4	2	27	14	7	4	2	27	14	7	4	2	27
5	CIVIL ENGINEERING	13	7	4	1	25	13	7	4	1	25	13	7	4	1	25
6	COMPUTER SCIENCE & ENGINEERING	24	12	7	3	46	24	12	7	3	46	24	12	7	3	46
7	ELECTRICAL ENGINEERING	13	7	4	2	26	13	7	4	2	26	13	7	4	2	26
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	23	12	7	3	45	23	12	7	3	45	23	12	7	3	45+1*
9	INDUSTRIAL AND SYSTEMS ENGINEERING	12	6	4	1	23	12	6	4	1	23	12	6	4	1	23
10	MANUFACTURING ENGINEERING	8	5	3	0	16	8	5	3	0	16	8	5	3	0	16+1*
11	MECHANICAL ENGINEERING	27	15	8	5	55	27	15	8	5	55	26	15	8	5	54+1*
12	METALLURGICAL & MATERIALS ENGINEERING	12	6	4	1	23	12	6	4	1	23	12	6	4	1	23+1*
13	MINING ENGINEERING	11	5	3	1	20	11	5	3	1	20	11	5	3	1	20+1*
14	MINING SAFETY ENGINEERING	10	5	4	0	19	10	5	4	0	19	10	5	4	0	19+1*
15	OCEAN ENGG AND NAVAL ARCHITECTURE	13	7	3	1	24	13	7	3	1	24	11	7	3	1	22+2*
16	QUALITY ENGINEERING DESIGN AND MANUFACTURING	7	5	3	0	15	7	5	3	0	15	7	5	3	0	15+1*
	Total (D)	226	120	70	21	437	226	120	70	21	437	223	120	68	21	432+14*
Total (A+B+C+D)		732	388	211	86	1417	732	388	211	86	1417	1648	911	517	153	3229+ 32*

*** Preparatory Students**

Table A2

Admission to 2-Year M.Sc. Courses

Sl No	Course	Sanction Strength					Admission Offered					Actually Admitted				
		GN	OB	SC	ST	Total	GN	OB	SC	ST	Total	GN	OB	SC	ST	Total
1	CHEMISTRY	22	14	6	4	46	22	14	6	4	46	23	13	4	4	44
2	EXPLORATION GEOPHYSICS	11	6	4	2	23	11	6	4	2	23	8	7	3	2	20
3	GEOLOGY	15	8	5	2	30	15	8	5	2	30	14	8	4	2	28
4	MATHEMATICS	15	8	5	2	30	15	8	5	2	30	15	7	6	2	30
5	PHYSICS	24	13	7	3	47	24	13	7	3	47	24	14	7	3	48
6	BIOSCIENCES	9		1	1	11	9		1	1	11	9		1	1	11
7	MEDICAL PHYSICS (3YR. M.SC.)	5	2	1		8	5	2	1		8	4	2	1		7
8	NUCLEAR MEDICINE	4	4	1		9	4	4	1		9	4	2	1		7
9	MOLECULAR MEDICAL MICROBIOLOGY	6	4	3		13	6	4	3		13	5	2	1		8
	Total (C)	111	59	33	14	217	111	59	33	14	217	106	55	28	14	203

Table A-3

Students Awarded M.C.M. Scholarship

	Department	First Yr School	Second Yr School	Third Yr School	Fourth Yr School	Fifth Yr School	Total
(A) B Tech 4-Year							
1	AEROSPACE ENGINEERING	5	2	3	3		13
2	AGRICULTURAL AND FOO ENGINEERING	2	3	3	8		16
3	BIOTECHNOLOGY	1	1	4	1		7
4	CHEMICAL ENGINEERING	8	6	8	11		33
5	CIVIL ENGINEERING	7	9	11	9		36
6	COMPUTER SCIENCE & ENGINEERING		13	8	12		33
7	ELECTRICAL ENGINEERING	6	15	16	20		57
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	5	10	9	11		35
9	INDUSTRIAL AND SYSTEMS ENGINEERING	1	3	9	3		16
10	MECHANICAL ENGINEERING	13	15	12	16		56
11	METALLURGICAL & MATERIALS ENGINEERING	8	2	4	3		17
12	MINING ENGINEERING	6	5	5	4		20
13	OCEAN ENGG AND NAVAL ARCHITECTURE	3	4		4		11
(B) B Arch 5 Year							
1	ARCHITECTURE AND REGIONAL PLANNING	1	2	5	7	8	23
(C) Integrated MSc 5 Year							
1	CHEMISTRY	5	2	4	9	2	22
2	GEOLOGY & GEOPHYSICS	8	5	6	7	9	35
3	HUMANITIES & SOCIAL SCIENCES	10	8	9	11	7	45
4	MATHEMATICS	4	1	5	5	6	21
5	PHYSICS	2	3	3	4	6	18
(D) Dual Degree 5-Year							
1	AEROSPACE ENGINEERING	3	3	2	8		16
2	AGRICULTURAL AND FOOD ENGINEERING	3	6	9	8		26
3	BIOTECHNOLOGY	5	1	2	6		14
4	CHEMICAL ENGINEERING	4	4	4	8		20
5	CIVIL ENGINEERING	4	3	2	6		15
6	COMPUTER SCIENCE & ENGINEERING	1	6	3	9		19
7	ELECTRICAL ENGINEERING	1	3	4	7		15
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	6	11	7	5		29
9	INDUSTRIAL AND SYSTEMS ENGINEERING	5	3	11	4		23
10	MECHANICAL ENGINEERING	5	6	11	17		39
11	METALLURGICAL & MATERIALS ENGINEERING	1		1	7		9
12	MINING ENGINEERING	4	7	8	21		40
13	OCEAN ENGG AND NAVAL ARCHITECTURE	1	1	3	4		9
14	RELIABILITY ENGINEERING						
15	PETROLEUM ENGINERING						
	Total	**138**	**163**	**191**	**258**	**38**	**788**

Table A-4

Students Awarded only Free Tuitionship Table

Sl. No	Department	First Yr Schol	Second Yr Schol	Third Yr Schol	Fourth Yr Schol	Fifth Yr Schol	Total
	(A) B Tech 4-Year						
1	AEROSPACE ENGINEERING			1			1
2	AGRICULTURAL AND FOOD ENGINEERING		2		4		6
3	BIOTECHNOLOGY		1	1			2
4	CHEMICAL ENGINEERING			2			2
5	CIVIL ENGINEERING		2	3			5
6	COMPUTER SCIENCE & ENGINEERING						0
7	ELECTRICAL ENGINEERING			1	2		3
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.			1			1
9	INDUSTRIAL AND SYSTEMS ENGINEERING				1		1
10	MECHANICAL ENGINEERING		2	2	4		8
11	METALLURGICAL & MATERIALS ENGINEERING						0
12	MINING ENGINEERING			1			1
13	OCEAN ENGG AND NAVAL ARCHITECTURE		1	2	1		4
	(B) B Arch 5 Year						0
1	ARCHITECTURE AND REGIONAL PLANNING		1	1			2
	(C) Integrated MSc 5 Year						0
1	CHEMISTRY		3		1		4
2	GEOLOGY & GEOPHYSICS		3	2	2	1	8
3	HUMANITIES & SOCIAL SCIENCES			1		2	3
4	MATHEMATICS					2	2
5	PHYSICS			1	1		2
	(D) Dual Degree 5-Year						0
1	AEROSPACE ENGINEERING				5		5
2	AGRICULTURAL AND FOOD ENGINEERING			3	1		4
3	BIOTECHNOLOGY		1		2		3
4	CHEMICAL ENGINEERING			2			2
5	CIVIL ENGINEERING		1	2	1		4
6	COMPUTER SCIENCE & ENGINEERING			3			3
7	ELECTRICAL ENGINEERING				1		1
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.			2	3		5
9	INDUSTRIAL AND SYSTEMS ENGINEERING			1	3		4
10	MECHANICAL ENGINEERING				2		2
11	METALLURGICAL & MATERIALS ENGINEERING						0
12	MINING ENGINEERING		2	1	1		4
13	OCEAN ENGG AND NAVAL ARCHITECTURE		1	1	1		3
14	QUALITY & RELIABILITY ENGINEERING						0
15	PETROLEUM ENGINERING						0
	Total	0	20	34	36	5	95

Table A-5

Students (SC & ST) Awarded Financial Assistance

Count of Roll No.	1st year		2nd year		3rd year		4th Year		5th year		Grand Total
Departments	**SC**	**ST**	**SC**	**ST**	**SC**	**ST**	**SC**	**ST**	**SC**	**ST**	
AEROSPACE ENGINEERING			1				1				2
AGRICULTURAL AND FOOD ENGINEERING						1	2				3
ARCHITECTURE AND REGIONAL PLANNING	1										1
BIOTECHNOLOGY	1			1			1				3
CHEMICAL ENGINEERING							1	1			2
CHEMISTRY				1	1			1			3
CIVIL ENGINEERING				1	1		2				4
COMPUTER SCIENCE & ENGINEERING							1				1
ELECTRICAL ENGINEERING		1									1
ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.							2				2
GEOLOGY & GEOPHYSICS	1		2								3
HUMANITIES & SOCIAL SCIENCES									1	1	2
INDUSTRIAL AND SYSTEMS ENGINEERING						2					2
MATHEMATICS	3	1			1		1				6
MECHANICAL ENGINEERING	1	1			1	1	1				5
METALLURGICAL & MATERIALS ENGINEERING	1										1
MINING ENGINEERING	2	1									3
OCEAN ENGG AND NAVAL ARCHITECTURE			2	1		1	1				5
PHYSICS	1		1	1							3
QUALITY & RELIABILITY ENGINEERING				1			1				2
Grand Total											

Prep Course : ST-2

Table A-6

1. INSTITUTE GOLD MEDALS :

Sl. No.	Name of Medal/Prize	Roll No.	Name of the winner	CGPA
1.	PRESIDENT OF INDIA GOLD MEDAL	15EC10026	Kaustav Brahma	9.92
2.	PRIME MINISTER OF INDIA GOLD MEDAL	14EC35030	Rajarshi Saha	9.75
		14AE30017	Shubham Jena	9.75
3.	THE CHAIRMAN BOARD OF GOVERNORS GOLD MEDAL	15CS10018	Karri Sai Satish Kumar Reddy	9.09
4.	DR. BIDHAN CHANDRA ROY MEMORIAL GOLD MEDAL	14AR10018	Kosaraju Akhila	9.02
5.	DR. JNAN CHANDRA GHOSH MEMORIAL GOLD MEDAL	14NA30029	Abin Devassia	8.44
6.	PROF. J. C. BOSE MEMORIAL GOLD MEDAL	17CY40018	Manish Gupta	9.84

2. ENDOWMENT GOLD MEDALS:

Sl. No.	Name of Medal/Prize	Roll No.	Name of the winner	CGPA
1.	ANUKUL CHANDRA SARKAR MEMORIAL GOLD MEDAL	15CE10057	Vaibhav Agrawal	9.03
2.	PROF. R. G. CHATTERJEE MEMORIAL GOLD MEDAL	14PH20030	S Aravindh Swaminathan	9.37

3. SILVER MEDALS :

A. 4-YEAR B. TECH.(HONS.) COURSES

Sl. No.	Course	Roll No.	Name of the winner	CGPA
1.	AEROSPACE ENGINEERING	15AE10025	Shethia Shreyansh Rakesh Kumar	8.55
2.	BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING	15BT10015	Rohit Roy	8.60
3.	CIVIL ENGINEERING	15CE10057	Vaibhav Agrawal	9.03
4.	CHEMICAL ENGINEERING	15CH10004	Alok Anand Patra	9.50
5.	COMPUTER SCIENCE & ENGINEERING	15CS10030	Nisarg Shah	9.69
6.	ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING	15EC10026	Kaustav Brahma	9.92
7.	ELECTRICAL ENGINEERING	15EE10045	Souradip Poddar	9.44
8.	INSTRUMENTATION ENGINEERING	15IE10037	Abhishek Gupta	9.14

9.	INDUSTRIAL & SYSTEMS ENGINEERING	15IM10005	Boya Srikaran Reddy	9.29
10.	MECHANICAL ENGINEERING	15ME10051	Satyam Anand	9.55
11.	MANUFACTURING SCIENCE & ENGINEERING	15MF10030	Thota Venkata Durga Sumugan Swaroop	9.05
12.	MINING ENGINEERING	15MI10010	Arnab Manna	9.11
13.	METALLURGICAL & MATERIALS ENGINEERING	15MT10035	Siba Sundar Sahoo	8.96

B. 5-YEAR B. ARCH.(HONS.) COURSE

Sl. No.	Course	Roll No.	Name of the winner	CGPA
14.	ARCHITECTURE	14AR10018	Kosaraju Akhila	9.02

C. 5-YEAR DUAL DEGREE COURSES

Sl. No.	Course	Roll No.	Name of the winner	CGPA
15.	AEROSPACE ENGINEERING	14AE30017	Shubham Jena	9.75
16.	AGRICULTURAL & FOOD ENGINEERING	14AG3FP05	Abhishek Siwach	8.77
17.	BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING	14BT30005	Bhumika Singh Rathore	8.91
18.	CIVIL ENGINEERING	14CE3FP02	Arihant Buccha	9.15
19.	CHEMICAL ENGINEERING	14CH30012	Debangshu Haldar	9.72
20.	COMPUTER SCIENCE & ENGINEERING	14CS30041	Ritam Dutt	9.71
		14CS30013	Kushagra Aggarwal	9.71
21.	ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING	14EC35030	Rajarshi Saha	9.75
22.	ELECTRICAL ENGINEERING	14EE32001	Manish Mukherjee	9.44
23.	INDUSTRIAL & SYSTEMS ENGINEERING	14IM30006	Jarugu Sree Vishnu	8.81
24.	MANUFACTURING SCIENCE & ENGINEERING	14MF3IM07	Manpreet Dash	9.53
25.	MECHANICAL ENGINEERING	14ME32008	Joshi Nikhil Vinayak	9.56
26.	MINING ENGINEERING	14MI33004	Akhil Jishnu P	8.85
27.	METALLURGICAL & MATERIALS ENGINEERING	14MT3FP20	Venkatesh Pai	9.51
28.	OCEAN ENGINEERING & NAVAL ARCHITECTURE	14NA30025	Apharande Sankalp Prakash	9.02

D. M. SC. (5-YEAR) COURSES

Sl. No.	Course	Roll No.	Name of the winner	CGPA
29.	CHEMISTRY	14CY20007	Anuj Kumar Gupta	8.43
30.	APPLIED GEOLOGY	14GG20037	Vaibhav Agrawal	8.82
31.	ECONOMICS	14HS20035	Shashwat Gangwal	8.85
32.	MATHEMATICS & COMPUTING	14MA20049	Vysyaraju Nayan Raju	9.20
33.	PHYSICS	14PH20030	S Aravindh Swaminathan	9.37
34.	EXPLORATION GEOPHYSICS	14EX20009	Duttatreya Das	9.15

E. M.Sc.(2-YEAR) COURSES

Sl. No.	Course	Roll No.	Name of the winner	CGPA
35.	CHEMISTRY	17CY40018	Manish Gupta	9.84
36.	GEOPHYSICS	17EX40010	Gouria Kirsten David	9.09
37.	MATHEMATICS	17MA40028	Suvojit Dhara	9.68
38.	PHYSICS	17PH40011	Debajit Bose	9.40
39.	GEOLOGY	17GG40022	Sandro Chatterjee	9.48
40.	CHEMICAL & MOLECULAR BIOLOGY	17BS4JP08	Surasree Pal	9.48

3. ENDOWMENT PRIZES - (UNDER GRADUATE)

Sl. No.	Name of Prize	Roll No.	Name of the winner	CGPA
1.	Sarat Memorial Prize	15CS10058	Sharmila Reddy Nangi	9.52
2.	Suhasini Devi Memorial Prize	14AR10018	Kosaraju Akhila	9.02
3.	P. K Bhattacharya Memorial Prize	14EX20009	Duttatreya Das	9.15
4.	Sachinandan Basak Memorial Prize	15HS20045	Vishal Sharma	7.71
5.	Swapan Kumar Saha Memorial Prize	15EC10026	Kaustav Brahma	9.92
6.	Medury Bhanumurthy Memorial Prize	15ME10073	Harsh Saraf	8.60
7.	H. N. Bose Memorial Prize	14PH20030	S Aravindh Swaminathan	9.37
8.	Sharmila Bose Memorial Prize	14CY20027	Smita Mandal	8.28
9.	Bigyan Sinha Memorial Prize	15EC10066	Soumya Mahapatra	9.81
10.	Usha Martin Award	15MT10035	Siba Sundar Sahoo	8.96
11.	Systems Society Award	15EE10010	Batchu Sai Vaibhav	9.36
12.	Prof.K.L.Chopra Award	14PH20020	Philip Jacob	9.15
13.	Charubala Devi Memorial Prize	16EE10008	Arkadeb Sengupta	9.99
14.	Gouri Basak Design Award	15AR10010	Gunjal Jain	9.04

Sl. No.	Name of Prize	Roll No.	Name of the winner	CGPA
15.	Prof. Prabodh Chandra Sanyal Award	17MA40019	Rohit Sarma Sarkar	9.26
16.	B. L. Nagpal Memorial Prize	16CE10040	Prasanta Kumar Sahoo	9.20
17.	Umesh Kumar Bhatia Sports Prize	15BT10003	**Bhatia Gitanshu T**	8.04
18.	Pradeep Kumar Chakraborty Award	16MT10025	Parth Khandelwal	9.15
19.	G. B. Mitra Award	14PH20030	S Aravindh Swaminathan	9.37
20.	Bhartiya Cutler Hammer Prize	16EE10008	Arkadeb Sengupta	9.99
21.	Mansara Prize	15AR10010	Gunjal Jain	9.04
22.	R. M. Lalwani Prize	16EE10008	Arkadeb Sengupta	9.99
23.	H. P. Bhadury Memorial Prize	16ME10017	Debapriya De	9.74
24.	John Von Neuman Award	16EE10008	Arkadeb Sengupta	9.99
25.	Prof. S. K. Nandi Memorial Prize	14CH30012	Debangshu Haldar	9.64
26.	International Symposium (Microwave & Communication) 1981 Prize	16EC10066	Divyansh Jhunjhunwala	9.78
27.	Class Of 1970 Alumni (US) Association Prize	17CS30035	Siddhant Agarwal	9.93
28.	Technology Alumni Association (Delhi Chapter) Award	18ME10061	Siba Smarak Panigrahi	9.96
29.	IIT Kharagpur Alumni (California Chapter) Award	17CS30035	Siddhant Agarwal	9.93
30.	Ram Gopal Kabre Memorial Prize	16AR10031	Sachin Nandkumar Uttarwar	8.32
31.	Prof. S. P. Sengupta Memorial Prize	15ME10071	Srijan Neogi	9.10
32.	K. Rama Rao Endowment Prize	16AG10030	Shivam Rohila	8.76
33.	Smt. Ava Sanyal Memorial Prize	16MT10025	Parth Khandelwal	9.15
34.	Prof. B.N. Avasthi Memorial Award For Sports	15BT10003	Bhatia Gitanshu T	8.04
		16EC10025	Hima Swetha N	9.08
35.	Prof. Sunil Kanti Sen Memorial Award	18CS30049	Abhinav Bohra	9.78
36.	Prof. Sudhir Ranjan Sengupta Memorial Prize	15CE31003	Rahul Dev Kundu	9.27
37.	Best B.Tech. Project Thesis Award By Mr. Mitrajit Mukhopadhyay	15CH30003	1ST Amit Verma	8.26
		15CH30043	2ND Gaurav Agarwal	9.06
		15CH30038	3RD Omkar Roy	8.41
38.	A. A. Hakim Memorial Endowment Prize	14AG38002	Anindra Kumar	7.18
39.	Keshab K Parhi Endowment Prize	14EE33002	Sayan Samanta	9.07

Sl. No.	Name of Prize	Roll No.	Name of the winner	CGPA
40.	Nilanjan Ganguly Memorial Award For E&E.C.E. Deptt	15EC10023	Joshua Peter Ebenezer	9.77
41.	Nilanjan Ganguly Memorial Award For Physics Deptt	14PH20030	S Aravindh Swaminathan	9.37
42.	Kedar Nath Singh Memorial Prize	14PH20030	S Aravindh Swaminathan	9.37
43.	Dwaraka Nath Singh Memorial Prize	14ME32008	Joshi Nikhil Vinayak	9.56
44.	Jugal Kishore Singh Memorial Prize	15ME10051	Satyam Anand	9.6
45.	Rajender Kumar Khanna Memorial Award	15EE10045	Souradip Poddar	9.44
46.	Ramneek Sodhi Memorial Award	15MT30018	Swagata Roy	9.56
47.	Sushil Kumar Chowdhury Memorial Award	15AE10025	Shethia Shreyansh Rakesh Kumar	8.55
48.	Ashim Ranjan Guha Memorial Award	15AG10011	Anukool Raj	8.32
49.	TKT Srikrishnan Endowment Prize	15ME33028	Yeerella Ram Hemanth	8.62
		15ME33048	Boddeda Hemanth Sai Sandeep	8.12
50.	Prof. J.P.Ghose Memorial Award	16NA30003	Anmesh Choudhury	8.56
51.	Sikharini Nag Memorial Award	15ME10069	Gokavarapu Naga Venkata Siva Srikar	9.41
		14ME32008	Joshi Nikhil Vinayak	9.56
52.	Sikharini Nag Memorial Award for Girl Student	16CH30029	Abha Kumari	9.65
53.	Prof. D.V.S.Murty Merit Award	15IE10037	Abhishek Gupta	9.14
54.	Prof. P.K.Muhuri Memorial Award	14NA30025	Apharande Sankalp Prakash	9.02
55.	Prof. R.K.Brahma Memorial Prize	14ME32008	**Joshi Nikhil Vinayak**	9.56
56.	Prof. Somnath Sengupta Memorial Award	15EC10026	Kaustav Brahma	9.92
57.	Prof. K Venkataratnam Memorial Prize	16EE10008	Arkadeb Sengupta	9.99
58.	Prof. Amitabha Chakrabarti Memorial Award	17GG40022	Sandro Chatterjee	9.48
59.	Prof. Supriya Mohan Sengupta Memorial Award	14EX20015	Kirloskar Mihir Milind	9.11
		14GG20037	Vaibhav Agrawal	8.82
60.	Prof. Supriya Mohan Sengupta Memorial Award	17GG40012	Kanishak Sharma	8.43
61.	Late Prof. V G Rau Prize	15EE10045	**Souradip Poddar**	9.44

5. J. C. GHOSH MEMORIAL PRIZE

Sl. No.	Department	Roll No.	Name of the winner	CGPA
1.	AEROSPACE ENGINEERING	16AE10010	Nallapareddy Charan Reddy	9.36
2.	AGRICULTURAL & FOOD ENGINEERING	16AG10030	Shivam Rohila	8.76
3.	BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING	16BT10001	Adarsh Singh	9.00
4.	CHEMICAL ENGINEERING	16CH30029	Abha Kumari	9.65
5.	CIVIL ENGINEERING	16CE10040	Prasanta Kumar Sahoo	9.20
6.	COMPUTER SCIENCE & ENGINEERING	16CS10058	Lovish Chopra	9.92
7.	ELECTRICAL ENGINEERING	16EE10008	Arkadeb Sengupta	9.99
8.	INSTRUMENTATION ENGINEERING	16IE10034	Jitendra Bhandari	9.44
9.	ELECTRONICS & ELECT. COMMU. ENGINEERING	16EC10066	Divyansh Jhunjhunwala	9.78
10.	INDUSTRIAL AND SYSTEMS ENGINEERING	16IM10034	Bhargav D	9.36
11.	MECHANICAL ENGINEERING	16ME10017	Debapriya De	9.74
12.	MANUFACTURING SCIENCE & ENGINEERING	16MF3IM16	Sudhanshu Tiwari	8.95
13.	METALLURGICAL & MATERIALS ENGINEERING	16MT10025	Parth Khandelwal	9.15
14.	MINING ENGINEERING	16MI31014	Sayan Guha	8.78
15.	OCEAN ENGINEERING & NAVAL ARCHITECTURE	16NA30003	Anmesh Choudhury	8.56
16.	ARCHITECTURE & REGIONAL PLANNING	16AR10005	Amlan Kumar Sahu	8.96
17.	CHEMISTRY	15CY20007	Ekroop Kaur Cheema	9.02
18.	APPLIED GEOLOGY	15GG20013	Ishiqua Agarwal	8.64
19.	EXPLORATION GEOPHYSICS	15EX20011	Divyansh Mani Tripathi	7.97
20.	MATHEMATICS & COMPUTING	15MA20051	Harshit Jitendra Motwani	9.69
21.	PHYSICS	15PH20005	Anirudh Deb	9.89
22.	ECONOMICS (HS)	15HS20047	Rishav Bagri	9.14

6. BEST PROJECT AWARD :

A. 4-YEAR B. TECH.(HONS.) COURSES :

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
1.	AEROSPACE ENGINEERING	15AE10025	Shethia Shreyansh Rakesh Kumar	8.55
2.	BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING	15BT30019	Rajendra Kc	8.47
3.	CHEMICAL ENGINEERING	15CH30003	Amit Verma	8.26
4.	CIVIL ENGINEERING	15CE31006	Subhadeep Pal	9.12
5.	COMPUTER SCIENCE & ENGINEERING	15CS10013	Duvvuri Venkata Sai Surya Subramanyam	8.98
6.	ELECTRICAL ENGINEERING	15EE10061	Kumar Joy Nag	9.11
7.	INSTRUMENTATION ENGINEERING	15IE10033	Akshat Gupta	8.73
8.	INDUSTRIAL AND SYSTEMS ENGINEERING	15IM10031	Akash Tiwari J	8.72
9.	ELECTRONICS & ELECT. COMM. ENGINEERING	15EC10066	Soumya Mahapatra	9.81
10.	MECHANICAL ENGINEERING	15ME10014	Bigyansu Behera	9.03
11.	MANUFACTURING SCIENCE & ENGINEERING	15MF3IM16	Ayush Mohanty	8.51
12.	METALLURGICAL & MATERIALS ENGINEERING	15MT30004	Bandi Narsi Reddy	8.88
13.	MINING ENGINEERING	15MI31031	Anand Kumar	9.02
14.	OCEAN ENGINEERING & NAVAL ARCHITECTURE	15NA10016	Nelli Sri Vinay Krishna Rayudu	8.33

5-YEAR B. ARCH. (HONS.) COURSE :

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
1.	ARCHITECTURE & REGIONAL PLANNING	14AR10009	Ashutosh Sushil Sarda	8.27

B. 5-YEAR DUAL DEGREE COURSES :

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
1.	AEROSPACE ENGINEERING	14AE30002	Adapa Venkata Sai Chaitanya	8.01
2.	AGRICULTURAL & FOOD ENGINEERING	14AG3FP05	Abhishek Siwach	8.77
3.	BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING	14BT30015	Nupur Jain	8.32
4.	CHEMICAL ENGINEERING	14CH30033	Manish Ayushman	9.24

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
5.	CIVIL ENGINEERING	14CE33013	Tangudu Jagadeesh	8.53
6.	COMPUTER SCIENCE & ENGINEERING	14CS30015	Madhav Datt	9.11
7.	ELECTRICAL ENGINEERING	14EE35020	Francis Tom	9.31
8.	ELECTRONICS & ELECT. COMMU. ENGINEERING	14EC35030	Rajarshi Saha	9.75
9.	INDUSTRIAL & SYSTEMS ENGINEERING	14MF3IM07	Manpreet Dash	9.53
10.	INDUSTRIAL & SYSTEMS ENGINEERING (MECHANICAL ENGINEERING VERTICAL)	14QM30001	Abhishek Pandey	8.87
11.	MECHANICAL ENGINEERING	14ME33011	Danawe Hrishikesh Gajanan	9.49
12.	METALLURGICAL & MATERIALS ENGINEERING	14MT30016	Souvik Bhattacharya	8.86
		14MT30015	Sourav Das	9.24
13.	MINING ENGINEERING	14MI33004	Akhil Jishnu P	8.85
14.	OCEAN ENGINEERING & NAVAL ARCHITECTURE	14NA30025	Apharande Sankalp Prakash	9.02
15.	FINANCIAL ENGINEERING	14CE3FP02	Arihant Buccha	9.15

C. 5-YEAR M. SC. COURSES :

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
1.	CHEMISTRY	14CY20027	Smita Mandal	8.28
2.	EXPLORATION GEOPHYSICS	14EX20015	Kirloskar Mihir Milind	9.11
3.	APPLIED GEOLOGY	14GG20037	Vaibhav Agrawal	8.82
4.	ECONOMICS	14HS20041	Sumit Poddar	7.40
5.	MATHEMATICS & COMPUTING	14MA20026	Rahul Mishra	7.74
6.	PHYSICS	14PH20020	Philip Jacob	9.15

D. 2-YEAR M.Sc. COURSES :

Sl. No.	Name of the Branch	Roll No.	Name of the winner	CGPA
1.	CHEMISTRY	17CY40018	Manish Gupta	9.84
2.	GEOPHYSICS	17EX40010	Gouria Kirsten David	9.09
3.	GEOLOGY	17GG40012	Kanishak Sharma	8.43
4.	MATHEMATICS	17MA40028	Suvojit Dhara	9.68
5.	PHYSICS	17PH40011	Debajit Bose	9.40
6.	BIO-SCIENCE	17BS4JP08	Surasree Pal	9.48

Table : A-7

UG STUDENTS AWARDED SCHOLARSHIP BY EXTERNAL AGENCIES

Sl.No.	Awarding Organization	No. of Recipient
1	INSPIRE Scholarship awarded by DST , Govt. of India, New Delhi	397 + 148
2	Rajarshee Shahu Maharaj Merit Scholarship, Maharastra	9
3	SAIL Scholarship awarded by Steel Authority of India	2
4	Aditya Birla Scholarship, Aditya Birla Group, Mumbai	6
5	National Handicapped Finance & Development, Faridabad	2
6	KVPY Scholarship, IISC Bangalore	4
7	FAEA Scholarship to BPL Cat. SC/ST students, New Delhi	8
8	Post Matric Scholarship from various state	16
9	ST Scholarship awared by Singapore Technologies Eng. Ltd	4
10	ONGC Scholarship	4
11	EIL Scholarship, New Delhi	8
12	Central Sector Scholarship for ST	26
13	IFCO Kissan Sewa	1
14	MMVY Scholarship, Madhyapradesh	5
15	AICTE Jammu & Kashmir Scholarship	1
16	Coal India Ltd.	1
17	Education Assistance from CSBF	2
18	ESSA Scholarship	1
19	FFE Scholarship	2
20	FIITJEE Scholarship	8
21	Financial Assistance (SC/ST) Scholarship	54
22	Hostel Subsidy	1
23	LAFBA Scholarship	1
24	INBA Scholarship	1
25	Ishan Uday Special	2
26	Jawarlal Nehru Science & Technology Scholarship	2
27	MCM Scholarship for professional & Technology	2
28	Millenium scholarship	2
29	MLA Fund	1
30	NTSE Scholarship	54
31	NIS Scholarship	1
32	Nisvartha Foundation Scholarship	1
33	NSF Scholarship	1
34	Indira Gandhi Scholarship for single Girl Child	4
35	PMSS Scholarship	2
36	Prime Minister Scholarship	11
37	Railway Staff Welfare Fund	17
38	Rajasthan Police Welfare Fund	1
39	Samajik Suraksha Yojana	1
40	Samsung Star Scholarship	26
41	SBI Staff Children Scholarship	7
42	SJVN Scholarship	1
43	State Govt. Assam Scholarship	1
44	Swami Vivekananda MCM Scholarship	27
45	Telangana Govt. Scholarship	1
46	Umbrella Scheme for Education of ST Child	1
	Total	878

Table A-8

Students from Foreign Countries on Roll – Undergraduate

Sl. No	Department	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
	(A) B Tech 4-Year						
1	AEROSPACE ENGINEERING						
2	AGRICULTURAL AND FOOD ENGINEERING						
3	BIOTECHNOLOGY						
4	CHEMICAL ENGINEERING						
5	CIVIL ENGINEERING						
6	COMPUTER SCIENCE & ENGINEERING						
7	ELECTRICAL ENGINEERING						
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.						
9	INDUSTRIAL AND SYSTEMS ENGINEERING						
10	MECHANICAL ENGINEERING						
11	METALLURGICAL & MATERIALS ENGINEERING						
12	MINING ENGINEERING						
13	OCEAN ENGG AND NAVAL ARCHITECTURE						
	(B) B Arch 5 Year						
1	ARCHITECTURE AND REGIONAL PLANNING						
	(C) Integrated MSc 5 Year						
1	CHEMISTRY	1					
2	GEOLOGY & GEOPHYSICS						
3	HUMANITIES & SOCIAL SCIENCES						
4	MATHEMATICS						
5	PHYSICS						
	(D) Dual Degree 5-Year						
1	AEROSPACE ENGINEERING						
2	AGRICULTURAL AND FOOD ENGINEERING						
3	BIOTECHNOLOGY						
4	CHEMICAL ENGINEERING						
5	CIVIL ENGINEERING						
6	COMPUTER SCIENCE & ENGINEERING						
7	ELECTRICAL ENGINEERING						
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.						
9	INDUSTRIAL AND SYSTEMS ENGINEERING						
10	MECHANICAL ENGINEERING						
11	METALLURGICAL & MATERIALS ENGINEERING						
12	MINING ENGINEERING						
13	OCEAN ENGG AND NAVAL ARCHITECTURE						
	(E) 2Yr MSc						
1	CHEMISTRY						
2	CHEMICAL AND MOLECULAR BIOLOGY						
3	GEOLOGY & GEOPHYSICS						
4	MATHEMATICS						
5	PHYSICS	1					
6	MEDICAL PHYSICS (3YR. M.SC.)						
	NUCLEAR MEDICINE						
	MOLECULAR MEDICAL MICROBIOLOGY						
	Total	**2**					**2**

Table A-9

STATEMENT OF RESULTS (UNDERGRADUATE)

S.No.	Course	1st yr.		2nd yr.		3rd yr.		4th yr.		5th yr.		
	Total	P	I	P	I	P	I	P	I	P	I	
1	EXPLORATION GEOPHYSICS	0	0	0	0	1	1	2	0	0	0	**4**
2	GEOLOGY & GEOPHYSICS	3	0	2	0	0	0	2	0	0	0	**7**
(A) B.Tech												
1	AEROSPACE ENGINEERING	22	6	27	5	11	7	17	4	0	0	**99**
2	AGRICULTURAL AND FOOD ENGINEERING	22	9	16	15	12	14	32	2	0	0	**122**
3	BIOTECHNOLOGY	13	8	16	3	9	7	11	5	0	0	**72**
4	CHEMICAL ENGINEERING	62	3	50	9	34	8	50	4	0	0	**220**
5	CIVIL ENGINEERING	47	11	37	17	43	4	50	7	0	0	**216**
6	COMPUTER SCIENCE & ENGINEERING	65	5	55	9	52	7	64	5	0	0	**262**
7	ELECTRICAL ENGINEERING	60	7	51	11	47	15	61	7	0	0	**259**
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	68	7	61	9	58	4	64	1	0	0	**272**
9	INDUSTRIAL AND SYSTEMS ENGINEERING	34	2	26	4	19	5	25	4	0	0	**119**
10	INSTRUMENTATION ENGINEERING	28	9	30	6	26	4	27	5	0	0	**135**
11	MANUFACTURING ENGINEERING	26	6	15	9	18	8	25	7	0	0	**114**
1	MECHANICAL ENGINEERING	74	11	64	12	41	14	59	12	0	0	**287**
13	METALLURGICAL & MATERIALS ENGINEERING	27	4	29	11	16	5	24	1	0	0	**117**
1	MINING ENGINEERING	30	4	19	14	10	11	26	2	0	0	**116**
15	OCEAN ENGG AND NAVAL ARCHITECTURE	18	7	18	13	14	8	16	0	0	0	**94**
	Total(A)	**599**	**99**	**516**	**147**	**411**	**122**	**555**	**66**	**0**	**0**	**2515**
(B) B.Arch												
1	ARCHITECTURE AND REGIONAL PLANNING	32	1	32	7	32	5	23	13	38	7	**190**
	Total(B)	**32**	**1**	**32**	**7**	**32**	**5**	**23**	**13**	**38**	**7**	**190**
(C) M.Sc(2yr)												
1	BIO SCIENCE	10	0	10	0	0	0	0	0	0	0	**20**
2	CHEMISTRY	39	2	39	0	0	0	0	0	0	0	**80**
3	EXPLORATION GEOPHYSICS	14	4	16	0	0	0	0	0	0	0	**34**
4	GEOLOGY & GEOPHYSICS	30	0	30	0	0	0	0	0	0	0	**60**
5	MATHEMATICS	26	1	28	1	0	0	0	0	0	0	**56**
6	PHYSICS	37	4	41	2	0	0	0	0	0	0	**84**
7	SCHOOL OF MEDICAL SCIENCE & TECHNOLOGY	22	0	0	0	0	0	0	0	0	0	**22**
	Total(C)	**178**	**11**	**164**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**356**
(D) M.Sc(5yr)												
1	CHEMISTRY	19	7	20	6	15	6	26	3	14	1	**117**
2	EXPLORATION GEOPHYSICS	16	4	24	7	26	5	18	5	25	4	**134**
3	GEOLOGY & GEOPHYSICS	21	7	21	10	18	6	13	9	21	4	**130**
4	HUMANITIES & SOCIAL SCIENCES	47	3	40	11	44	6	43	8	33	5	**240**
5	MATHEMATICS	53	5	45	10	42	17	43	9	55	7	**286**
6	PHYSICS	25	5	25	12	19	12	26	9	24	5	**162**
	Total(D)	**181**	**31**	**175**	**56**	**164**	**52**	**169**	**43**	**172**	**26**	**1069**
(E) Dual Degree												
1	AEROSPACE ENGINEERING	19	3	14	4	28	5	32	5	26	1	**137**
2	AGRICULTURAL AND FOOD ENGINEERING	24	5	13	19	27	14	28	3	29	3	**165**

3	BIOTECHNOLOGY	13	7	13	7	24	7	30	4	28	4	**137**
4	CHEMICAL ENGINEERING	30	1	29	1	42	5	37	6	40	3	**194**
5	CIVIL ENGINEERING	24	2	18	6	28	6	27	2	34	1	**148**
6	COMPUTER SCIENCE & ENGINEERING	51	0	41	3	46	4	42	7	45	1	**240**
7	ELECTRICAL ENGINEERING	27	2	23	3	18	7	29	3	34	3	**149**
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	48	4	38	8	46	8	47	5	53	4	**261**
9	INDUSTRIAL AND SYSTEMS ENGINEERING	20	5	20	7	30	3	19	8	29	2	**143**
10	INSTRUMENTATION ENGINEERING	0	0	0	0	3	0	8	3	0	0	**14**
11	MANUFACTURING ENGINEERING	16	2	15	2	20	2	16	5	16	3	**97**
12	MECHANICAL ENGINEERING	56	6	40	15	57	17	70	8	68	9	**346**
13	METALLURGICAL & MATERIALS ENGINEERING	15	0	17	5	27	6	21	5	30	2	**128**
14	MINING ENGINEERING	28	7	22	17	37	11	45	2	38	2	**209**
15	OCEAN ENGG AND NAVAL ARCHITECTURE	15	5	10	13	16	7	20	1	32	0	**119**
16	QUALITY ENGINEERING DESIGN AND MANUFACTURING - INDUSTRIAL ELECTRONICS VERTICAL	7	2	8	0	5	2	5	2	3	2	**36**
17	QUALITY ENGINEERING DESIGN AND MANUFACTURING - MECHANICAL ENGINEERING VERTICAL	9	0	4	2	7	2	1	2	9	0	**36**
Total(E)		**402**	**51**	**325**	**112**	**461**	**106**	**477**	**71**	**514**	**40**	**2559**
Total(A+B+C+D+E)		**1392**	**193**	**1212**	**325**	**1068**	**285**	**1224**	**193**	**724**	**73**	**6689**

Table A-10

Student on roll Departmentwise (UNDERGRADUATE)

Sl. No	Department	First Yr		Second Yr		Third Yr		Fourth Yr		Fifth Yr		Total
		M	F	M	F	M	F	M	F	M	F	
	(A) B Tech 4-Year											
1	AEROSPACE ENGINEERING	23	5	28	3	13	3	13	0			88
2	AGRICULTURAL AND FOOD ENGINEERING	26	5	25	3	10	2	24	1			96
3	BIOTECHNOLOGY	16	4	18	2	12	2	9	1			64
4	CHEMICAL ENGINEERING	55	10	55	2	39	3	42	3			209
5	CIVIL ENGINEERING	50	8	48	4	44	2	43	4			203
6	COMPUTER SCIENCE & ENGINEERING	61	9	59	2	53	4	54	5			247
7	ELECTRICAL ENGINEERING	86	16	86	10	82	9	70	8			367
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	65	10	65	3	52	10	47	10			262
9	INDUSTRIAL AND SYSTEMS ENGINEERING	31	5	30	0	21	2	22	1			112
10	MECHANICAL ENGINEERING	98	17	95	2	81	1	74	3			371
11	METALLURGICAL & MATERIALS ENGINEERING	26	5	32	4	20	2	20	1			110
12	MINING ENGINEERING	30	4	32	0	19	0	18	0			103
13	OCEAN ENGG AND NAVAL ARCHITECTURE	22	3	27	1	19	0	14	2			88
	Total (A)	589	101	600	36	465	40	450	39	0	0	2320
	(B) B Arch 5 Year											
1	ARCHITECTURE AND REGIONAL PLANNING	27	8	24	13	34	3	25	9	31	5	179
	Total (B)	27	8	24	13	34	3	25	9	31	5	179
	(C) Integrated MSc 5 Year											
1	CHEMISTRY	22	3	22	4	18	4	23	4	12	3	115
2	EXPLORATION GEOPHYSICS	18	2	24	6	28	1	21	3	26	3	132
	GEOLOGY	22	4	28	1	22	5	18	2	21	1	124
3	HUMANITIES & SOCIAL SCIENCES	44	6	40	10	37	12	36	11	36	2	234
4	MATHEMATICS	50	8	50	5	48	7	50	5	53	2	278
5	PHYSICS	25	5	30	3	32	2	30	0	22	6	155
	Total (C)	181	28	194	29	185	31	178	25	170	17	1038
	(D) Dual Degree 5-Year											
1	AEROSPACE ENGINEERING	19	3	15	2	25	3	34	3	30	2	136
2	AGRICULTURAL AND FOOD ENGINEERING	27	2	24	6	37	3	26	5	31	4	165
3	BIOTECHNOLOGY	17	3	14	5	27	4	28	4	25	10	137
4	CHEMICAL ENGINEERING	25	6	27	3	39	6	35	5	43	3	192
5	CIVIL ENGINEERING	21	4	21	2	32	1	27	1	35	4	148
6	COMPUTER SCIENCE & ENGINEERING	44	7	43	1	45	3	42	4	48	4	241
7	ELECTRICAL ENGINEERING	24	5	24	0	27	2	27	4	39	3	155
8	ELECTRONICS & ELECTRICAL COMMUNICATION ENGG.	45	7	43	1	43	7	52	1	53	9	261
9	INDUSTRIAL AND SYSTEMS ENGINEERING	36	5	37	3	45	2	31	3	47	5	214
10	MECHANICAL ENGINEERING	67	13	66	4	88	4	96	1	100	2	441
11	METALLURGICAL & MATERIALS ENGINEERING	12	3	20	0	28	2	24	2	35	3	129
12	MINING ENGINEERING	30	5	35	0	46	1	49	0	42	0	208
13	OCEAN ENGG AND NAVAL ARCHITECTURE	18	2	19	1	24	1	19	1	31	2	118
	Total (D)	385	65	388	28	506	39	490	34	559	51	2545

	(E) 2Yr MSc											
1	CHEMISTRY	30	11	32	7							80
2	CHEMICAL AND MOLECULAR BIOLOGY	4	6	4	6							20
3	MEDICAL SCIENCES AND TECHNOLOGY	10	12									22
4	EXPLORATION GEOPHYSICS	14	4	9	7							34
5	GEOLOGY	22	8	24	6							60
6	MATHEMATICS	21	6	18	10							55
7	PHYSICS	118	39	116	38	0	0	0	0	0	0	311
	TOTAL(E)	219	86	203	74	0	0	0	0	0	0	582
	Total of A to E	1401	288	1409	180	1190	113	1143	107	760	73	6664

TABLE – B-1 ADMISSION TO POSTGRADUATE COURSES IN 2018-2019

Deptt./ Centre	Specialisation	Sanct-ioned	Admitted	Reg-ular	SP	QIP	DF	FN/ AB	GN	SC	ST	PD	OBC	M	F
AE	Aerospace Engineering	24	21	20	01	00	00	00	09	03	03	00	06	18	03
AG	Farm Machinery & Power (AG1)	19	20	20	00	00	00	00	06	03	01	00	10	18	02
	Land & Water Resources Engineering (AG2)	18	19	19	00	00	00	00	07	04	01	00	07	16	03
	Food Process Engineering (AG3)	30	28	28	00	00	00	00	11	04	2	00	11	26	02
	Agricultural Biotechnology (AG4)	20	12	12	00	00	00	00	05	03	01	00	03	04	08
	Aquacultural Engineering (AG5)	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	Agricultural Systems & Management (AG6)	19	15	15	00	00	00	00	05	04	01	00	05	12	03
AT	Embedded Controls and Software	12	6	5	01	00	00	00	04	00	00	00	02	05	01
BT	Biotechnology and Biochemical Engineering	24	22	22	00	00	00	00	07	04	03	00	08	14	08
CH	Chemical Engineering	75	53	53	00	00	00	00	24	08	02	02	17	42	11
CE	Hydraulic & Water Resources Engineering (CE1)	20	11	11	00	00	00	00	04	02	01	01	03	11	00
	Transportation Engineering (CE2)	20	20	17	00	00	03	00	09	03	02	01	05	20	00
	Environmental Engineering and Management (CE3)	18	13	10	01	00	02	00	07	01	00	00	05	12	01
	Geotechnical Engineering (CE4)	18	10	10	00	00	00	00	05	01	00	00	04	10	00
	Structural Engineering (CE5)	20	12	8	00	00	04	00	09	01	00	01	01	12	00
CS	Computer Science & Engineering	67	74	67	01	00	06	00	43	10	04	02	15	61	13
CR	Cryogenic Engineering	21	4	4	00	00	00	00	01	00	01	00	02	04	00
CL	Earth System Science and Technology	31	10	10	00	00	00	00	02	01	03	00	04	08	02
EE	Machine Drives and Power Electronics (EE1)	18	11	11	00	00	00	00	02	02	01	01	05	09	02
	Control System Engineering (EE2)	18	17	14	00	00	03	00	07	01	00	01	08	13	04
	Power and Energy System (EE3)	18	16	12	01	00	03	00	10	02	01	00	03	14	02
	Instrumentation Signal Processing (EE4)	18	19	17	00	00	02	00	10	03	01	01	04	15	04

Deptt./ Centre	Specialisation	Sanct-ioned	Admit ed	Reg-ular	SP	QIP	DF	FN/ AB	GN	SC	ST	PD	OBC	M	F
EC	Microelectronics and VLSI Design (EC2)	29	23	23	00	00		00	11	05	01	01	05	20	03
	RF and Microwave Engineering (EC3)	28	16	12	00	00	04	00	07	02	02	00	05	15	01
	Telecommunication Systems Engineering (EC4)	28	17	12	00	00	05	00	07	01	01	01	07	13	04
	Visual Information and Embedded Systems Engineering (EC5)	28	18	17	00	00	01	00	08	03	01	00	06	16	02
ES	Energy Engineering	15	6	5	00	00	01	00	03	01	01	00	01	06	00
ET	Multimedia Information Processing	15	00	00	00	00	00	00	00	00	00	00	00	00	00
GG	Exploration Geosciences (GG1)	24	21	20	00	00	00	01	07	05	01	00	08	17	04
GS	G S Sanyal School of Telecommunication	10	5	5	00	00	00	00	02	01	00	00	02	04	01
IM	Industrial Engineering and Management	25	10	08	02	00	00	00	06	00	00	00	04	10	00
MM	Medical Imaging and Informatics (SM)	15	00	00	00	00	00	00	00	00	00	00	00	00	00
MS	Materials Science and Engineering	29	21	18	00	00	03	00	10	02	01	00	08	16	05
MA	Computer Science and Data Processing	34	25	25	00	00	00	00	13	03	02	01	06	19	06
ME	Manufacturing Science and Engineering (ME1)	26	11	11	00	00	00	00	04	01	01	00	05	11	00
	Thermal Science and Engineering (ME2)	33	9	09	00	00	00	00	03	03	00	00	03	09	00
	Mechanical System Design (ME3)	44	27	23	02	00	02	00	13	04	02	00	08	27	00
MT	Metallurgical & Materials Engineering	54	41	38	00	01	01	01	17	05	03	01	15	37	04
MN	Mining Engineering	22	13	13	00	00	00	00	04	02	01	00	06	13	00
NA	Ocean Engineering and Naval Architecture	20	14	12	00	00	02	00	07	00	01	00	06	14	00
PH	Functional Materials and Devices	25	16	16	00	00	00	00	08	02	00	00	06	09	07
ID	Infrastructure Design and Management	31	14	14	00	00	00	00	07	02	01	01	03	13	01
RE	Quality and Reliability Engineering	20	17	09	00	00	08	00	12	02	01	00	02	17	00
RR	Railway Engineering	10	4	00	04	00	00	00	02	00	00	01	01	04	00
RT	Rubber Technology	24	19	19	00	00	00	00	05	02	02	00	10	17	02
WM	Water Engineering and Management	12	8	08	00	00	00	00	02	01	01	00	04	06	02

Deptt./ Centre	Specialisation	Sanct-ioned	Admit ed	Reg-ular	SP	QIP	DF	FN/ AB	GN	SC	ST	PD	OBC	M	F
AR	City Planning (MCP)	42	37	37	00	00	00	00	15	06	02	01	13	22	15
MM	Medical Science and Technology	15	06	06	00	00	00	00	05	01	00	00	00	06	00
IP	Intellectual Property Law (Bachelor of Laws)	80	41	41	00	00	00	00	26	09	00	00	06	28	13
IP	Intellectual Property Law (Master of Laws)	30	17	17	00	00	00	00	11	02	00	00	04	06	11
BM	Business Administration (MBA)	160	130	130	00	00	00	00	72	15	00	00	43	113	17
HS	Human Resources Management	30	16	16	00	00	00	00	12	02	00	00	02	09	07
EMBA	Executive MBA(Kolkata Campus)	50	28	28	00	00	00	00	27	01	00	00	00	27	01
PGDBA	Post-Graduate Diploma in Business Analytics	60	57	57	00	00	00	00	27	09	01	00	20	50	06

TABLE B-2 - POSTGRADUATE STUDENTS ON ROLL 2018-2019											
Dept./ Centre	**Specialization**	**Code**	1st year		2nd year		3rd year		Total	
			M	F	M	F	M	F	M	**F**
AE	Aerospace Engineering	AE	19	03	15	03	-	-	34	6
AG	Farm Machinery And Power	AG1	22	2	16	03	-	-	38	5
AG	Land and Water Resources Engineering	AG2	15	3	14	4	-	-	29	7
AG	Food Process Engineering	AG3	30	3	20	09	-	-	50	12
AG	Agricultural Biotechnology	AG4	12	04	6	6	-	-	18	10
AG	Aquacultural Engineering	AG5	-	-	8	3	-	-	8	3
AG	Agricultural Systems and Management	AG6	14	3	12	6	-	-	26	9
AT	Embedded Controls and Software		7	1	5	3	-	-	12	4
BT	Biotechnology and Biochemical Engineering	BT	16	7	18	7	-	-	34	14
CE	Hydraulic and Water Resources Engineering	CE1	09	0	08	0	-	-	17	0
CE	Transportation Engineering	CE2	20	0	14	4	-	-	34	4
CE	Environmental Engineering & Management	CE3	14	1	6	2	-	-	20	3
CE	Geotechnical Engineering	CE4	8	0	7	3	-	-	15	3
CE	Structural Engineering	CE5	10	0	13	2	-	-	23	2
CH	Chemical Engineering	CH	40	11	47	13	-	-	87	24
CL	Earth System Science and Technology	CL	5	2	12	0	-	-	17	2
CR	Cryogenic Engineering	CR	2	0	20	1	-	-	22	1
CS	Computer Science and Engineering	CS	58	13	49	09	-	-	107	22
EC	Microelectronics & V LSI Design	EC2	28	04	26	2	-	-	54	6
EC	RF and Microwave Engineering	EC3	16	0	9	2	-	-	25	2
EC	Telecommunication Systems Engineering	EC4	18	5	25	1	-	-	43	6
EC	Visual Information and Embedded Systems Engg.	EC5	15	2	18	3	-	-	33	5
EE	Machine Drives and Power Electronics	EE1	8	2	13	2	-	-	21	4
EE	Control System Engineering	EE2	11	2	12	0	-	-	23	2
EE	Power and Energy Systems	EE3	12	2	9	2	-	-	21	4
EE	Instrumentation Signal Processing	EE4	15	3	12	2	-	-	27	5
GG	Exploration Geosciences	GG1	20	3	11	6	-	-	31	9
GS	Wireless Communications and Networks	GS/GS1	4	1	5	1	-	-	9	2

TABLE B-2 - POSTGRADUATE STUDENTS ON ROLL 2018-2019										
Dept./ Centre	**Specialization**	**Code**	1st year		2nd year		3rd year		Total	
			M	F	M	F	M	F	M	**F**
ID	Infrastructure Design and Management	ID	14	1	11	00	-	-	25	1
IM	Industrial Engineering and Management	IM	10	1	10	3	-	-	20	4
IT	Information Technology	IT	1	0	1	00	-	-	2	0
MA	Computer Science and Data Processing	MA	19	5	20	7	-	-	39	12
ME	Manufacturing Science and Engineering	ME1	13	0	12	1	-	-	25	1
ME	Thermal Science and Engineering	ME2	10	0	16	0	-	-	26	0
ME	Mechanical Systems Design	ME3	33	0	27	0	-	-	60	0
MI	Mining Engineering	MI	14	0	17	0	-	-	31	0
MS	Materials Science and Engineering	MS	15	5	16	4	-	-	31	9
MT	Metallurgical and Materials Engineering	MT1	35	3	31	6	-	-	66	9
NA	Ocean Engineering and Naval Architecture	NA	14	0	21	1	-	-	35	1
PH	Solid State Technology	PH2	9	6	10	4	-	-	19	10
RE	Reliability Engineering	RE	14	0	12	0	-	-	26	00
RR	Railway Engineering	RR	6	0	11	0	-	-	17	00
RT	Rubber Technology	RT	17	2	9	3	-	-	26	5
WM	Water Management	WM	6	2	7	3	-	-	13	5
AR	City Planning	MCP	22	14	22	16	-	-	44	30
MM	Medical Science And Technology	MM	8	1	8	0	8	2	24	3
BM	Business Administration	BM	113	18	88	36	-	-	201	54
HS	Human Resources Management	HS	11	7	8	9	-	-	19	16
BM	Executive MBA (3 Yrs.) (Kolkata Campus)	EMBA	27	1	16	1	34	2	77	4
IP	Intellectual Property Law (Bachelor of Laws)	IP	29	13	27	7	14	16	70	36
IP	Intellectual Property Law (Master of Laws)	IP	05	12	2	11	-	-	7	23
PGDBA	Post Graduation Diploma in Business Analytics		50	7	42	10	-	-	92	17

TABLE- B -3 - STATEMENT OF RESULTS OF POSTGRADUATE EXAMINATION 2019

Deptt./ Centre	Specialisation	Code	Registered	Successful	Incomplete
AE	Aerospace Engineering	AE	18	18	0
AG	Farm Machinery and Power	AG1	15	15	0
AG	Land and Water Resources Engineering	AG2	15	15	0
AG	Food Processing Engineering	AG3	25	25	0
AG	Applied Botany	AG4	12	12	0
AG	Aquacultural Engineering	AG5	10	10	0
AG	Agricultural Systems and Management	AG6	18	18	0
AT	Embedded Controls and Software	AT	8	8	0
BT	Biotechnology and Biochemical Engineering	BT	24	24	0
CH	Chemical Engineering	CH	51	50	1
CE	Hydraulic and Water Resources Engineering	CE1	7	5	2
CE	Transportation Engineering	CE2	15	13	2
CE	Environmental Engineering and Management	CE3	8	8	0
CE	Geotechnical Engineering	CE4	9	9	0
CE	Structural Engineering	CE5	13	13	0
CS	Computer Science and Engineering	CS	53	53	0
CR	Cryogenic Engineering	CR	20	20	0
CL	Earth System Science and Technology	CL	12	12	0
EE	Machine Drives and Power Electronics	EE1	15	14	1
EE	Control System Engineering	EE2	9	9	0
EE	Power and Energy System	EE3	8	8	0
EE	Instrumentation	EE4	12	12	0
EC	Microelectronics & V LS I Design	EC2	20	20	0
EC	RF and Microwave Engineering	EC3	9	9	0
EC	Telecommunication Systems Engineering	EC4	19	19	0
EC	Visual Information and Embedded Systems Engg.	EC5	17	15	2
GG	Exploration Geosciences	GG1	15	13	2
GS	Wireless Communications and Networks	GS	6	6	0
IM	Industrial Engineering and Management	IM	12	12	0
MS	Materials Science and Engineering	MS	18	18	0
MA	Computer Science and Data Processing	MA	26	26	0
ME	Manufacturing Science and Engineering	ME1	10	10	0
ME	Thermal Science and Engineering	ME2	12	12	0
ME	Mechanical Systems Design	ME3	22	20	2
MT	Metallurgical and Materials Engineering	MT	35	33	2
MI	Mining Engineering	MI	15	12	3
NA	Ocean Engineering and Naval Architecture	NA	20	20	0
PH	Solid State Technology	PH2	14	14	0
ID	Infrastructure Design and Management	ID	10	10	0
RE	Quality and Reliability Engineering	RE	12	12	0
RR	Railway Engineering	RR	10	8	2
RT	Rubber Technology	RT	22	22	0

TABLE- B -3 - STATEMENT OF RESULTS OF POSTGRADUATE EXAMINATION 2019					
Deptt./ Centre	**Specialisation**	**Code**	**Registered**	**Successful**	**Incomplete**
WM	Water Management	WM	8	7	1
AR	City Planning	MCP	37	37	0
BM	Business Administration	MBA	123	123	0
MM	Medical Science and Technology	MMST	9	9	0
HS	Human Resources Management	MHRM	16	16	0
IP	Intellectual Property Law	IP3	30	30	0
IP	Intellectual Property Law(Masters law)	IP2	12	12	0
BM	Executive MBA Programme	EMBA	32	32	0
BM	Post Graduation Diploma in Business Analytics	PGDBA	52	52	0
	Total		**1020**	**1000**	**20**

Table C-1- NUMBER OF PHD RESEARCH SCHOLARS ENROLLED IN 2018-19

Dept/Centre/ School	CSIR/DBT/UGC								Institute								Project					QIP			Sponsored						Working Professional			Total
	GE		OB		SC		ST		GE		OB		SC		ST		GE		OB		SC	GE	OB	SC	GE		OB		SC		ST		GE		SC	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	M	F	M	F	F	M	M	F	M	F	M	F	M	F	
AE									2	10		3	1	5																					21
AG	2					1			5	4	1	3		3			3	5								1	1								29
AI									1																									1		2
AR									1	2	3	2		1											1			1		1			1		13
AT									9	16		3		2			2	8		3									1			1		45
BM		1							2	7				1																				11
BS		1	1			1			3	2																								8
BT	2	1						1	4	3			1					2							1									15
CD		1							1																									2
CE									4	14	1	3		1			2	2						1									1	29
CH									9	7	2		1	3		1					1			1			1							26
CL									1	4	1			3			1	2		1												1		14
CR										3		1																						4
CS									3	5	2	1		2			2	7	1	1										1				25
CY	2	6	2	2		2	1		9	13	2	4	1	4	1																			49
DE										1		2		1																				4
EC		1							3	6	2	1	4	2				2	1				1			1								24
EE									3	9		3		2		1				1	1	1					1								22
EF									3		1	1		1																1					7
ES						1				5		1		2	1		1																		11
ET			1						2	2																									5
GG	3	2		2	1	1		1	1	9	1	9	1	1			1																1		34
GS				1					2	1				1																					5

Table C-1- NUMBER OF PHD RESEARCH SCHOLARS ENROLLED IN 2018-19

Dept/Centre/ School	CSIR/DBT/UGC								Institute								Project					QIP			Sponsored							Working Professional			Total
	GE		OB		SC		ST		GE		OB		SC		ST		GE		OB		SC				GE		OB		SC		ST		GE		SC	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	M	F	M	F	F	M	M	F	M	F	M	F	M	F	
HS	8	6	1	6		2	1	1	3	3	2	2					2	3		1															41
ID									2	2																1									5
IM									2	7	1	3																				1			14
IP									4	4			1	1																					10
MA			2	2	1		1	1	2	6		2	1	2																					20
ME									1	12		3		2				1		1															20
MI										4		2						1		1	1					1						1			11
MM		1							1	2	2							1								1									8
MS		1	1						1	1				1				1																	6
MT									1	9	2	4		4					1		1						1								23
NA		1								1		2									2														6
NT				1					3	2																									6
null									1	1																									2
PH	1	1				1		1	6	2	3	4		3		2																			24
RD		2								1																									3
RJ									1	4		3		1			1	1																	11
RT										4	1			2				2	1														1			11
RX									2																											2
TS									1	1		1																								3
WM									2		1																									3
Total	**18**	**25**	**8**	**14**	**2**	**9**	**3**	**5**	**101**	**189**	**28**	**63**	**11**	**51**	**2**	**4**	**15**	**38**	**4**	**9**	**6**	**1**	**1**	**2**	**2**	**5**	**4**	**1**	**1**	**2**	**1**	**1**	**7**	**1**	**634**

Table C-2 NUMBER OF MS STUDENTS ENROLLED DURING 2018-19

Department	GE		OB		Total
	Female	Male	Female	Male	
AG		1		1	2
AT	2	8		2	12
BM	1				1
CE		1			1
CS	5	4		1	10
EE		3			3
ET			1		1
GS				1	1
ID	2				2
IM	1				1
ME		2		1	3
MI	1				1
MM	1				1
RE		1		1	2
Grand Total	13	20	1	7	41

Table C-2a NUMBER OF POST DOCTORAL FELLOWS AS ON 31/05/2019

Dept/Centre/School	Total	Male	Female
BS	2		2
CD	1		1
CE	1		1
CH	2	1	1
CL	1		1
CR	1	1	
CS	2	2	
CY	7	6	1
EF	1	1	
GS	1		1
MA	3		3
ME	3	2	1
MM	11	5	6
MS	1	1	
MT	2	2	
PH	2	2	
TS	5	5	
Total	46	28	18

Table - C-3 NUMBER OF RESEARCH SCHOLARS ON ROLL AS ON 31.05.2019

Dept/ Centre/ School	CSIR/UGC/DBT								Empl-oyee		Institute								Project								QIP								Sponsored								Working Professional			Total
	GE		OB		SC		ST		GE	OB	GE		OB		SC		ST		GE		OB		SC		ST		GE		OB		SC		ST		GE		OB		SC		ST		GE		SC	
	F	M	F	M	F	M	F	M	M	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
AE											5	35		13	1	10		2	1	1		1		1										5		1							1			76
AG	4			1		4	1				30	23	7	13	5	10	2	2	12	15	4	6		2	1									5		3	1	1							152
AI											1																															1			2
AR		3									16	9	3	7	6	3			1							1							1				1		1			1			53
AT	1	1									30	67	5	15	1	9		1	10	17	3	5	1	2									4		1		1				1			175
BM		6	1	4	1	1				1	7	23		3		9				1											2	7	1											67
BS	3	3	1		2	1	1				7	3	2	1	1			1																										26
BT	10	3	3	1	3	1		1			25	4		4		1			10	7							1				1													75
CD		1									1																																		2
CE											25	59	4	15	2	11		1	4	6	1			1		1	1		1			3									1		136
CH											25	37	6	6	1	13				2				2			1		1			1		1		1							96
CL		1				2					8	12	2	2	1	3		1	2	3	1	1										1									1			41
CR											2	19	1	3		1																												26
CS											15	33	1	4	3	7	1	1	7	17	1	3									1	3						1					98
CY	9	37	2	6	2	6	2				22	37	6	14	5	7	1			1																								157
DE												1		2		1																												4
EC	1	1									19	38	4	10	4	4			1	4	1	1	1			2	2		2			6												101
EE											18	48	3	14	1	5	1	1	1	11		4		1		1	1		2			2		2										116
EF											6	11	3	5		2				1												1					1							30
ES		2				1					4	21	2	6		2	1		1																	1							41
ET											11	3		1		1												1															17
GG	12	10	2	4	4	3		1			18	30	6	14	4	6			2	3																					1			120
GS				1							4	16	1	1		3				2							1				1	2		2									34
HS	12	10	1	7	3	4	1	1			24	11	4	6		1	1		2	6	3	1					1				7	2		2		1							111
ID	1										10	13		2	1	1															1												29

Table - C-3 NUMBER OF RESEARCH SCHOLARS ON ROLL AS ON 31.05.2019

Dept/ Centre/ School	CSIR/UGC/DBT								Empl-oyee		Institute								Project							QIP								Sponsored								Working Professional			Total
	GE		OB		SC		ST		GE	OB	GE		OB		SC		ST		GE		OB		SC	ST		GE		OB		SC		ST		GE		OB		SC		ST		GE		SC	
	F	M	F	M	F	M	F	M	M	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
IM											6	25	1	9		1			2	6		2					1								2								1			56
IP		1									8	6		4	1	1																		1											22
IT				1					1		5	3		1					1	4		3				1	2	1	1																24
MA	8	6	3	4	3	2	1	1			18	27	1	13	4	6				1		1		1			1																	101
ME				1							7	102		24	1	14		2		3		1					1				1	1	2											160
MI		1								1	4	19	1	14		6		1	1	4		1		2			1					1	2			1				1				61
MM	1	3			1	2	1				21	24	4	2	1	3	1	1	2	5				1									2					1					76
MS	4	7	1	1	1	2					6	10	1	4	1	1			2	1								1							1									44
MT	1										13	39	5	22	4	19	3	4	2	4	1	3		2					1	1		5		1		2		1					133
NA		1									2	17	1	9		2				2	1	1		1								2		1									40
NT		1		1							12	19	2	4		1				1																							41
PH	3	5	1	2	1	1		2			21	30	6	11	2	12																1											98
RD		2		1		1	1				3	3				1																											12
RE	1										3	8		3													2					2											19
RJ		1	1						1		10	18	1	6		2			1	1		1																					43
RT	1	3		1							1	10	2	1		2			3	7	3	2		1								2		1				1	1				42
RX											2																																2
TS		2									5	3		1						1																							12
WM											8	9	1	1		1				2				1																			23
Total	**72**	**111**	**16**	**36**	**21**	**31**	**8**	**6**	**2**	**2**	**488**	**925**	**86**	**290**	**50**	**182**	**11**	**18**	**68**	**139**	**19**	**37**	**2**	**18**	**1**	**6**	**16**	**2**	**6**	**3**	**2**	**15**	**64**	**1**	**16**	**2**	**7**	**2**	**4**	**1**	**7**	**1**	**2794**

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
BALANCE SHEET AS AT 31ST MARCH 2019

(Amount in Rupees)

SOURCES OF FUNDS	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND AND LIABILITIES			
CORPUS / CAPITAL FUND	1	20133061850	18187455879
EARMARKED / ENDOWMENT FUNDS	2	7908885197	7419752426
CURRENT LIABILITIES AND PROVISIONS	3	12401248568	12003094027
TOTAL		**40443195615**	**37610302332**

APPLICATION OF FUNDS		Current Year	Previous Year
FIXED ASSETS	4		
- Tangible Assets		12543398075	11810220336
- Intangible Assets		144580794	114523842
- Capital Work in Progress		5207486783	4264425375
INVESTMENTS-FROM EARMARKED/ENDOWMENT FUNDS	5	7014157556	6298735399
- Long Term			
- Short Term			
INVESTMENTS - OTHERS	6	6551877198	6940133897
CURRENT ASSETS	7	2352254105	2209735132
LOANS, ADVANCES & DEPOSITS	8	6629441104	5972528350
TOTAL		**40443195615**	**37610302332**
SIGNIFICANT ACCOUNTING POLICIES	23		
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	24		

(P.K. Sahoo)	(CA. B. Bhattacharyya)	(Prof. B.N. Singh)	(Prof. P.P. Chakrabarti)
Asst. Registrar (Finance)	Dy. Registrar (Finance & Accounts)	Registrar	Director

Dated : 17th June 2019

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2019

(Amount in Rupees)

Particulars	Schedule	Current Year	Previous Year
INCOME			
Academic Receipts	9	253743837	518422425
Grants / Subsidies	10	4823409381	4895800000
Income from Investments	11	18178163	9965489
Interest Earned	12	34260848	95752431
Other Income	13	203527818	172605247
Prior Period Income	14	10973007	2314868
TOTAL(A)		5344093053	5694860460
EXPENDITURE			
Staff Payments & Benefits (Establishments Expenses)	15	3719827314	4139440196
Academic Expenses	16	1076233916	971071540
Administrative and General Expenses	17	797077061	751645095
Transportation Charges	18	6524067	6298625
Repairs & Maintenance	19	211818513	251971040
Finance Cost	20	6471057	3433738
Depreciation	4	951940876	857862360
Other Expenses	21	6702633	493223
Prior Perod Expenses	22	3708389	497622
TOTAL(B)		6780303826	6982713440
Balance being excess of Expenditure over Income before adjustment of Depreciation (B-A)		1436210773	1287852979
Transfer to Corpus for equivalent amount of Depreciation on Assets Purchased from Plan Grant/ Projects/ Transfer of ownership of assets etc		951103548	857348082
BALANCE BEING SURPLUS/ DEFICIT CARRIED TO CAPITAL FUND		-485107225	-430504898
SIGNIFICANT ACCOUNTING POLICIES	23		
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	24		

(P.K. Sahoo)
Asst. Registrar (Finance)

(CA. B. Bhattacharyya)
Dy. Registrar (Finance & Accounts)

(Prof. B.N Singh)
Registrar

(Prof. P.P Chakrabarti)
Director

Dated : 17th June 2019

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2019

RECEIPTS	Current Year Amount(Rs)	Current Year Amount(Rs)	Previous Year Amount(Rs)	PAYMENTS	Current Year Amount(Rs)	Current Year Amount(Rs)	Previous Year Amount(Rs)
Opening Balance							
Cash Balance	82		82	Staff Payment & Benefits		4105702423	2639366470
Bank Balance				Academic Expenses		1386390670	157053268
Grant Savings SBI	165283363		199316429	Administrative Expenses		786597013	731816227
POS SBI	76097		1251803	Transportation Expenses		4612684	6364694
Establishment SBI	14241667		24284378	Repairs & Maintenance		193431466	256120413
Main SBI	9631235		84208715	Prior Period Expenses		2946196	432622
POS PNB	214476		98387	Payments against Earmarked/Endowment Funds			3103548
Pension A/c PNB	701328		10042	Payment Against Sponsored Project/Scheme		5359059648	6375320038
INCOME TAX A/C IIT KGP	1449408		450488	Payment Against Sponsored Fellowship/Scholarships		850888793	834669838
Pension SBI	1724740		3537905	Investment and Deposit made			
Entry Tax A/c SBI	3293922		2950515	a) Out of Earmarked/Endowment funds		0	0
Other Fees A/c SBI	2139752		100000	b) Out of Own Fund (Investment Others)		3001241807	3700657554
Pension A/c Syndicate	492066		450436	Fixed assets		461930096	735380031
SBI MOPS	17499493	216747628	419752	Work-in Progress		433687258	276755426
Grants Received				Other payment Including Statutory payment		578542104	7169804654
From Govt. of India				Refund of grants			
Non Recurring Grant - In - Aid		1334300000	1281900000	Deposit and Advance		1292297236	600911791
Recurring Grant - In - Aid		6423400000	4765980860	HEFA Loan Paid		43500000	0
Other Grant - In - Aid		6086939		Interest on HEFA Loan		3035262	0
Academic Receipts		1480910381	1326654624	**Closing Balance**			
Receipts against Sponsored Project/Scheme		5359074648	6076175284	Cash Balance	81.92		82
Income on Investments from				Bank Balance			
a) Earmarked/Endowment funds		0	0	Entry Tax A/c SBI	0.00		3293922
b) Other Investments		1749779	4121092	Establishment SBI (CA)	2397630.96		14241667
Interest received on				Grant Savings SBI (SB)	304300490.25		165283363
Bank Deposits		125994	19516150	INCOME TAX A/C IIT KGP	2294343.64		1449408
Loan and advances		1740178	995279	Main SBI (CA)	0.00		9631235
Savings Bank Accounts		10038025	15730258	MHRD Grant IIT KGP	229051020.96		
Investment encashed		2152078352	2416652078	Other Fees A/c SBI	35446.50		2139752
Term deposit with Scheduled Bank Encashed		662034864	675540155	Pension A/c PNB	2884428.44		701328
Other Income (Including prior Period Income)		49127066	30814970	Pension A/c Syndicate	-0.47		492066
Deposits and Advances		11372453	56274510	Pension SBI	5026777.54		1724740
Deposit with HEFA		500000000	0	POS PNB	23293.54		214476
Mescellaneous Receipts Including Statutory and other Receipts		1349548177	6717070010	POS SBI	117748.44		76097
				PRA ESCROW 3 IIT KGP	457961970.00		
				SBI MOPS (CA)	50368892.85		17499493
				Scholarship and Stipend SBI (CA)	0		
				Tution Fees IIT KGP SBI (SB)	9504	1054471629	
TOTAL		**19558334483**	**23704504202**	**TOTAL**		**19558334483**	**23704504202**

(P.K. Sahoo)
Asst. Registrar (Finance)

(C.A. B. Bhattacharyya)
Dy. Registrar(Finance & Accounts)

(Prof. B.N. Singh)
Registrar

(Prof. P.P. Chakraborti)
Director

Dated : 17th June 2019

Notes