



भारतीय प्रौद्योगिकी संस्थान गुवाहाटी

INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

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# ANNUAL REPORT

2020-2021





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**Indian Institute of Technology Guwahati**

**Guwahati 781039, INDIA**





Indian Institute of Technology Guwahati was established in the year 1994 and has completed 25 years of glorious existence. IIT Guwahati is the only academic institution in India that occupied a place among the top 100 world universities – under 50 years of age – published by London based Times Higher Education (THE) in the year 2014 and continues to do this even today in various International Rankings. Along with older IITs and Delhi University, IIT Guwahati has also been ranked below 500 in the QS World ranking released recently. IIT Guwahati ranks 7<sup>th</sup> among the leading science and research institutions in India in terms of research citation as evaluated by the Nature, the most authentic scientific research magazine and one of the highest faculty to publication ratio of ~4.5. IIT Guwahati has been ranked 7<sup>th</sup> (Engineering) and 9<sup>th</sup> (Overall) in the national institutional ranking framework conducted by MHRD in the year 2018. IIT Guwahati also ranked 2<sup>nd</sup> in the “Swachhata Ranking” conducted by the Gol. IIT Guwahati has one of the most beautiful educational campuses in the country that provides an ideal setting for learning and research. It is strongly believed that IIT Guwahati has been able to fulfill the aspirations of people of the North East region to a larger extent, since its birth was through Assam Accord signed in 1985. The institute is fully residential for the students, enriched with world-class facilities and is empowered with a young and dynamic faculty and staff. The vision of IITG is to become a preferred destination of seeking best science, engineering and technology education and to be recognized internationally for excellence in research, pursuit for developmental activities and deep concern for students' care. An important feature of academic excellence is the continuous replenishment of ideas and creation of new areas of research and innovation, attracting organizations seeking collaboration in education, research and development as well as product development. In a fast changing world, keeping pace with the ever-increasing number of areas of research and application poses a major challenge to this Institute. IIT Guwahati is trying to augment the research initiatives in all the areas of Sciences and Technology in general and in Nano-science & technology, Bioengineering and Data sciences in particular. Initiation of research in some of the cutting edge areas of Biological sciences namely Genomics, Developmental Biology, Health Care and Bioinformatics, Flexible Electronics, Advanced Functional Materials, Sustainable Polymers, Water Resources and Management is a testament to the aspiration of IIT Guwahati to excel in research. The Scope of Environmental Science and Data science is inherently interdisciplinary and expanding rapidly. Recognizing the challenges for environmentally sustainable development, IIT Guwahati emphasizes an interdisciplinary research paradigm in Energy and Environment. There is a pressing need to integrate environmental engineering and sciences across various disciplines to solve problems that have important societal impact. It is indeed a challenging task to match the ever-increasing need for funds and providing infrastructure for these emerging and futuristic research areas, and IIT Guwahati has resolutely taken this challenge in its stride.

Further, IIT Guwahati has set goals to be recognized as one of the world's top 150 Institutes/Universities within the next five years. This will include attracting external grants and research funding at the level of internationally well ranked Institutes, to furnish state-of-the-art facilities for all programs, attract International faculty and students to spend time at IIT Guwahati, enhance the perception globally, fostering academic excellence and freedom while maintaining rigorous academic standards and to become a preferred destination for transformative educational experience.



## Growth

Particulars	2019-20	2020-21
Student Strength	6419	6959
Faculty Strength	411	410
R &D Funds Received (In crores)	134.39	291.30
Total Research Publications	2015	1969

### Major R&D Project Received:

Principal Investigator	Name Of The Project	Funding Agency	Sanctioned Amount (In Lakh)	Co-Investigator	Duration
Sanjukta Patra	Strategic Planning For Water Resources And Implementation Of Novel Biotechnical Treatment Solutions And Good Practice	DBT	14694560	1. Anil Mukund Limaye	36
Subashisa Dutta	Cumulative Impact Assessment For Cascading Interventions In Himalayan Rivers (Ci2hr)	Ministry Of Environment, Forest And Climate Change, GOI	24501040	1. Rishikesh Bharti 2. Santosha Kumar Dwivedy	36
Biman Behari Mandal	Modeling Human Liver Microarchitecture And Cellular Physiology In Vitro Using 3D Bioprinting For Drug Toxicity And High Throughput Drug Screening Applications	DST	30635040	NA	60
Ratnajit Bhattacharjee	Development Of Signal And Channel Models, Circuits, And Antennas For Next Generation Wireless Systems With Emphasis On Vehicular Communication	Miety	47496000	1. Rohit Sinha 2. Nagarjuna Nallam 3. Kalpana Dhaka 4. Ribhu 5. Salil Kashyap 6. Moumita Patra 7. Mahima Arrawatia	36

				8. Sudarshan Mukherjee	
HOD, Design	M.Des Programme/Executive Development Programme in Electronics Product Design	MEITY	180211000	NA	60
Pranab Goswami	Development of Low Cost and Portable Field Deployable Methanol and Malaria Sensing Kits	DBT	10074000	1. Lingaraj Sahoo	36
Gaurav Trivedi	AI enabled advanced aquaponics ecosystem for the self-reliance of SC community in central and lower Assam	DST	26847040	1. Hanumant Singh Shekhawat 2. Prithwijit Guha 3. Aryabartta Sahu 4. Pratima Agarwal 5. Srinivasan Krishnaswamy	36
Kanhaiya Pandey	Towards scalable quantum computer using Yb atoms in an optical lattice	DST	29082000	Tapan Mishra	36

#### Major Conference etc. Held:

SL NO	NAME OF CONFERENCE / SEMINAR/WORKSHOP	DEPARTMENT	MODE/ VENUE	DATE
1	ISANAYA 2020	Design	Online	June 2020
2	International Online Conference on Emergence and Reemergence of Communicable Diseases : Social Sciences Perspectives	HSS	Online	July 2020
3	IEEE 34th International Conference on VLSI Design and the 20th International Conference on Embedded Design	EEE	Online	Feb 2021

SL NO	NAME OF CONFERENCE / SEMINAR/WORKSHOP	DEPARTMENT	MODE/ VENUE	DATE
4	NEMA VI :North East Meet of Astronomers (NEMA VI)	PHY	Online	Nov 2020
5	NE GREEN SUMIT 2020	CRT	Held in campus	Nov 2020
6	8th International and 47th National Conference on Fluid Mechanics & Fluid Power	ME	Online	Nov, 2020
7	Online Seminars-Annual Symposium on Mathematics & Computing (ASMC2020)	Maths	Online	September, 2020
8	Online Seminars- Advances in Differential Equation and Numerical Analysis (ADENA)	Maths	Online	October, 2020
9	Online Workshop-8th International Megaprojects : Theory Meets Practice Workshop-2020	CIVIL	Online	Oct, 2020
10	Online Workshop- "Field Hydrological Research"	CIVIL	Online	Nov, 2020
11	Online Workshop- on NEMS/MEMS and Thernostic Devices " NWNTD 2020	NT	Online	Dec, 2020
12	Online Webinar : India' s Northeast: A gateway to wider cooperative architecture in the east and South East Asia	HSS	Online	Dec, 2020
13	Online Workshop - Modular Forms	Maths	Online	Dec, 2020
14	Online webinar- Start Up Talk series	TIC	Online	Nov, 2020
15	Online Workshop- Workshop on software skill development – Computer Aided Process Planning for 3D Printing and CNC Machining	ME	Online	Dec 2020
16	Online workshop - IIT Guwahati and Tokyo Tech Joint workshop on Topics in Condensed Matter Physics, High Energy Physics, Cosmology and Astrophysics	Physics	Online	Dec 2020
17	EDP (hands on training) on MS Grill fabrication	Unnat Bharat	Held in campus	Dec 2020
18	Entrepreneurship Development Programme	ME	Online	Feb, 2021
19	Online -World Wetlands Day- Talk series	CE	Online	Feb, 2021

<b>SL NO</b>	<b>NAME OF CONFERENCE / SEMINAR/WORKSHOP</b>	<b>DEPARTMENT</b>	<b>MODE/ VENUE</b>	<b>DATE</b>
20	Online workshop -Innovation and Entrepreneurship in Rural Technology workshop	IISI , ME	Online	March 2021



## Annual Report 2020-21: A Quick Look

Department/Centre/School	
Academic Department	<b>11</b>
Academic Centre	<b>05</b>
Schools	<b>04</b>
Service Centre	<b>05</b>

Students Admitted	
Preparatory	19
BTech/BDes	832
MTech/MDes	591
MSc/MA	200
PhD	359
MS (R)	13
Dual Degree	02
<b>Total</b>	<b>2016</b>

Student Strength	
Preparatory	08
BTech/BDes	3236
MTech/MDes	1165
MSc/MA	413
PhD	2091
MS (R)	34
Dual Degree	28
<b>Total</b>	<b>6959</b>

Number of degree awarded in 22 <sup>nd</sup> Convocation	
BTech/BDes	687
MTech/MDes	637
MSc	146
MA	27
MS (R)	18
PhD/Dual Degree	288
<b>Total</b>	<b>1803</b>

Staff Strength	
Academic Staff/ Faculty	410
Technical Staff (Group A)	54
Administrative Staff (Group A)	31
Technical & Administrative Staff (Group B&C)	508
<b>Total</b>	<b>1003</b>

Research Papers	
Research Publications	1969
<b>Total</b>	<b>1969</b>

Grants (In Crores)	
Revenue	315.97
Capital	45
<b>Total</b>	<b>360.97</b>

Consultancy Projects	
Consultancy Projects	168
<b>Total</b>	<b>168</b>

Sponsored Research Projects	
New Projects	84
<b>Total</b>	<b>84</b>





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Chemistry  
Civil Engineering  
Computer Science and Engineering  
Design  
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Humanities and Social Sciences  
Mathematics  
Mechanical Engineering  
Physics

### **ACADEMIC CENTRES**

Centre for Energy  
Centre for the Environment  
Centre for Nanotechnology  
Centre for Rural Technology

### **EXTRAMURAL CENTRES**

Central Instruments Facility  
Lakshminath Bezbaroa Central Library  
Centre for Educational Technology



## PART I

Organisation

IIT Council

Board of Governors

Senate

Finance Committee

Building & Works Committee

Executive Summary





## ORGANISATION

### **Chairman, Council of IITs**

Union Minister for Ministry of Education

### **Chairman, Board of Governors**

Dr. Rajiv I. Modi

### **Director**

Prof. T. G. Sitharam

### **Dy. Director**

Prof. P. S. Robi (up to 15.07.2020)

Prof. Sashindra Kr. Kakoty (from 16.07.2020)

### **Dean, Academic Affairs**

Prof. Chitrlekha Mahanta

### **Dean, Faculty Affairs**

Prof. A. Srinivasan (up to 08.10.2020)

Prof. T. Punniyamurthy (from 09.10.2020)

### **Dean, Research & Development**

Prof. G. Das (up to 30.04.2020)

Prof. Vimal Katiyar (from 01.05.2020)

### **Dean, Students' Affairs**

Prof. V. Venkata Dasu

### **Dean, Infrastructure Planning & Management**

Prof. Sharad B Gokhale (up to 23.02.2021)

Prof. Sukumar Nandi (from 24.02.2021)

### **Dean, Alumni and External Relations**

Prof. Rakhi Chaturvedi (up to 31.12.2020)

Prof. Mihir Kumar Purkait (from 01.01.2021)

### **Dean, Outreach Education Programme**

Prof. Kalpesh Kapoor (up to 15.03.2021)

Prof. A. S. Achalkumar (from 16.03.2021)

### **Dean, Public Relations, Branding and Ranking**

Prof. P. K. Iyer

### **Dean, Industrial Interactions and Special Initiatives**

Prof. G. Krishnamoorthy

### **Dean, Resource Generation and Finance**

Prof. Sashindra Kr. Kakoty (up to 19.08.2020)

Prof. Sajal Kanti Deb (from 20.08.2020)

### **Registrar**

Dr. Suresh S. M.

### **Head, Department of Biosciences and Bioengineering**

Prof. Latha Rangan

### **Head, Department of Chemical Engineering**

Prof. Anugrah Singh

### **Head, Department of Chemistry**

Prof. T. Punniyamurthy (up to 30.04.2020)

Prof. Gopal Das (from 01.05.2020)

### **Head, Department of Civil Engineering**

Prof. C. Mahanta (up to 15.02.2021)

Prof. Sharad Gokhale (from 16.02.2021)

**Head, Computer Science & Engineering**

Prof. S. V. Rao (up to 14.06.2020)  
Prof. J. K. Deka (from 15.06.2020)

**Head, Department of Design**

Dr. D Uday Kumar

**Head, Department of Electronics & Electrical Engineering**

Prof. Rohit Sinha (up to 05.11.2020)  
Prof. Roy P. Paily (from 06.11.2020)

**Head, Department of Humanities & Social Sciences**

Prof. Mrinal Kanti Dutta (up to 12.07.2020)  
Prof. Sukanya Sharma (from 13.07.2020)

**Head, Department of Mathematics**

Prof. M. Guru Prem Prasad (up to 12.01.2021)  
Prof. Kalpesh Kapoor (from 13.01.2021)

**Head, Department of Mechanical Engineering**

Prof. S. K. Dwivedy (up to 05.10.2020)  
Prof. S. Senthilvelan (from 06.10.2020)

**Head, Department of Physics**

Prof. Subhradip Ghosh

**Head, Computer and Communication Centre**

Prof. G. Sajith (up to 22.02.2021)  
Prof. Ratnajit Bhattacharjee (from 23.02.2021)

**Head, Centre for Central Instruments Facility**

Prof. Mohammad Qureshi (up to 23.09.2020)  
Prof. G. Pugazhenthii (from 24.09.2020)

**Head, Centre for Environment**

Prof. M. K. Purkait (up to 31.01.2021)  
Prof. Utpal Bora (from 01.02.2021)

**Head, Centre for Educational Technology**

Prof. Hemant B. Kaushik

**Head, Centre for Nanotechnology**

Prof. Dipankar Bandopadhyay

**Head, Centre for Energy**

Prof. V. S. Moholkar (up to 30.04.2020)  
Prof. Kaustabha Mohanty (from 01.05.2020)

**Head, Centre for Linguistic Science and Technology**

Prof. Sukumar Nandi (up to 07.06.2020)  
Prof. Rohit Sinha (from 08.06.2020)

**Head, Centre for Career Development**

Prof. Vinayak Kulkarni (up to 28.09.2020)  
Prof. Abhishek Kumar (from 29.09.2020)

**Head, Centre for Creativity**

Dr. Manoj Majhi



**Head, Centre for Rural Technology**

Prof. S. K. Kakoty (up to 30.04.2020)

Prof. Sanjukta Patra (from  
01.05.2020)

**Head, Centre for Sports and  
Healthcare Engineering**

Prof. Samarendra Dandapat

**Head, Centre for Disaster  
Management and Research**

Dr. Sudip Mitra



## IIT COUNCIL

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



## BOARD OF GOVERNORS

<b>Dr. Rajiv I. Modi</b> (from 28.08.2020) Chairman & Managing Director Cadila Pharmaceuticals Limited Cadila Corporation Campus, Sarkhej-Dholka Road, Bhat, Ahmedabad – 382 210, Gujarat	<b>Chairman</b>
<b>Prof. T. G. Sitharam</b> (up to 27.08.2020) Director, IIT Guwahati	
<b>Prof. T. G. Sitharam</b> Director, IIT Guwahati	<b>Member, ex-officio</b>
<b>Dr. Prahlada Rama Rao</b> Pro Chancellor S-VYASA , Director, Centre for Energy Research Former Distinguished Scientist & CC R&D DRDO Former Vice Chancellor, DIAT(DU), Pune. DRDO, Min of Defence Adjunct Faculty, Dept. of Management IISc and NIAS, Bengaluru. Member, IISc Court	<b>Member</b> <b>Nominees of the IIT Council</b>
<b>Prof. S. K. Srivastav</b> (from 10.07.2018) Vice Chancellor North Eastern Hill University Shillong – 793 022	<b>Member</b>
<b>Prof. Varadraj B. Bapat</b> (from 10.07.2018) Faculty in Accounting and Finance SIM School of Management Indian Institute of Technology Bombay Powai, Mumbai – 400 076	<b>Member</b>
<b>Dr. Rakesh Sarwal</b> (up to 11.05.2020) Additional Secretary (TE) Ministry of Education Govt. of India	<b>Member</b>
<b>Sh. Rakesh Ranjan</b> (from 12.05.2020) Additional Secretary (TE) Ministry of HRD, Shastri Bhawan New Delhi	

<p><b>Commissioner &amp; Secretary to the Govt. of Assam</b> Higher Education (Technical) Department Dispur, Guwahati – 781 006</p>	<p><b>Member</b>    <b>Nominee from Govt. of Assam</b></p>
<p><b>Er. Vikeduosie Kehie</b> Retired Engineer-in Chief (NPWD) House No. – 174 Kohima Science College Road JOTSOMA, Kohima, Nagaland</p>	<p><b>Member</b>    <b>Nominee from North Eastern Region</b></p>
<p><b>Prof. Diganta Goswami</b>  Department of Computer Science &amp; Engineering IIT Guwahati Guwahati 781039</p>	<p><b>Member</b>    <b>Nominees of the Senate</b></p>
<p><b>Prof. Pranab Goswami</b> (from 01.01.2021)  Dept. of Biosciences and Bioengineering IIT Guwahati</p>	<p><b>Member</b></p>
<p><b>Prof. Bishnupada Mandal</b> (up to 31.12.2020)  Professor, Department of Chemical Engineering IIT Guwahati</p>	
<p><b>Dr. Suresh S. M.</b> Registrar, IIT Guwahati</p>	<p><b>Secretary (Ex-officio)</b></p>
<p><b>Prof. Sashindra Kumar Kakoty</b> Deputy Director IIT Guwahati</p>	<p><b>Special Invitee</b></p>

<b>E T A N E S</b>	<b>The Director</b>	<b>Chairman (Ex-Officio)</b>
	<b>The Deputy Director</b>	<b>Member (Ex- Officio)</b>
	<b>All Professors of the Institute</b>	<b>Member</b>
	Three persons, not being employees of the Institute, to be nominated by the Chairman, BOG In consultation with the Director, from among educationists of repute, one each from the fields of Sciences, Engineering and humanities	<b>Board Nominee</b>
	<b>Dr. NARAHARI SASTRY GARIKAPATI</b>	<b>Member</b>
	Director of the North East Institute of Science and Technology Jorhat, Assam	
	<b>Prof. PRADYUT KUMAR GOSWAMI</b>	<b>Member</b>
	former Vice Chancellor of Assam Science and Technology University former Vice Chancellor University of Science & Technology, Meghalaya	
	<b>Prof. DIPAK KUMAR SHARMA</b>	<b>Member</b>
	Vice Chancellor, Kumar Bhaskar Varma Sanskrit and Ancient studies University, Nalbari, Assam	
<b>Head of the Academic Departments, Academic Centres and Academic Schools</b>	<b>Member</b>	
<b>Librarian of the Institute</b>	<b>Member</b>	
<b>Chairman, Hostel Affairs Board</b>	<b>Member</b>	
<b>Registrar of the Institute (Ex-Officio)</b>	<b>Secretary</b>	

## FINANCE COMMITTEE

**Dr. RAJIV I. MODI**

**Chairman**

Chairman & Managing Director  
Cadila Pharmaceuticals Limited  
Cadila Corporation Campus  
Sarkhej-Dhokla Road, Bhat  
Ahmedabad – 382210  
Gujarat

**Prof. T. G. SITHARAM**

**Member**

Director, IIT Guwahati  
Guwahati-781039

**DIRECTOR (IITs)**

**Member**

Dept. of Higher Education  
MHRD, Shastri Bhawan  
New Delhi-110 115

**DIRECTOR (FINANCE)**

**Member**

Integrated Finance Division  
MHRD, DoHE  
IF-I Section, Shastri Bhawan  
New Delhi-110 115

**Prof. GAUTAM BARUA**

**Member**

Director, IIIT Guwahati  
IT Park Street Bongora  
Guwahati-781015

**Dr. USN Murty**

**Member**

Director  
National Institute of Pharmaceutical  
Education and Research Guwahati  
(NIPERG), Sila Katamur (Halugurisuk)  
P.O.: Changsari, Guwahati-781101

**Prof. S. K. DEB**

**Special Invitee**

Professor, Dept. of CE & Dean, Resource  
Generation and Finance  
IIT Guwahati, Guwahati-781039

**Dr. Suresh S. M.**

**Secretary**

Registrar & Secretary  
Finance Committee  
IIT Guwahati  
Guwahati-781039

## BUILDING & WORKS COMMITTEE

**Prof. T. G. SITHARAM**

The Director, IIT Guwahati

**Chairman**

**Prof. Sashindra Kumar Kakoty**

The Deputy Director, IIT Guwahati

**Member**

**The Chief Engineer**

PWD (Building), Assam

**Member**

**Mr. Ajoy Chandra Bordoloi**

Retired Commissioner & Secretary  
PWD, Govt. of Assam  
Sarumotoria, Guwahati-781036

**Member**

**Mr. Kamal Bhuyan**

Retired Chief General Manager  
Power Grid Corporation of India

**Member**

**The Dean, Infrastructure, Planning and Management**

IIT Guwahati

**Member**

**The Associate Dean(IPM)**

IIT Guwahati

**Special Invitee**

**The Registrar**

IIT Guwahati Member

**Secretary**

## INTRODUCTION



The year 2020 saw IIT Guwahati's twenty second batch of students taking their degrees in the month of September. The Institute takes pride in the achievements of its students and gladly announces that almost all the graduated students have been well placed in various government organisations and multi-national companies in India and abroad. All the achievements in academic and research areas have been successful only because of the relentless efforts of dedicated faculty members, students and the commendable cooperation of all other non-teaching employees of the Institute.

Here is a brief report on the activities and achievements of the Institute during the year 2020-21.

## BOARD OF GOVERNORS



Dr. Rajiv I. Modi joined as the Chairman of Board of Governors in August 2020. Prof. Pranab Goswami, Dept. of Biosciences and Bioengineering joined the Board in January 2021. Prof. Bishnupada Mandal, Department of Chemical Engineering has completed his tenure as the nominee of the Senate in December 2020. On behalf of the Board, I welcome Dr. Rajiv I. Modi and Prof. Pranab Goswami and thank Prof. Bishnupada Mandal for his valuable contributions.

## ACADEMIC ACTIVITIES

The Institute has 11 academic departments, 5 inter-disciplinary academic centres and 5 extramural centres. The Department and Centres are –

### Departments

Biosciences and Bioengineering (BSBE), Chemical Engineering (CL), Chemistry (CH), Civil Engineering (CE), Computer Science and Engineering (CSE), Design (DD), Electronics and Electrical Engineering (EEE), Humanities and Social Sciences (HSS), Mathematics (MA), Mechanical Engineering (ME) and Physics (PH).

## Academic Centres

Centre for Disaster Management and Research, Centre for the Environment, Center for Intelligent Cyber Physical Systems, Centre for Nanotechnology and Centre for Linguistic Science and Technology.

## Schools

School of Agro and Rural Technology, Mehta Family School of Data Science and Artificial Intelligence, School of Energy Science and Engineering and School of Health Science & Technology

## Extramural Centres

Computer and Communication Centre, Central Instruments facility, Centre for Educational Technology, Centre for Career Development and Centre for Creativity.

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

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

**Bachelor of Design (BDes) programme** in Design (DD);

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

**Master of Design (MDes) programme** in Design;

**Master of Science by Research [MS(R)] programme** in Energy (EN);

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

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

**Doctor of Philosophy (PhD) programmes** in all the Departments and in the Centre for Energy (EN), Centre for the Environment (EV), Centre for Nanotechnology (NT), Centre for Rural Technology (RT) and Centre for Linguistic Science and Technology (CLST);

**Dual (MTech + PhD) programme** in the Department of Computer Science and Engineering (CS);

and

**Dual [MS (Eng.) + PhD] programme** in Electronics and Electrical Engineering (EE).

The total number of enrolled students in 2020-21 is 6959. Of these, 53.50% are postgraduate students.

The detailed break up is –

**Preparatory Programme: 8**

**Four-year BTech and BDes: 3236**

Batch	BT	CE	CL	CS	CT	DD	EC	EE	EP	MC	ME	Total
Fourth Year (2017 Batch)	53	72	63	88	42	43	80	47	42	60	85	632
Third Year (2018 Batch)	44	79	66	97	44	42	89	53	44	63	93	672
Second Year (2019 Batch)	67	94	83	101	55	56	90	56	60	64	106	776
First Year (2020 Batch)	85	119	97	114	66	54	105	62	69	73	120	910
From earlier batches												43
<b>Total</b>												<b>3228</b>



**Two-year MSc: 317**

<b>Batch</b>	<b>CH</b>	<b>MC</b>	<b>PH</b>	<b>Total</b>
Second Year (2019 Batch)	53	45	45	143
First Year (2020 Batch)	59	53	56	168
From earlier batches				6
<b>Total</b>				<b>317</b>

**Two-year MA: 96**

<b>Batch</b>	<b>DS</b>	<b>Total</b>
Second Year (2019 Batch)	51	51
First Year (2020 Batch)	45	45
From earlier batches		0
<b>Total</b>		<b>96</b>

**Two-year MTech: 1097**

<b>Batch</b>	<b>BT</b>	<b>CE</b>	<b>CL</b>	<b>CS</b>	<b>EE</b>	<b>ME</b>	<b>RT</b>	<b>DS</b>	<b>FST</b>	<b>Total</b>
Second Year (2019 Batch)	46	120	69	56	94	121	12	19	8	545
First Year (2020 Batch)	51	124	60	66	86	119	11	19	3	539
From earlier batches										13
<b>Total</b>										<b>1097</b>

**Two-year MDes: 68**

Batch	DD	Total
Second Year (2019 Batch)	35	35
First Year (2020 Batch)	33	33
<b>Total</b>		<b>68</b>

**Two-year MS(R): 34**

Batch	EN	EM	Total
Second Year (2019 Batch)	10	0	10
First Year (2020 Batch)	14	10	24
From earlier batches			<b>0</b>
<b>Total</b>			<b>34</b>

<b>Dual Degree: 28</b>	
<b>(MTech + PhD) in CS</b>	4
<b>[MS(Eng.)+PhD] in EE</b>	24
<b>Total</b>	<b>28</b>

**PhD: 2091**

BSBE	CE	CH	CL	CS	DD	EE	EN	EV	HS	MA	ME	NT	PH
214	204	250	167	104	77	186	86	64	117	90	246	42	174
RT	CLST												
42	28												

The academic session: 2020-2021 commenced from September 2021. 2250 students were admitted in various programmes across all the Departments/Academic Centres

during the reporting year. The department/centre-wise details of new admissions, excluding the preparatory students, are given in the table below:

<b>Department/Centre/Program</b>	<b>BTech/ BDes</b>	<b>MSc/ MA</b>	<b>MTech/ MDes</b>	<b>MS (R)</b>	<b>PhD</b>	<b>Dual Degree</b>
Biosciences and Bioengineering (BSBE)	85	-	51	-	38	-
Chemical Engineering (CL)	97	-	60	-	35	-
Chemistry (CH)	66	59	-	-	47	-
Civil Engineering (CE)	119	-	124	-	48	-
Computer Science & Engineering (CS)	114	-	66	-	21	1
Design (DD)	54	-	33	-	18	-
Electronics and Electrical Engineering (EE)	167*	-	86	-	44	4
Humanities & Social Sciences (HS)	-	45-	-	-	30	-
Mathematics (MA)	73	53	-	-	28	-
Mechanical Engineering (ME)	120	-	119	-	58	-
Physics (PH)	69	56	-	-	57	-
Centre for Energy (EN)	-	-	-	14	12	-
Centre for the Environment (EV)	-	-	-	-	11	-
Centre for Nanotechnology (NT)	-	-	-	-	9	-
Centre for Rural Technology (RT)	-	-	11	-	9	-
Centre for Linguistic Science and Technology (LST)	-	-	-	-	7	-
Data Science (DS)	-	-	19	-	-	-
Food Science and Technology (FST)	-	-	3	-	-	-
E-Mobility (EM)	-	-	-	10	-	-
<b>Total</b>	<b>964</b>	<b>213</b>	<b>572</b>	<b>24</b>	<b>472</b>	<b>5</b>

\* BTech in Electronics and Communication Engineering: 105, and BTech in Electronics and Electrical Engineering: 62.

## Twenty First Convocation

In the Twenty Second Convocation, a total number of 1803 students received their BTech, BDes, MA, MSc, MTech, MDes and PhD degrees as given below:

Course	2020-21
BTech and BDes	687
MTech and MDes	637
MSc	146
MA	27
MS	18
Dual Degree (MTech+PhD)	3
PhD	285
<b>Total</b>	<b>1803</b>

Programme	Nos.
BTech/BDes	
Biotechnology	51
Chemical Engineering	68
Chemical Science and Technology	38
Civil Engineering	78
Computer Science and Engineering	99
Design	46
Electronics and Communication Engineering	79
Electronics and Electrical Engineering	46
Engineering Physics	41
Mathematics and Computing	57
Mechanical Engineering	84
<b>Total</b>	<b>687</b>
MTech/MDes	
Biotechnology	55
Chemical Engineering	76
Civil Engineering	157
Computer Science and Engineering	59

Design	27
Electronics and Electrical Engineering	82
Mechanical Engineering	168
Rural Technology	13
<b>Total</b>	<b>637</b>
MSc	
Chemistry	49
Mathematics and Computing	51
Physics	46
<b>Total</b>	<b>146</b>
MA	
Development Studies	27
<b>Total</b>	<b>27</b>
MS	
Centre for Energy	18
<b>Total</b>	<b>18</b>
Dual Degree (MTech+PhD)	
Computer Science and Engineering	3
<b>Total</b>	<b>3</b>
PhD	
Biosciences and Bioengineering	36
Chemical Engineering	23
Chemistry	37
Civil Engineering	36
Computer Science and Engineering	15
Design	14
Electronics and Electrical Engineering	26

Humanities & Social Sciences	13
Physics	25
Mathematics and Computing	7
Mechanical Engineering	39
Centre for Energy	5
Centre for the Environment	4
Centre for Nanotechnology	5
<b>Total</b>	<b>285</b>

Due to the COVID-19 pandemic, the institute had to suspend all academic activities from 16.03.2020. However, Jan-May 2020 semester was successfully completed by conducting ONLINE teaching and assessment and results were declared timely. IIT Guwahati has prepared itself for conducting July-Nov 2020 semester on ONLINE mode. All PG + PhD interviews for admission were conducted ONLINE and the admission process has been completed.

### MHRD-NIRF INDIA RANKINGS

IIT Guwahati has been ranked 7th (Engineering and Overall) in the National Institutional Ranking (NIRF) Framework conducted by MHRD in the year 2020

### QS RANKING

In the recently announced QS Ranking IIT Guwahati has secured 41<sup>st</sup> rank globally (56<sup>th</sup> in 2021) in the 'Research Citations per Faculty' category. The Institute has gained rank 395 in World University Ranking globally. This marks a huge improvement of 75 places by the IIT Guwahati, which was ranked 470 in the 2021 edition of the QS World University rankings

### SWACHHTA RANKING

IIT Guwahati was ranked Third in the category of 'Residential University - AICTE' in the third edition of annual 'Swachh Campus Ranking 2019' for higher educational institutions organised by HRD ministry.

### RESEARCH AND DEVELOPMENT

The other component of our research program is sponsored (or directed) research. There are 279 research projects in progress with a total sanctioned value of about `291.79 crore. In the year under report, we received 79 new projects with a sanctioned value of ` 62.33 crore. The R&D projects are mainly sponsored by Government Ministries and Departments with major support coming from the Ministry of Human Resource Development (MHRD), the Departments of Science and Technology (DST) and Biotechnology (DBT), the Science and Engineering Research Board (SERB), the Board of Research in Nuclear Sciences (BRNS), the Defence Research and Development Organisation (DRDO), and the Indian Council of Medical Research (ICMR). We also have a considerable number of industry-supported research projects. There are 199 Principal Investigators involved in carrying out the research work of the Institute.

It is noteworthy to mention that the research dimension of IIT Guwahati is broadening significantly and the same is now reflected in terms of multiple Industrially funded collaborative research with close cooperation with Industry partners. Both private and government funded companies have funded various sponsored research

projects to IIT Guwahati. These companies include, TATA Steel, ONGC, North East Electrical Power Corporation., Indian Space Research Organization, Purple Patch Services (an International company), Elint Technologies, HPCL Green, Agriculture and Rural Development Bank, National Rural Infrastructure Development Agency, Numaligarh Refinery Limited, OIL, INAE etc.

## ACADEMIC INFRASTRUCTURE DEVELOPMENT

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

- Arial Mx Real Time PCR 5 colour system; Make: Agilent Technologies; Model: G8830A
- Electrometer/ Hi Resistance MTR; Make: Keithley; Model: 6517B
- Solar Simulator; Make: Irsol; Model: SIM-1030
- A 6-Axis Robotic Arm; Make: FANUC; Model: ARC Mate 100ld
- Vertical Knee Type Milling Machine; Make: Krishna Machine Tools; Model: KVM-1320
- MiniCTA for wire- and film-probes; Make: Dantec Dynamics; Model: 9054T0421
- Dook Drop
- Audio Visual System
- VSM Cryostat System with sample in exchange gas for Lakeshore 7410 VSM, Principal: Janis, USA; Model: CCS-700/204
- Automated ultrahigh vacuum (UHV) X-ray photoelectron Spectroscopy

## VISIT OF MS. BARBARA POMPILI, ECOLOGICAL MINISTER OF FRANCE

The Honorable Ecological Minister of France MS BARBARA POMPILI, His excellency Mr. Emmanuel Lenain, Ambassador of France to India; Ms. Virginie Corteval, Consul General of France in Kolkata and Mr. Bruno Bosle, Country Director, AFD (French Development Agency) along with other 11 delegates from France visited IIT Guwahati on January 30, 2021.

Honorable Cabinet Minister of Commerce and Industry, Transport Shri Chandra Mohan Patowary also accompanied the delegation.

Prof. Mihir Kumar Purkait, Dean of Alumni and External Relations (AER) coordinated the session and delivered formal welcome address to the delegates. Ms. Pompili interacted with Prof. T.G.Sitharam, Director of IIT Guwahati and all the Deans and Associate Deans of IIT Guwahati.

Interaction session was ended with a vote of thanks; it was followed by a visit to Centre of Excellence for Sustainable Polymer (CoE-SusPol) by Honourable Minister along with his team. Visit to CoE-SusPol was led by Prof. Vimal Katiyar, Dean of Research and Development, IIT Guwahati. The delegation interacted with research scholars and they explained about recent developments and achievements in the field of recycling plastic and biodegradable plastic.



## MEMORANDA OF UNDERSTANDING (MOUs)

The AER office currently handles MoUs for Academic and Research Collaborations with International academic institutions and organizations. At present there are 72 MoU active with institutions and organization from all over the world. During this coronavirus pandemic, IIT Guwahati have signed and renewed MoU with 15 International university/institutes/organizations. The following are the names:

- University of Nottingham, United Kingdom
- Ecole Centrale de Nantes, France
- Gifu University, Japan
- KAGAWA University, Japan
- Stockholm University, Sweden
- University of Central Lancashire, United Kingdom
- Mariano Marcos State University, Philippines, Phillipines
- Nova School Of Science And Technology And Nova.Id.Fct Lisbon, Portugal
- University of Iceland under the Erasmus+ programme
- Edith Cowan University, Australia
- Intelligently Interactive Inc., USA
- Ioligos Technologies Private Limited and The Children's Hospital Corporation, USA
- Southern Cross University, Australia
- Curtin University, Malaysia
- University of Connecticut, USA



## ON GOING JOINT MASTERS' DEGREE /JOINT PH.D PROGRAMME

In collaboration with six foreign Universities, IIT Guwahati has created joint degree programs designed to prepare students for acquiring balanced expertise with effective understanding on various aspects of Science and Engineering. The following are some of the ongoing Masters and Ph.D. programme:

1. Joint Academic Program (M Tech) in Food Science and Technology with GIFU University of Japan as the partner
2. Joint PhD Program with GIFU University of Japan in Mechanical Engineering
3. Joint PhD Program in Bio Informatics with Heidelberg University of Germany, BSBE
4. Collaborative PhD Program with Curtin University of Australia in Civil Engineering
5. Collaborative PhD Program with National Institute of Material Science (NIMS) Japan.
6. Joint PhD supervision Program with Shantou University, China

The following are some of the Universities and Institutes with which creation of Joint Masters and Ph.D programmes are under consideration:

1. Ecole Centrale Nantes, France
2. The University of Adelaide, Australia
3. Univ. of Technology Sydney (UTS), Australia
4. Deakin University, Australia
5. Dalhousie University, Canada

## THE FOLLOWING ARE THE LIST OF FULL TIME/EXCHANGE FOREIGN STUDENT REGISTERED IN IIT GUWAHATI IN 2020-21(INBOUND):

The year 2020-21 saw a steep drop in students' mobility, all over the world, due to the Pandemic. There were some 8 students from various countries who registered for full time courses at IIT Guwahati. Following is the list of the same:

SL NO.	NAME (FULL TIME STUDENTS)	Country	Programme	Department/Centre
1.	Mr. Tandin Wangdi	Bhutan	M.Tech	Mechanical
2.	Mr. Jeremiah Morden Seme	Tanzania	M.Tech	Civil
3.	Mr. Prodip Kumar Roy	Bangladesh	M.Tech	Civil
4.	Mr. Gopal Rizal	Bhutan	Ph.D	Nanotechnology
5.	Mr. Bidyanath Jha	Nepal	M.Tech	CSE
6.	Mr. Bimal K Chetri	Bhutan	Ph.D	Rural Technology
7.	Ms. Tchummegne Kouam Ida	Cameroon	Ph.D	Environment
8.	Ms. Jana Stefani	Germany	M.A	HSS



**SEMSTER EXCHANGE/RESEARCH INTERNSHIPS WITH PARTNER UNIVERSITIES (OUTBOUND):**

IIT Guwahati has signed MoU for Collaborative Programme with various Universities/ Institutes across the world. Even during the pandemic, students from IIT Guwahati were selected for exchange/research internship with prestigious International University/Institute.

As many as 14 students were selected for such programme, following the names of the student:

Sl No	Name	Roll No	Department/ Centre	Programme	Host University
1.	Mr. Aman Bharadwaj	176106117	BSBE	International Cooperative Graduate Program	National Institute for Materials Science, Japan
2.	Mr. Subrata Biswas	176121021	Physics	International Cooperative Graduate Program	National Institute for Materials Science, Japan
3.	Mr. Aditya Trivedi	190101005	CSE	Summer Research Internship Programme 2021	Polytechnique Montréal, Canada
4.	Ms. Ahlaam Rafiq	190121061	Physics	Summer Research Internship Programme 2021	Polytechnique Montréal, Canada
5.	Mr. Akash Chandra Das	190106008	BSBE	Summer Research Internship Programme 2021	Polytechnique Montréal, Canada
6.	Mr. Aswin Krishna Mahadevan	180107010	Chemical	Summer Research Internship Programme 2021	Polytechnique Montréal, Canada
7.	Ms. Srimonti Dutta	186154004	Rural Technology	Summer Research Internship Programme 2021	Polytechnique Montréal, Canada
8.	Ms. Thongam Debika Devi	176151105	Energy	General Exchange Programme (GESR)	Kyoto University, Japan
9.	Mr. Jishnu Choudhury	194104215	Civil	Summer Internship	Ecole Centrale de Nantes, France
10.	Mr. Mayank Sharma	194162004	Chemical	International Joint Master Degree in Food Science & Technology	Gifu University, Japan
11.	Mr. Sanjay Raghuvanshi	194162006	Chemical	International Joint Master Degree in Food Science & Technology	Gifu University, Japan
12.	Mr. Rupesh Kumar	194162005	Chemical	International Joint Master Degree in	Gifu University, Japan

				Food Science & Technology	
13.	Ms. Priyanka Vilas Korgaonkar	194162003	Chemical	International Joint Master Degree in Food Science & Technology	Gifu University, Japan
14.	Mr. Vineet Gajamer	194104224	Civil	Summer Internship	Carema Mediterranean, Aix-en-Provence, France

## ALUMNI AWARD 2020

The Alumni Award 2020 Ceremony was held online on 27.03.2021. This event was hosted by the Alumni and External Relations office of IIT Guwahati and assisted by the Student Alumni Interaction Linkage team of IIT Guwahati. The Director, IIT Guwahati, Prof. T.G. Sitharam attended the event as the Chief Guest. Prof Sitharam announced the winners of the awards. He also shared that the Institute has created the Alumni Portal for the Alumni to stay in touch. Further, the Director, IIT Guwahati shared the news that the issue of a Newsletter by the name of "IITG Alumni Newsletter" is underway, which will be devoted exclusively for highlighting alumni achievements and activities of the campus. Mr. Aman Mathur, the President of IIT Guwahati Alumni Association chaired the event as the Guest of Honour. The Dean, Alumni and External Relations and Associate Dean, Alumni and External Relations addressed the gathering. The winners shared their experiences at IIT Guwahati and expressed their gratitude to their alma mater for recognising their achievements and contribution to the Institute and Society as well.

The winners of IIT Guwahati Alumni Awards 2020 are:

- Mr. Ankit Nagori, Co-Founder CUREFIT, Bangalore
- Dr. Harpreet S. Dhillon, Associate Professor, Department of ECE, Virginia Tech, USA for Young Alumni Achiever Award
- The winner of the Outstanding Service Award for 2020, is Mr. Kiran Kumar Thota, Product Lead, Amazon AWS, President, PAN IIT USA

### Mr. Ankit Nagori

One of the most famed entrepreneurs in the Indian ecosystem today. Graduated from IIT Guwahati in 2008, Mr. Nagori started his first startup in the social network space – YouthPad. Based out of Gurgaon, he had heard of a company, Flipkart, which was gaining ground. He was ready to bite the bullet and joined Flipkart as manager, launched the fashion and electronics category, headed marketplace, and was instrumental in the acquisition of Myntra. In 2015, he was promoted to Chief Business Officer.



Notwithstanding his success at Flipkart, Mr. Nagori had a zeal to re-discover the path of entrepreneurship. He started Cure.Fit. The company started to disrupt the Healthcare space.

Throughout his immensely spectacular professional career of distinctive innovation in the field of healthcare spanning over a decade, Ankit Nagori and his startup has been an awardee of several accolades

- Digital Startup of the year 2019
- Featured in 40 under 40 list by Forbes Magazine 2016

### **Dr. Harpreet Dhillon**

Graduated with a degree in Electronics and Communication Engineering from IIT Guwahati in 2008, Dr. Dhillon found his interest in areas of wireless communications and networking. Hence went to pursue M.S. in Electrical Engineering from Virginia Tech, and Ph.D. in Electrical Engineering from the University of Texas. Currently, he is a tenured Associate Professor at Virginia Tech and has received numerous honours during these years.



He has contributed to the performance analysis of large-scale communication systems using advanced mathematical tools from the area of stochastic geometry. He has More than 160 publications in premier IEEE venues, including 80+ journal papers, and four patents.

Hence have received numerous highly prestigious technical awards Heinrich Hertz Award, Communications Society Young Author Best Paper Award, International Conference on Communications Best Paper Award and others in different years.

## Mr. Kiran Kumar Thota

Mr. Thota, the man of distinct vision and the foundation head of many epitomes for IIT Guwahati, be it Techniche, Alcheringa- the annual Techno-management and Cultural fests of IIT Guwahati or the IIT Guwahati Alumni Association.

He has represented IIT Guwahati at all forums including PanIIT USA and PanIIT Global and served as Board member, Chairman(Governance) and President there. Presently, he is President emeritus, PanIIT USA

PanIIT USA is a national organization with volunteer leaders nation-wide to promote brand IIT and provide Alumni Services.

Mr Thota has expanded PanIIT USA services to an alumni base to over 50,000. Crossed 20+ chapters, in multiple cities across the USA, defined and improved governance. As President, he conducted 65 events for alumni and built digital platforms and processes to scale up. As board member, acted as one of the Co-Chairs for PanIIT Global Conference, 2007 - largest ever in the US with over 3500 attendees. He has generated about 1million USD revenue for PanIIT USA through fundraising.

He was felicitated by PanIIT USA for his Outstanding Services.



## LAUNCH OF ALUMNI PORTAL

With a vision to connect with all the alumni around the globe, the Institute has created the Alumni Portal. The portal was launched in the month of March,2021 with the objective to remain committed in bridging the distance between alumni and the Institute. The Portal will form a perfect platform for the alumni to reconnect themselves with peers and the Institute and through it, alumni can also avail some facilities of the Institute.

## APPOINTMENT OF HONORARY FACULTY

Based on the approval of the 102<sup>nd</sup> Meeting of the Board of Governor dated 17.03.2020 for appointment of Honorary Foreign Faculty, the AER office, Indian Institute of Technology has awarded the position of Honorary Faculty to as many as 11 faculty members. The following faculty members from various prestigious foreign university, institute and organizations in various departments/centres at IIT Guwahati:

1. Prof. Anabel Ford, Humanities and Social Sciences
2. Prof. Ashok Mishra, Chemical Engineering
3. Prof. Brian C Lovell, Electronics & Electrical Engineering
4. Dr. Bruce Balentine, Linguistic Science & Technology
5. Dr. Jayanta B Sarma, Environment
6. Dr. Karl F Mac Dorman, Electronics & Electrical Engineering
7. Prof. Ken Ono, Mathematics
8. Dr. Raksh Vir Jasra, Nanotechnology
9. Dr. Rajiv V Joshi, Electronics & Electrical Engineering
10. Dr. W.S. Winston Ho, Chemical Engineering
11. Prof. Yuji Iwahori, Electronics & Electrical Engineering

On joining at IIT Guwahati, the Honorary Faculty member will get associated with the Regular Faculty member of IIT Guwahati, as nominated by the concerned Center. Both the faculty members will contribute in a planned manner in teaching of regular/specific subject/s in a semester in which the subject is being taught. The Honorary faculty may also contribute to the Institute's instructional program, invited lectures or research by advising students and helping to develop new courses/programs.

**LIST OF DISTINGUISHED/HONORARY/ADJUNCT/VISITING PROFESSOR AND PROFESSOR OF PRACTICE APPOINTED FOR 2 YEARS W.E.F. 22.12.2020**

**Distinguished Professor:**

<b>Sl. No.</b>	<b>Name &amp; Address</b>	<b>Department/Centre</b>
1.	Professor S. C. Sharma Director National Assessment and Accreditation Council (NAAC) Bangalore – 560072	Centre for Energy

**Honorary Professor:**

<b>Sl. No.</b>	<b>Name &amp; Address</b>	<b>Department/Centre</b>
1.	Professor Buddhima Indraratna School of Civil and Environmental Engineering University of Technology Sydney Broadway NSW 2007, Australia	Civil Engineering
2.	Professor Mojgan Jahanara Home, No Qods square Darband St., Mikhak Alley No 3 Tehran, Iran	Design
3.	Professor Peter Comba Institute of Inorganic Chemistry University of Hiedelberg 69117 Heidelberg, Germany	Chemistry

**Adjunct Professor:**

<b>Sl. No.</b>	<b>Name &amp; Address</b>	<b>Department/Centre</b>
1.	Professor Shinichi Sakurai Faculty of Fiber Science and Engineering Dept. of Biobased Materials Science Matsugasaki, Sayo-ku, Kyoto – 606-8585, Japan	Chemical Engineering
2.	Dr. Andreas Weber Westendallee 111 14052 Berlin Germany	Design
3.	Professor Paolo Gambino Departimento di Fisica Università di Torino Via P. Giuria 1 I-10125, Italy	Physics
4.	Professor Seunghun Julio Lee	CLST

	Psychology and Linguistics 3-10-2 Osawa, Mitka Tokyo 181-0015 Japan	
5.	Professor S. Ramesh Senior Technical Fellow General Motors Global R&D Warren, MI, USA	CSE

**Visiting Professor:**

<b>Sl. No.</b>	<b>Name &amp; Address</b>	<b>Department/Centre</b>
1.	Professor Geoffrey Michael Evans School of Engineering University of Newcastle Callaghan, NSW 2308, Australia	Chemical Engineering
2.	Professor Akio Ebihara Faculty of Applied Biological Sciences Gifu University 1-1 Yanagido, Gifu 501-1193, Japan	Chemical Engineering
3.	Professor Ajay K. Dalai College of Engineering University of Saskatchewan Saskatoon, SK, Canada S7N 5A9	Chemical Engineering
4.	Professor Yukari Nagai School of Knowledge Science, Japan Advanced Institute of Science and Technology 1-1 Asahidai, Nomi, Ishikawa 923-1292 Japan	Design
5.	Professor George van Driem Chair of Historical Linguistics Linguistics Institute, University of Bern Länggassstrasse 49 CH 3012 Bern, Switzerland	CLST
6.	Professor Sam P. de Visser The University of Manchester 131 Princess Street Manchester M1 7DN, United Kingdom	Chemistry
7	Professor Kallol Ray Humboldt-Universität zu Berlin Department of Chemistry Brook-Taylor-Strasse 2 12489 Berlin, GERMANY	Chemistry
8.	Professor Masaaki Nagahara University of Kitakyushu Kitakyushu, Fukuoka 802-8577, Japan	EEE

**Professor of Practice:**

<b>Sl. No.</b>	<b>Name &amp; Address</b>	<b>Departments /Centre</b>
1.	Dr. Seshu Bhagavathula Michael-Ott-Strasse-19, D 70771 Lienfeiden-Echterdingen, Germany	EEE
2.	Dr. P. J. van Duijsen Marketentster 84 2401 JH Alphen aan den Rijn	EEE
3.	Dr. Satya Gupta CEO & President Seedeyas Innovations Pvt. Ltd. No.643, 80 Feet Road, 4th Block, Koramangal Bangalore, Karnataka -560034	CSE
4	Dr. Taslimarif Saiyed CEO and Director Centre for Cellular and Molecular Platforms (C-CAMP) UAS-GKVK Campus, Bellary Road, Bangalore 560 065, Karnataka, India	Nanotechnology
5.	Dr. Satadal Saha Flat – 2 300 Jodhpur Park Kolkata – 700 068	Nanotechnology



## INFRASTRUCTURE DEVELOPMENT IN THE INSTITUTE

The Institute has been continuously developing since its inception. The development of infrastructure to meet the fast expanding ACADEMIC Activities along with accommodation facilities for the students as well as faculty members, officers and staff in the campus has been a great challenge. The Institute has been successfully implementing projects in order to fulfill all the requirements.

The following are ongoing projects in the Campus:

1. **Construction of Boys' Hostel-11:** There are presently ten hostels for boys accommodating about 5000 boys' students. In addition to this the 11<sup>th</sup> boys' hostel of capacity 1144 is under construction. The work was taken up in March 2015 at a total value of ₹. 9665.00 lakhs. Works of 580 rooms has been completed and are under occupation since Dec'2018. The work of Dining hall with kitchen has been completed and is in use. Remaining works of the building is expected to be completed by July 2021.

Note: Due to the Covid pandemic and lock down from March 2020 and invocation of Force majeure clause the progress of work could not be achieved as targeted.

2. **Expansion of academic complex Phase-V:** Extension of Departments is already completed. The development of Nano centre is also at the verge of completion.

Note: Due to the Covid pandemic and lock down from March 2020 and invocation of Force majeure clause the progress of work could not be achieved as targeted.

3. **Expansion of Academic Complex Phase-VI:** Under this phase, expansion works in the Centre for Education Technology (CET) and Centre for Instrumentation Technology (CIF) are taken up. The work comprises of two parts (i) upto G+4 for CET and (ii) above from 5<sup>th</sup> to 7<sup>th</sup> floor for CIF. The works have already been awarded for a value of ₹ 3665.00 lakhs in August, 2018 by UPRNNL to PSK Construction Co. Ltd. and the work was commenced from April'2019. The work is in progress and piling works has been completed and 80 % of Pile Cap work has been Completed. construction of ground floor Column is going on.

Note: Due to the Covid pandemic and lock down from March 2020 and invocation of Force majeure clause the progress of work could not be achieved as targeted.

**4. Construction of 160 units of F-type residential quarters:** In order to meet the requirement of residential quarters for the faculty members the Institute took up construction of F-type residential buildings. The present scope of work shall cover construction of 160-units of F-Type residential quarters in 4 blocks having 40 units in each tower having all basic amenities. It is a G+9 Storied building with 42.35m height. The approved cost of the project was ₹13686.01 Lakhs. The work has been awarded to M/s Uttar Pradesh Rajkiya Nirman Nigam Limited (UPRNNL). Total area of 5186.08 Sqm, was handed over to M/s UPRNNL on May, 2018. M/s UPRNNL after tendering allotted the work to M/s Badri Rai & Co, Duliajan(Assam). The execution of the work started on July, 2018. Foundation work of all four towers are completed and superstructure work is going on. The total progress achieved so far is 28%. The schedule date of completion of the towers is April' 2022. Due to outbreak of covid 19, the progress of work has been suffered. Now superstructure work upto G+5 floor is completed in tower 1 & 3. Construction of sample flat is almost completed.

Note: Due to the Covit pandemic and lock down from March 2020 and invocation of Force majeure clause the progress of work could not be achieved as targeted.

**5. Boundary wall Phase-V:** The work of 3.9km length wall has been completed on 31.12.2020.

**6. Dormitory for Guest House:** The building has been renamed as Transit accommodation 3 and it is planned to use the building for accommodation of project staff and student. The work is completed in March 2021 and handing over is under process.

**7. Research Park:** The Ministry of Human Resource & Development (Deptt. of Higher Education) on 03.10.2017, sanctioned for establishment of Research Park at IIT Guwahati. The MoE had allocated ₹ 7500.00 lakhs for the construction of the Research Park at IITG. The building has been planned with total built up area of 19663.00 sqm. This will house one Research Block of G+ 9 floors and an Office block of G+7 floors.

The first phase of construction work has been started with the following scope:

1. RCC superstructures of research block up to G+8 level and total superstructure of office block upto G+7 level.
2. Complete external finishes of both the blocks.

3. Complete internal finishing including electrical and HVAC of half part of research block upto G+6 level and ground floor of office block.

The structural framework upto G+6 level has been completed. The scheduled date of completion of the work is December 2022. Effort is made to complete at least two floors of the Research block ready by January 2022.

Note: Due to the Covit pandemic and lock down from March 2020 and invocation of Force majeure clause the progress of work could not be achieved as targeted.

**8. Electrical infrastructure:** At present Institute have one 33 /11 KV sub station with capacity of 17.5 MVA comprising of 1 X 7.5 MVA and 2 X 5 MVA transformers in the campus to provide power supply to the Academic Complex, hostels, residential area including other Institute Buildings. This 33KV sub station is connected from 132KV sub station of APDCL near the IITG Campus.

Institute have 10 numbers of 11KV distribution sub stations in various locations in the Campus through which the power supply is distributed to the entire Campus.

Considering the power requirement for various upcoming Academic Departments(BSBE) and other buildings such as Research park, Nano Technology Centre etc. one additional 11KV distribution sub station has been proposed for which the tendering process is under process and shall be completed this year.

**9. AC infrastructure:** Due to Rapid expansion IIT Guwahati academic complex augmentation of air conditioning system become essential. Today IIT Guwahati have two HVAC plants having total 3000TR capacity provide air-conditioning facility to most areas like whole academic complex, lecture hall complex auditorium, CCC, conference center, lecture hall complex, and library building etc.

In addition to this other types of air-conditioning like VRV air conditioning system (1050TR capacity) is an energy efficient AC system installed in various buildings to provide AC facility in buildings like NEW SAC, new guest house, Research building and estate office building.

Moreover, there are another 1000TR capacity of allied AC systems comprising of window splits Ductable ACs are also installed in admin building, central workshop, B-type community hall, Technology complex, old guest house and some labs in Academic complex.

In view of the growing Academic expansion, HVAC infrastructure facility is also considered for upgradation from time to time.

In view of the above demand, the Competent authority has approved in first phase to upgrade the HVAC central plant with 1 No. of 600 TR water cooled chiller to cater the AC load in the campus. Accordingly, tender for the work has been invited through e-tendering and LOI has been issued to the lowest bidder. The vendor has accepted to start the work at the earliest.

**10. Economically weaker section students' Hostel:** Presently there are two Girls' hostels of capacities 656 & 520 in the campus. As both the hostels are fully occupied, 88 nos. of rooms of a boys' hostel viz., Lohit Hostel have been allotted to the Girl students. With the increase in intake of girl students due to super numeric quota for Girls and EWS, Institute will have 1670 girl students. As such there will be a shortfall of 500 seats.

Fund for facilitating 10% Economically Weaker Section (EWS) in Central Educational Institutions has been sanctioned from the Ministry of Human Resource Development. As the Institute is in very urgent need of the Hostel, the Institute decided to use the EWS funds for the construction of a students' hostel of double seater rooms with common facilities to accommodate more students with the allotted EWS funds.

Estimate for ₹4528.00 lakhs has been approved. Accordingly, tender for the works has been invited by e tendering and allotment of the work is under process. As soon as the fund made available works will be allotted and work will be started.

## EQUAL OPPORTUNITIES

With a committee headed by a Chairman, a Member Secy. and four other members, the cell comprises a Liaison Officer and three administrative staff.

The Liaison Officer is to ensure enforcement of GoI orders of reservation in posts and services.

Unlike other years, this cell was unable to organize any training programme or observe any important days viz: International Day for Disabilities, etc. for Covid-19 issue. But here is a glimpse of the activities of the last one year i.e. 2020-21.

### **Complaints against Caste Based Discrimination**

This year there was only one case reported against caste based discrimination. There is a provision for online Complaints Registration Prevention of Caste Based

Discrimination in IIT Guwahati through intranet website (<https://intranet.iitg.ernet.in/cbd/>). In addition to that, for offline registration we maintain a Grievance Register for the same.

### **Orientation Meeting**

Orientation meeting via online mode (through Microsoft Teams) was held for fresher SC/ST/PWDs students both for UG & PG programmes of 2020 batch to acclimatize with the Institute activities/ life in campus.

## **IMPLEMENTATION OF SCHEDULED CASTES SUB PLAN (SCSP) AND TRIBAL SUB PLAN (TSP) IN IIT GUWAHATI**

### **Assistantship and their Extension**

"Assistantship and their Extension" under this programme assistantship is provided to those regular SC/ST/PwD Ph.D students who could not complete their PhD programme as per IIT Guwahati, norms but continuing the same. There are 28 & 16 beneficiaries from July 2015, December 2015 batches respectively.

### **Learning Equipment:**

Initiated procurement process of 139 (One hundred and thirty nine) new laptops (as an important learning equipment) to be distributed to the 2020 July batch undergraduate, MSc & MA (Development Studies) SC/ST/PWDs students under Scheduled Castes Sub Plan (SCSP) and Tribal Sub Plan (TSP) programme.

### **Book Allowances**

As per SCSP & TSP scheme Book Allowance is provided to SC/ST/PWDs undergraduate students, MSc & MA (Development Studies) in two sessions i.e. July-November & January-May @₹2500/- per session. But due to the ongoing pandemic Book allowance could not be provided for the session July-November, 2020. However, after consultation with the Chairman (EOcSRC) it was decided to club both the sessions and to provide an amount of ₹5000/- in January-May 2021 session. The process for this has already been initiated.

### **Rights of Person with Disability (RPwD) Act, 2016: Action taken by the Institute**

The main aim of this office is to help empower and equalize the persons with disabilities to those with normal students. The office ensures full participation of specially disabled students in the academic, intellectual, social and cultural life of the Institute. The Equal Opportunity cum Special Reservation Cell attends grievances from disable persons on priority and comply with the RPwD Act, 2016.

IIT Guwahati is extending all its best efforts to implement “Accessible India Campaign (Sugmaya Bharat Abhiyan)” launched by Ministry of Social Justice & Empowerment. Steps have been initiated by the Institute to achieve the goal of “Accessible India Campaign”.

IIT Guwahati complies with Rights of Person With Disabilities Act 2016 (RPwD Act, 2016), and in this reporting year based on recommendation of committee constituted to conduct accessibility audit in campus following infrastructural facilities were provided to Person with Disabilities(PwDs).

SL.	LOCATIONS	FACILITIES
1	Classroom complex	Lift, ramp with railing, PwDs friendly toilets
2	Conference Centre	Ramp with railing at the main entry
3	Courtyard between Core-II & III	Ramp for the difference in floor level
4	Lohit hostel	Ramp at the main entry
5	Manas, Kapili, Siang and Dihing hostels	PwDs friendly toilets, ramp at the main entry of Siang & Dihing hostels
6	New SAC building	Ramp at the main entry
7	Guest house no-1	Hydraulic lift from GFL to FFL (for PwDs only), Disembarkation area ramp
8	Old SAC building	Ramp at the main entry
9	Bus stand near Subansiri hostel ramp	Ramp for the difference in floor level
10	Research building	Lift, ramp with railing, PwDs friendly toilets
11	Guest house no-2	Lift, ramp with railing, PwDs friendly toilets

### **Internal Transport for PwDs Students**

The Liaison Officer in respect of SC, ST, OBC (non-creamy layer), PwDs & Minorities (MHRD) has taken steps especially for the PwDs students based on their requirement to arrange transport for their smooth movement in campus.

### **Guidelines for Conducting Written Examination for Persons with Disabilities**

On advice of this office the Academic Affairs Section issued a Notice in February 2019 on Guidelines for Conducting Written Examination for Persons with Disabilities as per Office Memorandum issued by Ministry of Social Justice Empowerment, Department of Disability Affairs.

### **Office Automation**

Initiated automation process in coordination with Computer & Communication Centre for effective handling of regular official works dealing with students/ employees. The process is under progress and expected to activate automation soon. This automation will facilitate to access/ maintain record of beneficiaries of assistantship to PhD students, scholarships, laptops and book allowance etc, and send group email in a systematic/ prompt/ manner to desired batch/s of students.

## STUDENTS' ACTIVITIES

### **CULTURAL BOARD**

The Cultural board of IIT Guwahati conducted various online events during the unprecedented times of the pandemic.

Alcheringa is the biggest cultural event in the entire North-East. This year Alcheringa 2021 celebrated its silver jubilee edition from 19-21 March, 2021. Due to the ongoing pandemic all activities and events were shifted to the online mode. A very interactive platform was used for the overall conduction of all the events. A throwback video was also released on this occasion to highlight the journey of Alcheringa since its inception 25 years ago.

Ministry of Education, Government of India initiated an interactive cultural exchange to celebrate the idea of India as a nation between Institutions of paired states across India. The objective is to enhance interaction & promote mutual understanding and to promote a sustained and structured cultural connect in the areas of language learning, culture, traditions & music, tourism & cuisine, sports and sharing of best practices. Assam is therefore paired with Rajasthan wherein the students of IIT-Guwahati and IIT-Jodhpur organized various online activities like Essay Competitions, Poster-making competitions along with hosting Webinars each month. Some of the eminent speakers who actively interacted includes Dr. Anwesa Mahanta, 'A' graded artist & Sattriya Dancer of Doordarshan, Padmashree Patricia Mukhim, Editor-in-chief, The Shillong Times, Dr. Shobhana Radhakrishna, Chief Functionary of the SCOPE Gandhian Forum for Ethical Corporate Governance, Padmashree Prof. Ravindra Kumar, former Vice-Chancellor of CGS University, Prof, Ram Dwivedi, former director of Gandhi Adhyanpith, Mr. Birad Rajaram Yagnik, curator for the Mahatma Gandhi Digital Museums at Hyderabad, Delhi, Johannesburg, and Pietermaritzburg to name a few. Faculty members from IITG Guwahati and other Institutions across the country also contributed to the interactive sessions.

### **SPORTS BOARD**

As in the preceding year all the offline NSO, SA, sports coaching classes as well as all the sporting activities were cancelled due to Covid-19 Pandemic, Gymkhana Sports of IIT Guwahati works to maintain physical fitness of our sports team and students through various online sports fitness classes. Although through online we tried to connect our students to the sports and tried to help them to maintain their general fitness way back at home.

During Pandemic Non credited academic course only (Yoga) was conducted for our students online for the period of 2020-2021.

Premiere League: - Cricket, Football, Badminton, Volleyball, Basketball, Hockey  
Premiere League was organized amongst the students & IITG community by maintaining all the Covid -19 protocol.

During Pandemic our Gymkhana Staff taken Cricket & Aquatics online class twice a week.



## **STUDENTS' WELFARE BOARD**

1. One student named of Mr. Abhijit Das (156101018) was recommended for Students' Travel Assistance Fund of ₹12,658 on 05.11.2020.

2. Two students, namely, Mr. Shekhar Raj (192241040) and Mr. Mohan Kumar (180101042), have taken Students' Brotherhood Fund Loan of ₹40,000 and ₹ 50,000 the financial year 2020-21.

3. Distributed food and water to the campus animals and ensured that adequate bowls for animals were kept at the various places of the institute during lockdown.

4. Apart from that, the welfare board has been actively engaged with various activities associated with promoting students' mental and emotional health throughout the pandemic time with the help of "center for holistic well-being" and online counselling platform like "YourDost".

5. Some major activities of institute counsellors of the "center for holistic well-being" included-

(i) Calling and finding out the status of backlog students during the lockdown and providing appropriate support.

(ii) Door to door checking the status of all the students who remained in the campus during the lockdown and providing appropriate support.

(iii) Calling and finding out the status of all the PhD students who returned to the campus in the in the initial phase.

(iv) Providing counselling services to the needy students including Covid positive cases.

(v) Online discussion session with students on World suicide prevention day (10th September) on increasing awareness about mental and emotional health during the pandemic.

6. Some major activities of the online counselling platform "YourDost" included-

(i) Online counselling to the needy students.

(ii) Two special webinars (one for the students and one for the faculty and staff members) were conducted to increase awareness about mental health issues during this pandemic and improve skills for coping with stress.

(iii) Frequent webinars and discussion sessions on various topics on mental health was conducted.

(iv) Frequent e-mails have been sent to students to increase their awareness about various issues ranging from personal, career, mental, and emotional issues from time to time.



## SCHOLARSHIPS

1. **Mr. Pranav Gupta**, Roll No. 180101058 & Ms. Shreya Goel, Roll No. 190102072 have been selected for prestigious Tower Research Capital Scholarship 2020. The scholarship amount is ₹ 2,00,000/- per student.
2. **Mr. Rupesh Yadav**, B.Tech., ME, 4<sup>th</sup> year, Mr. Harsh Govil, B.Tech. Electrical, 3<sup>rd</sup> year & Mr. Prasun Gourav, B.Tech., ME, 4<sup>th</sup> year have been selected for prestigious OPJEMS Scholarship 2020. The scholarship amount is ₹ 80,000/- for a year.
3. The following students are recommended for the Jadav Prasad Chaliha Award for Academic Excellence, Jadav Prasad Chalilha Merit-cum-Means Award & Jadav Prasad Chaliha Award for Differently Abled for the year 2020:

### A. Jadav Prasad Chaliha Award for Academic Excellence:

Sl. No.	Roll No.	Name	Course
1.	192121001	<b>Abhik Sarkar</b>	MSc, Physics
2.	192122026	<b>Papu Kalita</b>	MSc, Chemistry
3.	192123021	<b>Mohit Kumar</b>	MSc, M&C
4.	192241004	<b>Anindya Basak</b>	MA, Development Studies

### B. Jadav Prasad Chaliha Merit-cum-Means Award:

1.	192121013	<b>Himangshu Gupta</b>	MSc, Physics
2.	192122029	<b>Prantick Shaw</b>	MSc, M&C
3.	192123038	<b>Shubham Gupta</b>	MSc, M&C
4	192241006	<b>Areesha Khan</b>	MA, Development Studies

### C. Jadav Prasad Chaliha Award for the Differently Abled:

Sl. No.	Roll No.	Name	Course
1	190101063	<b>Raghav Gupta</b>	B.Tech

Due to current COVID struck environment, prestigious Aditya Birla Scholarship was skipped for the session.

## **STUDENT ACHIEVEMENT**

- Rajib Shome: Best Poster Award Defence Institute of Advanced Technology (DIAT), Pune Poster Title: D-penicillamine templated Au-Cu bimetallic nanocluster containing nanocomposite inhibits metastatic property of triple negative breast cancer] Citation Mr. Pratik Nag (PhD student) got selected for 'DBT sponsored BIRAC-National Biopharma Mission in association with Biotech Consortium India Limited Training program' for a hands-on training in 'Medical Device Prototyping' held at IIT, Kanpur from 13<sup>th</sup> – 17<sup>th</sup> January, 2020
- Kedar Sharma: COVID-19 Grand Challenge, May 2020 Cash prize of Rs. 10,000.00 for his idea on "Repurposing of FDA approved drug for targeting NEDD8 activating enzyme (NAE) of ubiquitination pathways to combat SARS-CoV-2 infection" in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park

- Tanmayee Samantaray: Poster presentation: Meta-Analysis of clinical Symptoms and Data driven Subtyping Approaches in Parkinson's Diseases The Brain Conference, Organizing Country: London, UK Type: International Conference Participant
- Kamal Shokeen "Deepika Phukan Oncology Research Grant Award" Dr. B. Barooah Cancer Institute Cancer Research Citation, Medal and Cash
- Sudhir Morla: COVID-19 Grand Challenge, May 2020 Cash prize of ₹ 10,000.00 for his idea on "Detection of SARS-CoV-2 using Ultrasensitive Magnetic nanoparticle DNA probe-based PCR assay" in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park
- Shambhavi Pandey: COVID-19 Grand Challenge, May 2020 Cash prize of ₹10,000.00 for her idea on "Possible therapeutic targets of SARS-CoV-2 Infection Cycle." in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park
- Dr. Dimple Chouhan: INYAS National Award 2020 for Research Excellence Indian National Young Academy of Science (INYAS) jointly supported by Indian National Science Academy (INSA). Best research with societal impact Cash award and citation
- Poulami Datta: Best Paper 5th International Conference on Bioenergy, Environmental and Sustainable Technologies" (virtual mode) organized by Arunai Engineering College, Tamil Nadu, India, January 29 – 30, 2021 "Suitability Evaluation of Surfactin Produced by Bacillus tequilensis MK 729017 for Enhanced Oil Recovery Applications" Certificate
- Aman Bhardwaj: International cooperative exchange program National institute of materials science MOU research proposal Fellowship
- Vivek Prakash: Among Top 20 ideas for Covid 19 Grand Idea Challenge IIT Guwahati with IIT Guwahati Research Park Research Idea
- Tasrin Shahnaz Best Poster SRM Institute of Science Technology Best Poster presentation Citation
- Vishnu Priyan V: Best Poster SRM Institute of Science Technology Best Poster presentation Citation
- Dr. Lightson Ngashangva: BIRAC-BIG grant (NE region) BIRAC, DBT, Govt. Of India For the proposal: Paper-based kits for onsite detection of methanol and formaldehyde ₹ 25 lakhs approved
- Dr. Sudarshan Gogoi: BIRAC-BIG grant (NE region) BIRAC, DBT, Govt. Of India For the proposal: A paper-based point of care test kit or detection of Pan Malaria and Plasmodium Falciparum Species in Human Blood Serum ₹ 25 lakhs approved
- Priyanki Das: Fourth prize in Talent Search Contest 2021 Guwahati Biotech Park and Assam Science Society Selected as fourth best Research proposal Trophy and Certificate with ₹ 30,000/- cash prize
- Seera Sai Dileep Kumar: Best M.Tech Thesis Award from Department of Chemical Engineering, IIT Guwahati (2020)

- Arpita Shome: Prof. G. Gopal Rao Centenary Young Scientist Award from Indian Chemical Society
- Angana Borbora: Research Excellence Award in the physical chemistry from Indian Chemical Society
- Arpita Shome: Sir C V Raman Award of Excellence from Indian Chemical Society
- Dipanjan Bhattacharyya: 1<sup>st</sup> Position for Poster presentation at International Conference organized by Indian Chemical Society from 26-29<sup>th</sup> December 2020
- Bikash Kumar Sarmah: 1<sup>st</sup> Position in Oral Presentation at International Conference organized by Indian Chemical Society from 26 – 29<sup>th</sup> December 2020 “Recent Trends in Chemical Sciences-2020”
- Eileen Yasmin: Consolation Poster Award for “Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design”, organized by NIPER Guwahati, 11<sup>th</sup>-17<sup>th</sup> January, 2021
- Amare Wibneh: Distinguished Paper Award at 8<sup>th</sup> International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay
- Jegyasu: Prime Minister's Research Fellows (PMRF) from MoE
- Nupur: Student grant in 12<sup>th</sup> IEEE ECCE Asia 2021 conference organized by National University of Singapore (NUS)
- Darpan Mishra: Best Paper Award Certificate at TENSYP 2020
- Niharika Baruah: Young Presentation Award in 9<sup>th</sup> International Symposium on Electrical Insulating Materials (ISEIM) at Waseda University, Tokyo, Japan
- Amita Ram Kulkarni: 1<sup>st</sup> Position- Research Project Presentation at National Human Rights Commission (NHRC)
- Mridutpal Sinharay: Hungarian State scholarship for Language and Culture summer courses in 2020 from Tempus Public Foundation, Hungary
- Sagar Pawar: CII MILCA GOLD AWARD at Confederation of Indian Industry (CII) - Institute of Quality
- Gireesh Sharma N: Best Paper Presentation at FLAME 2020, AMITY University, Noida
- Mukesh Kumar: Best Paper Presentation at 7<sup>th</sup> Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS), March, 2021, Tohoku University, Sendai, Japan
- Sudip Shyam: Most Popular article in Thematic Collection of Soft Matter
- Shashi Kant Ratnakar: Best paper presentation award at 2<sup>nd</sup> International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2020)
- Arnob Dutta: Prof. S. Rajeshwari Award at the International Conference on Biomedical Materials Innovation (ICBMI)- 2020, Bharathiar University, Coimbatore
- Dr. Basabendu Barman: Postdoc Fellowship at Universidad Antonio Nariño Bogotá, Colombia
- Dr. Indu Kalpa Dihingia: Best Thesis Award at IIT Guwahati
- Joydip Ghosh: Nanoscale Advances Oral Presentation Prize from Royal Society of Chemistry
- Jyotirmoi Borah: Best Poster Award at XXIV DAE-BRNS Symposium on High Energy Physics, 2020 organized by NISER, India

- Rajnandan Das: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India
- Samik Mitra: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India
- Sampreet Kalita: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India
- Jinat Aktar: Best Poster in 6<sup>th</sup> Int. Conf on Nanoscience and Nanotechnology (virtual) at SRM Institute of Science and Technology
- Poulami Dutta: Best oral presentation at Arunai Engineering College, Tamil Nadu, India
- Himadree Das: Prime Minister's Research Fellow (Lateral entry, May 2020 scheme) from MHRD, Govt of India
- Aniket Banerjee: Prime Minister's Research Fellow (Lateral entry, May 2020 scheme) from MHRD, Govt of India
- Sayantan Sinha: Member of the Royal Society of Biology (MRSB), London, UK
- Sayantan Sinha: Certificate of Honor for Best Research Paper Presentation from IIT Guwahati in association with Indian International Science Festival, GOI
- Sayantan Sinha: DST-BRICS Young Scientist Fellow from BRICS-YSF & DST, GOI
- Sayantan Sinha: InSc Research Excellence Award from Institute of Scholars
- Rajib Shome: Best Poster Award from Defence Institute of Advanced Technology (DIAT), Pune
- Ankit Chowdhury: Prime Minister's Research Fellowship from MHRD, Govt. of India
- Souradeep Dey: Prime Minister's Research Fellowship from MHRD, Govt. of India
- Kakali Borah: Prime Minister's Research Fellowship from MHRD, Govt. of India
- Nongmaithem Debeni Devi: Bioenergy-Awards for Cutting Edge Research (B-ACER) from Indo-U.S. Science and Technology Forum (IUSSTF) and Department of Biotechnology (DBT), Govt. of India
- Nongmaithem Debeni Devi: Visiting Research Scholar in University of Minnesota at University of Minnesota, USA
- Sukumar Purohi: Sandwich Program Student at GIFU University/ United Graduate School of Agricultural Science
- Pavitra Singh: Best Paper Award at International Conference on Thermal Engineering and Management Advances (ICTEMA-2020)

## FACULTY AND STAFF

The faculty strength at the end of March 2021 was 411. The number of non-teaching staff at the end of March 2019 was 515.

### FACULTY ACHIEVEMENTS

- Prof Utpal Bora: Top Cited Paper Award, 2020' as an author of one of the top 1% most-cited papers in materials published over the period of 2017-2019 for the publication "Electrospun silk-polyaniline conduits for functional nerve regeneration in rat sciatic nerve injury model, Suradip Das *et al* 2017 Biomed. Mater." by IOP publishing.
- Dr. Sachin Kumar: ICMR- Dr. J. B. Srivastav Oration Award. ICMR Virology Research Citation/Cash.
- Prof. Biman B Mandal: SWARNAJAYANTI Fellowship 2020 in Life Science Department of Science and Technology (DST), Govt of India Scientific excellence. Cash award and citation.
- Prof. Biman B Mandal: S. Ramachandran NATIONAL BIOSCIENCE AWARD for Career Development 2021
- Prof. Biman B Mandal: Department of Biotechnology (DBT), Govt of India Scientific excellence Cash award and citation. Dd
- Dr. Lalit M Pandey: Shastri Covid-19 Pandemic Response Grant (SCPRG) Shastri Indo-Canadian Institute Innovative Solutions titled "Nanoengineered Medicines for Treatment of COVID-19"
- Prof. Latha Rangan Elected Fellow Biotech Research Society of India (BRSI) Contribution in area of Plant Biotechnology Citation- Plaque
- Prof Latha Rangan: Council Member The Inter-Academy Panel for Women in STEMM 2021-2025
- Prof. Latha Rangan: Elected member Board of Governors BRSI 2021-2023
- Prof. Prabirkumar Saha: Elected as Fellow of Indian Institute of Chemical Engineers
- Prof. Mihir Kumar Purkait: Elected as Fellow of the Institution of Engineering and Technology (FIET), UK (2020)
- Prof. Mihir Kumar Purkait: Elected as Fellow of West Bengal Academy of Science and Technology (FAScT) 2021
- Prof. Mihir Kumar Purkait: Elected as Fellow of Indian Institute of Chemical Engineers (IChE) (2020, LF-19472)
- Prof. Mihir Kumar Purkait: Elected as Fellow of Indian Desalination Association (FIInDA) 2021
- Prof. Mihir Kumar Purkait: Received the Abdul Kalam Technology Innovation National Fellowship (2020) from the Indian National Academy of Engineering (INAE)
- Prof. Mihir Kumar Purkait: Invited as Expert Consultative Committee (ECC) member of "Waste to Wealth" Mission under Prime Minister's office (PMO), New Delhi, 2021

- Prof. Mihir Kumar Purkait: Elected as PAC member of Department of Biotechnology (DBT), Govt. of India, 2020-2022
- Prof. Mihir Kumar Purkait: Invited as Expert in Faculty selection committee, IIT Roorkee, Feb (2020) and March (2021)
- Prof. Tamal Banerjee: Elected as Fellow of Royal Society of Chemistry (FRSC) (2021)
- Prof. Tamal Banerjee: Elected as Editorial Board Member of Fluid Phase Equilibria (2020), Elsevier
- Dr. Subhendu Sekhar Bag: Elected as Chartered Chemist (CChem) by Royal Society of Chemistry, London, UK
- Dr. Subhendu Sekhar Bag: Received the Global Faculty Award 2020 (GFA20IN0767) from AKSEducation Awards AKS Worldwide Pvt. Ltd.
- Dr. Subhendu Sekhar Bag: Received the Dr. A. P. J. Abdul Kalam Lifetime International Award from IRDP Group of Journal
- Dr. Subhendu Sekhar Bag: Received the Quarterly Franklin Membership (ID#RA87720) from the Editorial Board of London Journals Press
- Prof. Bhubaneswar Mandal: Awarded Life Fellow of Chemical Research Society of India
- Prof Subhas Chandra Pan: Invited to the Editorial Advisory Board of Journal of Heterocyclic Chemistry, Wiley Publishers, Germany
- Dr. Manabendra Sarma: Selected as the Fellow of the Royal Society of Chemistry (FRSC)
- Dr. Uttam Manna: Invited as the Fellow of the Royal Society of Chemistry (FRSC)
- Dr. Uttam Manna: Received the Humboldt Research Fellowship from the The Alexander von Humboldt Foundation
- Dr. Uttam Manna: Invited as Editorial Advisory Board Member of Materials Horizons, RSC
- Dr. Uttam Manna: Awarded the Emerging Investigator by Nanoscale
- Dr. Uttam Manna: Awarded Life Fellow of Indian Chemical Society
- Dr. Akshai Kumar A S: Selected as Member of Indian National Young Academy of Sciences (IN-YAS), Indian National Science Academy 2021-2026
- Dr. Akshai Kumar A S: Found mention in "*The list of Indian chemists making ACS great*"
- Prof. Hemant B Kaushik: Invited as a Fellow of Institution of Engineers (India) since 2020.
- Prof. Hemant B Kaushik: Received the Best Paper Award in the theme "Concrete and Masonry Structures" at the International Conference on Materials, Mechanics and Structures 2020 (ICMMS2020) organized by National Institute of Technology Calicut, India
- Prof. Sudip Talukdar: Received the Best Research Paper Award at the International Conference in Futuristic Technologies, IIT Delhi
- Dr. Arindam Dey: Invited as Member of the Expert Committee for Capacity Building and Training on Geospatial Science and Technologies (Summer-Winter School)
- Dr. Arindam Dey: Invited as *Member of the Scientific Committee at 3<sup>rd</sup> Conference of the Arabian Journal of Geosciences (2020).*



- Dr. Arindam Dey: Invited as *Member of Executive Committee at Australia-India Water Center (2020-until date)*.
- Dr. Arindam Dey: Invited as *Member at National Committee on Initiative for Geotechnical Research and Innovative Practice (iGrip)* from 2020 until date
- Mr. Pankaj Upadhyay and Prof. Ravi Mokashi Punekar: Received the Distinguished Paper Award at the 8th International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay
- Dr. Shakuntala Acharya: Received the Distinguished Paper Award at the 8th International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay
- Dr. Chayan Bhawal: Received the Award for Excellence in Ph.D. Research from IIT Bombay
- Prof. Siddhartha Pratim Chakrabarty: Awarded the Scholarship Scheme for Faculty Members from Academic Institutions-2020 from the Reserve Bank of India
- Prof. Sukanta Pati: Invited as the Editor of Journal Proceedings Mathematical Sciences, volume 230
- Prof. Sukanta Pati: Invited as the Editor of Journal Linear and Multilinear Algebra, volume 68
- Dr. Rajiv Tiwari: Invited as the Associate Editor of Journal of Vibration and Control
- Dr. Shubhadeep Mandal: Received the Young Scientist Award from Indian Society of Theoretical and Applied Mechanics
- Dr. Pranab Kumar Mondal: Soft Matter Most Popular 2020
- Dr. P. Muthukumar: Invited as the Guest Editor of Solar Energy (Elsevier)
- Dr. P. Muthukumar: Appeared in the World's Top 2 % Scientist in 2020 at Stanford University, USA 2020
- Dr. P. Muthukumar: Received the BIRAC-Innovation Challenge Award-SoCH 2020-21 from Department of Biotechnology, Govt of India
- Dr. S. Kanagaraj: Invited as Guest Faculty at NIPER Guwahati
- Dr. S. Kanagaraj: Invited as the Expert committee member for formulating a course on M.Tech Medical Device at NIPER Guwahati
- Dr. S. Kanagaraj: Appointed as Chairman, Early Translation Accelerator (ETA) Expert Committee, BIRAC
- Dr. Debasish Borah: Received the Young Scientist Medal from Indian National Science Academy (INSA)

## INSTITUTE EXPENDITURE

The details of expenditure (provisional) during the year 2020–2021 are as follow (in crores):

Revenue expenditure	: 335.84
Capital	: 35.07
R&D	: 126.97
Total Expenditure	: 497.88

## CAMPUS PLACEMENT

The placement scenario of the Centre for Career Development at IIT Guwahati for the year 2020-21 has been impressive so far. A total of 140 companies/organizations from various categories [*Private, MNC (Indian origin and Foreign origin), Govt., PSU, NGO, etc.*] and sectors (*Sector wise- IT, R&D, Core Engineering, Consulting, Analytics, Finance, Oil & Gas, Educational, etc.*) participated in the virtual recruitment process.

The total no. of registered students for virtual campus placement in the year 2020-21 is 1200 students.

The overall placement of B.Tech and B.Des students is 75.85%. For B.Tech and B.Des., number of total job offers is 443 out of 584 students. An average package offered for B.Tech. and B.Des. students is ₹ 21.35 Lakhs per annum (treated as CTC).

The overall placement of M.Tech. and M.Des. students is 43.53%. For M.Tech. and M.Des., number of total job offers is 212 out of 487 students. An average package offered for M.Tech. and M.Des. students is ₹ 17.92 Lakhs per annum (treated as CTC).

For M.Sc. programs, 11 (Mathematics -11) students have been placed out of 62 registered candidates.

For M.S.R. program, 2 students have been placed out of 8 registered candidates.

For M.A. programs, 17 students are placed out of 38 registered candidates.



Overall placement of all programs (B.Tech. & B.Des., M.Tech. & M.Des., MSc, MSR, MA, PhD) is **57.08%**.

The branch-wise placement details are:

**UG (B.Tech. & B.Des.)**

<b>Academic Programme</b>	<b>No of Students Registered</b>	<b>No of Students Placed</b>	<b>% of Students Placed</b>
CSE	83	78	90.97
ECE	75	68	90.66
EEE	41	34	82.92
ME	71	58	82.92
CE	53	25	47.16
BSBE	49	28	57.14
CL	59	40	67.79
EP	22	13	59.09
CST	39	29	74.35
MNC	56	48	85.71
DOD	36	22	61.11
<b>Overall</b>	<b>584</b>	<b>443</b>	<b>75.85</b>

**PG (MTech. & M.Des.)**

<b>Department</b>	<b>No. of students Registered</b>	<b>No. of students placed</b>	<b>% of students placed</b>
BSBE	38	2	5.26
CE	85	20	23.52
CL	68	7	10.29
CSE	54	53	98.14
DD	33	32	96.96
EEE	75	47	62.66
ME	105	34	32.38
Interdisciplinary (Data Science)	18	16	88.88
Rural Technology(CRT)	11	-	-
<b>Total</b>	<b>487</b>	<b>212</b>	<b>43.53</b>



## **PART II**

### **ACADEMIC DEPARTMENTS**

Biosciences and Bioengineering  
Chemical Engineering  
Chemistry  
Civil Engineering  
Computer Science and Engineering  
Design  
Electronic and Electrical Engineering  
Humanities and Social Sciences  
Mathematics  
Mechanical Engineering  
Physics

### **ACADEMIC CENTRES**

Centre for Energy  
Centre for the Environment  
Centre for Linguistic Science and Technology  
Centre for Nanotechnology  
Centre for Rural Technology

### **EXTRAMURAL CENTERES**

Central Instruments Facility  
Lakshminath Bezbaroa Central Library  
Centre for Education Technology



### LABORATORIES FACILITIES

- **MAB (Mechanistic Approaches to Biology) Lab (Dr. B. Anand):** The current focus of our vibrant research group is directed towards addressing fundamental and important questions in the area of RNA biology by employing an eclectic mix of modus operandi that is drawn from biochemical, biophysical, computational and molecular genetics approaches. Our immediate obsession is to resolve the mechanistic questions pertaining to CRISPR Biology and Ribosome Biogenesis.
- **BERL (Bioengineering Research Laboratory) (Prof. Utpal Bora):** The research interests of this laboratory include Biomedical Engineering, Seri-biodiversity, Seri-bioinformatics and Bio-entrepreneurship.
- **Molecular Networks and Recombinant Therapeutics (Dr. Biplab Bose):** The lab is interested in understanding the inter-connected cellular communication systems. Particularly, the lab is interested to know the effect of architecture, kinetics and integration of the molecular pathways on vital cellular processes. The lab uses experimental as well as theoretical tools to understand how information is carried and processed in such signaling networks. The lab is also involved in developing molecules that can target particular signal transduction pathway. Such a molecule can be used to modulate an aberrant pathway involved in a particular disease.
- **Dr. Pranjal Chandra lab:** The lab is interested to combine biotechnology, nanotechnology, material science, and electroanalytical chemistry, approaches to address problems of biomedical significance, human health, and environmental monitoring. Specifically, the lab is interested to develop novel and commercially viable bioanalytical methods for diagnostics applications. The major research work is focused on: (i) Clinical Diagnostics (Cancer cells, DNA, RNA, bio-markers) using electroanalytical methods such as cyclic voltammetry, chronoamperometry, impedance spectroscopy, (ii) Nano-biosensors (*Aptamer, antibody, enzyme*) based biological phenomenon investigation, (iii) Porous silicon based label free self reporting optical nanosensors, (iv) Microfluidics and Nanomachines.
- **Plant Tissue Culture & Secondary Metabolite Production Lab (Prof. Rakhi Chaturvedi):** The tree species with long generation cycle are mostly highly heterozygous in nature due to strict cross pollination and are considered to be recalcitrant (difficult to regenerate in vitro). The genetic improvement of these plants and development of homozygous lines (pure) is either very challenging or impossible using the conventional methods, because the cross pollination is a rule. This limitation has completely been overcome by the research group of Dr Chaturvedi while working on two complex tree species, *Neem (Azadirachta indica)* and *Tea (Camellia species)*. Prof. Chaturvedi's laboratory has also involved in developing Plant Cell Culture Technology as an alternative to whole plant extraction for the production of secondary metabolites of medicinal and commercial values. Although these compounds can also be isolated from naturally grown whole plants, continued destruction of plants for the purpose may pose a major threat to species getting extinct. Her research group is able to identify, purify and isolate three main categories of bioactive metabolites: essential oils, coumarins and alkylamides, from in vitro elite cell lines of medicinal plants. Some of these compounds are complex triterpenoids which are difficult to synthesize chemically. The focused research work in the laboratory are: (i) Mass multiplication by micropropagation/clonal propagation of medicinally and economically valuable plants, (ii) In vitro haploid and doubled haploid plant production to generate homozygous (pure) lines to produce hybrid vigour for improved plant yield, (iii) Triploid plant production to develop seedless variety, (iv) Somatic embryogenesis for synthetic seed production, (v) Protoplast isolation and regeneration for single cell cloning and

isolation of mutants, (vi) Cytological and Histological studies of in vitro raised cultures to understand their ploidy, development and origin (vii) Cell biomass production in shake-flask for screening, characterization and quantification of medicinally and commercially useful plant metabolites and their scale-up in photo-bioreactors

- **Biophysical Chemistry Lab (Dr. Nifin Chaudhary):** The laboratory focuses on understanding the molecular self-assembly and amyloid diseases, protein/peptide membrane interactions, and developing peptide based antibiotics.
- **Bioprocess Development Lab (Dr. Debasish Das):** Bioprocess Development Lab majorly focuses on developing and demonstrating sustainable technologies towards renewable fuels. We are currently working on developing sustainable technologies towards biocrude production from microalgal isolates, butanol production from *Clostridium* sp, ethanol fermentation from adapted *Z. mobilis* strains. We have ventured towards plant tissue culture and demonstration on a pilot scale facility with industrial collaboration.
- **Prof. V. V. Dasu lab:** The laboratory focuses on Bioprocess development (upstream to downstream), metabolic engineering, and bioenergy.
- **Prof. Siddhartha Sankar Ghosh lab:** The laboratory focuses on development of new generation gene therapy vectors. This mainly includes development of suicide gene therapy for cancer. The lab has also set up infrastructure facilities for interdisciplinary collaborative research in the field of nanoscience and nanotechnology supported by extramural funding at the Centre for Nanotechnology, IIT Guwahati. The major area is to develop new nanoparticles, nanocomposites and nanocarriers and evaluate their antimicrobial and anticancer activities. The lab is perusing research to understand molecular mechanisms of nanoparticle mediated cell cytotoxicity. Other areas, such as, bioimaging using C-dots, metal nanoclusters, gene delivery using quantum dot embedded nanocarriers are also being pursued. The lab is also interested in understanding the molecular pathways involving drug resistance.
- **Biosensor and Biofuel Cell Research Lab (Prof. Pranab Goswami):** The lab is involved in the development of novel bio-recognition system and their applications for developing biosensors and biofuel cells. DNA aptamers, catalytic as well as non-catalytic proteins have been investigated as biorecognition elements for some clinical applications targeting to operate in point-of-care and resource limited environments. Focus has been given on the rapid detection of acute myocardial infarction (AMI), cholesterol, alcohol, bilirubin and malaria due to their obvious importance in diagnostic sector.
- **Prof. Arun Goyal Lab:** The lab research interests include Molecular Biology, Protein Engineering, Rational Enzyme Engineering, 3-Dimensional Structure (In silico, crystal and solution) and Function analysis of enzymes and their industrial (Biorefinery, therapeutic, food, Pulp and paper) applications.
- **Neural Engineering Lab (Dr. Cota Navin Gupta):** Broadly the research lab's current focus is in the areas of brain computer interfaces, imaging genetics for psychiatric disorders, multimodal/multivariate algorithm development and designing wearable medical solutions for patient mobility.
- **Stem Cell and Cancer Biology Group (Dr. Bithiah Grace Jaganathan):** The current focus of the research group is to understand the role of mechanotransduction in stem cell differentiation and cancer metastasis. The group also studies various signaling pathways and microenvironment mediated chemoresistance in leukemia and breast cancer.

- **Structural and Computational Biology Laboratory (Dr. Shankar Prasad Kanaujia):** The lab uses the knowledge of various techniques such as molecular biology, structural biology (X-ray Crystallography) and biophysical and biochemical studies to understand the mechanism of different biological functions. In addition, the lab applies the molecular dynamics simulations to further corroborate the results obtained from various experiments. Currently, the lab is focusing on investigating into the mechanisms involved in protein translation initiation, ABC transporters and their role in multidrug resistance.
- **Molecular Microbiology Laboratory (Dr. Manish Kumar):** The research interests of the lab include (i) Molecular interaction of host-pathogen-vector of infectious diseases, (ii) Gene expression analysis of Spirochete, *Leptospira interrogans* and *Borrelia burgdorferi*, (iii) Development of vaccine against outer membrane protein of *Leptospira interrogans* and *Borrelia burgdorferi*, and (iv) Vector borne diseases of Zoonotic importance.
- **Viral Immunology lab (Dr. Sachin Kumar):** The paramyxoviruses include viruses that are isolated from many species of terrestrial, avian and aquatic animals. The group includes many important pathogens of humans such as measles virus, human respiratory syncytial virus, human parainfluenza viruses, Nipah virus and Hendra virus and animals such as canine distemper virus and Newcastle disease virus. Newcastle disease virus (NDV) is the prototype member of this family and is a leading cause of respiratory disease in avian species. It leads to huge economic losses to the poultry industry in India. The laboratory focuses mainly on understanding the biology of avian paramyxovirus and development of vaccine against them using reverse genetics system.
- **Cancer Biology Laboratory (Prof. Ajaikumar B. Kunnumakkara):** The research interests of the lab include (i) Role of inflammatory pathways in cancer development, (ii) Identification of novel biomarkers for cancer diagnosis and prognosis, (iii) Cancer drug discovery, and (iv) Development of transgenic and gene knockout mouse models for biomedical research
- **The Molecular Endocrinology lab (Dr. Anil Mukund Limaye):** The laboratory focuses on the following research themes: (i) Hormone regulation of gene expression, (ii) Role of estrogen in breast tumor invasion and metastasis, (iii) Regulation of cystatin A expression and its role in breast cancer, (iv) HoxB2 in breast cancer, (v) GPR30/GPER-1 biology, (vi) Mechanisms of anticancer activity of EGCG, (vii) Karanjin and its biological effects
- **Dr. Soumen Kumar Maiti Laboratory:** The research interests of the lab include Biochemical Engineering, Biofuel, Bioprocess modeling, control, optimization, Metabolic engineering, Downstream processing, Membrane separation, Bioremediation
- **Biomaterial and Tissue Engineering laboratory (Prof. Biman B. Mandal):** Tissue engineering has emerged as a potential way to regenerate and treat tissue damage or organ failure as a result of injury or disease. Our laboratory "Biomaterials and Tissue Engineering Laboratory", a DBT-Unit of Excellence, majorly focus on using silk biomaterials for developing affordable lab grown tissue/organ replacements for human transplantation. The lab research is directed towards the following areas of importance i.e. Cell Based Tissue Engineering of Grafts and Implants, Stem Cell Based Regenerative Medicine, Biomaterials, 3D Bioprinting, Drug Delivery Systems, 3D In Vitro Disease Models.

- **Organelle Biology and Cellular Ageing Lab (Dr. Shirisha Nagotu):** The lab focusses on understanding the biogenesis of organelles and the inter-organelle communication within a cell. The lab tries to understand the effect of ageing on organelle biology and the role of organelles in cellular ageing.
- **Prof. Kannan Pakshirajan's laboratory:** The research interests of the lab are Environmental Biotechnology, Biological removal and recovery of inorganic compounds from wastewaters, Biofuels and other Biotechnological Products: production, process design, kinetics and environmental applications.
- **Bio-interface & Environmental Engineering Lab (Dr. Lalit Mohan Pandey):** The laboratory focuses on the following research aspects: (i) Surface and interfacial science particularly in the area of Bio-interfaces and Biomaterials (Design of Biocompatible surfaces): The surfaces are modified using various Self-Assembled Monolayers (SAMs) and their interactions with water, bio macromolecules i.e. polymers, proteins and cells are studied, (ii) Protein's adsorption and aggregation: The lab investigates the adsorption behavior and properties of various adsorbed proteins on surfaces with different wettabilities by forming mono, mixed and hybrid SAMs. The role of surface chemistry at the nanometer scale on aggregation of various therapeutic proteins is studied, (iii) Environmental Biotechnology: The lab focuses on 3Rs. Reduce waste generation, recycle the treated waste and reuse waste as by-product or recover energy from the waste.
- **Enzyme and Microbial Technology Laboratory (Prof. Sanjukta Patra):** The EMT research group studies the microbes and their applications in different spectrums of Metagenomics, Industrial Microbiology, Extremophiles, Environmental Biotechnology, Disease Therapeutics and diagnosis
- **Prof. Aiyagari Ramesh laboratory:** Biocompatible hydroxyapatite-based nanocomposites have been generated using secreted proteins of probiotic lactic acid bacteria (LAB) as biomineralization scaffolds. The antibiotic loaded nanocomposites exhibited bactericidal activity against *Pseudomonas aeruginosa* biofilm. A gastric fluid tolerant bacteriocin-loaded nanocomposite was generated as an antiadhesion agent to reduce *in vitro* colonization of intestinal cells by pathogenic bacteria and support adhesion of beneficial probiotic LAB. In another research endeavor, low molecular weight synthetic amphiphiles having multimodal chemistry have been rationally designed to promote interaction with staphylococcal lipoteichoic acid and facilitate metal sequestration. The amphiphile could render a profound effect on cell growth and metallophore gene expression in methicillin-resistant *Staphylococcus aureus* (MRSA).
- **Molecular Informatics and Design Group (Prof. Vibin Ramakrishnan):** Molecular Informatics and Design Group integrates diverse disciplines of science and engineering in the design and development of advanced materials. The lab's approach to a research problem is 'idea centric' with a clear emphasis on the design phase, adopting modeling and informatics tools. The lab experiments a reductionist approach in understanding the interaction between molecules resulting in assembled architectures at nano and micro scale, and further employ it in the design of future materials. An information based modeling approach has been employed in the design and generation of tumor homing and cell penetrating molecules to test their efficacy as future drug delivery vehicles.
- **Applied Biodiversity Laboratory (Prof. Latha Rangan):** The group tries to address the research questions in areas of Applied Biodiversity with special reference to bioresources of Northeast India using an integrative approach.



- **Translational Crop Research Laboratory (Prof. Lingaraj Sahoo):** Pathogens, insects and abiotic stresses cause major losses in yield and quality of crops. The discoveries in basic plant research play a vital role in meeting these challenges by developing technologies to improve agriculture by introducing important traits to crop of interest. The lab employs integrated approaches to identify genes with significant agronomic impact in both model (*Arabidopsis*) and crops (grain legumes and oil seeds), understand the mechanism by which they function and using this knowledge, develop designer crops for diverse plant abiotic (drought, salinity and nutrient deficiency or toxicity) and biotic (viral and insect) stress conditions, useful for growers, industry and consumers. Besides, the lab is working on biofortification in Asiatic grain legumes for healthcare applications and manipulation of key oil biosynthesis genes yield in *Jatropha*, a tropical perennial biofuel crop to improve oil quality and oil.
- **Prof. Gurvinder Kaur Saini laboratory:** The laboratory works in fungal biotechnology. The various aspects that are studied include (i) secondary metabolite production, (ii) development of hyper virulent strains of *Metarhizium anisopliae* and *Beauveria bassiana* using scorpion and spider neurotoxins, (iii) gene stacking in entomopathogenic fungi.
- **Computational Structural Biology laboratory (Dr. Priyadarshi Satpati):** Working in the area of biomolecular interactions using computational methods (e.g, Molecular Dynamics, Electronic Structure Calculations). We are mainly interested in understanding accuracy in biological processes, including ligand binding (MTB selective drug design), protein-protein (DJ-1 dimerization and Parkinson's disease), protein-DNA (DNA recognition by *spo0A* during transcription) and Protein-RNA (release factor binding to mRNA), RNA-RNA (Group II introns) interactions, viral RNA recognition by RIG-I etc.
- **Bio Process Analytical Technology (BioPAT) Laboratory (Dr. Senthilkumar Sivaprakasam):** The lab develops PAT technology for recombinant therapeutic proteins and value added compounds such as biopolymers, organic acids etc. PAT is defined as 'System for designing (process development), analysing and controlling manufacturing process, based on timely measurements of critical quality and performance attributes of raw material, in process materials and processes with the goal of ensuring final product quality'. PAT methodology envisages the identification of Critical Process Parameters (CPPs) and Critical Quality Attributes (CQAs) for every process. The CPPs are the indication of the overall reliability that a process proceed in the desired direction. Therefore, their monitoring and control establishes the uniform product quality. 'Quality by design' in the PAT emphasizes that monitoring to be accomplished not only during the process, but should begin from raw material characterization, its processing, upstream process, product recovery, downstream process and till the polishing step. Therefore, this reduces the much effort emphasized by regulatory authorities on ensuring quality.
- **RNA Binding Proteins Laboratory:** The laboratory focuses on the RNA-binding proteins that are involved in the splicing machinery. During splicing of premature mRNA, the spliceosome deposits a multiprotein complex termed exon-junction complex (EJC) onto the mRNAs. The subunits that form the core EJC are eukaryotic translation initiation factor 4A3 (eIF4A3), Y14, MAGOH and barentsz (BTZ, CASC3, and MLN51). Many proteins interact with the core EJC and our focus of study is a protein complex termed as Apoptosis- and Splicing-Associated Protein (ASAP). Components of both ASAP and EJC have been found to function in a wide range of activities pertaining to RNA metabolism including splicing, translation, nonsense-mediated mRNA decay (NMD) and apoptosis. We are currently focusing on the following research areas: Understanding the functions of ASAP with respect to EJC in mRNA metabolism. Elucidating the molecular involvement of RNA-binding proteins (RBPs) in various human

diseases such as cancers, neurodevelopmental disorders. Exploring the post-transcriptional gene regulations of different RBPs.

- **Protein Biophysics Lab (Prof. R. Swaminathan):** The main research focus in this lab is to investigate the structure, function and dynamics of proteins using spectroscopic techniques like UV-Visible spectroscopy and Fluorescence spectroscopy. Intrinsic electronic absorption and luminescence spectra in proteins originating from photoinduced electron transfer and charge recombination, respectively are actively studied. These novel spectra discovered in our lab are employed to monitor events like protein folding or aggregation in a label-free approach.
- **Calcium signaling laboratory (Dr. Ranjan Tamuli):** We are interested to understand the molecular mechanism of calcium signaling pathway using the model filamentous fungus *Neurospora crassa*. Calcium ion is a universal second messenger molecule that impacts almost all cell processes in eukaryotes. We hope to extend our research to understand the role of calcium signaling in memory, learning, and other related areas in future
- **Laboratory for Stem Cell Engineering and Regenerative Medicine (Dr. Rajkumar P. Thummer):** Autologous cell-based therapy is a promising alternative to achieve repair or regenerate damaged cells and/or tissue without any immune rejection. Our laboratory "Stem Cell Engineering and Regenerative Medicine", mainly focuses on generation of human cells using safe, integration-free reprogramming approaches to derive clinical-grade cells for transplantation. The outcome of our research will bring patient-specific cell therapy closer to clinic for treatment of various debilitating.
- **Malaria Research Group (Prof. Vishal Trivedi):** The research interests of the lab include Anti-malarial Drug Discovery, Immunotoxicity studies in Macrophages, Regulation of Innate Immune Response, Endothelial Cells-RBC cytoadherence during Cerebral Malaria, Designing immunostimulatory and Anticancer agents.
- **Dr. Selvaraju Narayanasamy Lab:** The research interest of the lab include Environmental Biotechnology, Bioprocess Engineering, and Biochemical Engineering.
- **Biomechanics and Simulations lab (Dr. Souptick Chanda):** The Lab is primarily engaged in design and optimization of various orthopaedic implants based on in vitro and in silico biomechanical testing/validations. Simulations for surgery and patient examinations training are also being envisaged at this laboratory.
- **Computational lab:** The computational lab is used for carrying out the Bioinformatics and Computational Biology Lab, a lab courses of the B. Tech. curriculum.
- **Experimental Teaching laboratory:** The laboratory is used to conduct the experimental course of the B. Tech. and M.Tech. curriculam.

#### **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

Synopsys™ Simpleware Medical Imaging Software, Peristaltic pump

#### **MAJOR AREAS OF RESEARCH AND DEVELOPMENT**

Cell signaling, Systems Biology, Plant Tissue Culture & Secondary Metabolites Production, Protein Biochemistry, Molecular Biology, Immuno Parasitology, Biofuel, Biochemical Engineering, Tissue Engineering and Biomaterials, Stem Cell Biology, Cell Therapy & Regenerative Medicine, Organelle Biology, Inter-organelle Communications, Cellular Ageing, Bio-interfaces and Biomaterials, Environmental Biotechnology, Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors, Stem cell engineering and regenerative medicine, Molecular Parasitology, Computational Biology, Plant Biotechnology, RNA Biology, Structural

Biology, Fungal Biotechnology, Molecular Endocrinology, Enzyme and Microbial Technology, Metagenomics, Environmental Biotechnology, Biosensors, Systems Biology, Bioprocess Engineering, Cancer Biology, Bio/Physio Sensors and Nanobioengineering, Biosensors and bio-fuel cells, Neural Engineering. Network medicine, Bio-Nano catalysis, Drug delivery vehicles, Preparation of polypyrrole embedded nanocellulose and surfactant (CTAB) modified carbon adsorbent for efficient elimination of azo-anionic dyes. Elimination of pharmaceutical wastes viz. antibiotics using carbon and grass based nanocellulose adsorbents. Phyto, microbial and fish toxicity studies for ecotoxicological assessment of the prepared adsorbents to understand its significance in eliminating pollutants from aqueous bodies, Biomechanics, Soft computing, Artificial intelligence, Machine learning, Implant design

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

1. **Initiatives of DBT programme Support:** Faculty members (Professors Ghosh, Goswami, Bose, Sahoo and Ramesh) involved in DBT Program Support Phase –II project at the Department of Biosciences and Bioengineering, received another major project support from the DBT India on “Translation research programme for developing diagnostics and nano-based sensors”. This multidisciplinary programme was formulated based on the major leads of the existing DBT Programme Support project. Besides manpower training and basic research, this new project is aimed to develop sensors and Transfer of Technology (ToT) to the Start-Up companies.
2. **Prof. S. S Ghosh:** Our group has demonstrated the signaling events in co-targeting triple negative breast cancer cells, movement of hydrogel in constricted microchannel and drug resistant behavior of EMT cells during deformation. In addition, quercetin loaded luminescent hydroxyapatite nanoparticles have been developed in cancer therapeutics. In device front, our collaborative work on development of FET-based POC devices are being persuaded. Our group was actively involved in developing and supplying COVID-19 testing kits to the Government of Assam. The transfer of Technology for a sensor device, and establishment of “SPLID Health Care” start-up at the Research Park of IITG, were also done.
3. **Prof. Arun Goyal:** Breakthrough:
  - Achieved computationally guided drug repurposing for targeting 2'-O-ribose methyltransferase (2'OMTase) of SARS-CoV-2 to combat the COVID-19 infection. The redocking and MD simulation analysis of the best 5 FDA approved drugs revealed that these drugs form a stable conformation with the 2'OMTase. The results suggested that these drugs may be used as potential inhibitors for 2'OMTase for combating the SARS-CoV-2 infection.
  - Established the multifunctionality with high activity of endoglucanase, RfGH5\_4 from *Ruminococcus flavefaciens* using TLC and MALDI-TOF MS that makes it a perfect candidate for biomass deconstruction and bioethanol production.
  - Improved enzymatic digestibility of Sugarcane bagasse using cocktail of Chimera (CtGH1-L1-CtGH5-F194A) and Cellobiohydrolase (CtCBH5A) for bioethanol production.

Initiatives:

- i. SAXS based structure, modelling and molecular dynamics analyses of family 43 glycoside hydrolase  $\alpha$ -L-arabinofuranosidase (CtAraf43) from *Clostridium thermocellum*.
  - ii. Structure and dynamics analysis of multi-domain putative  $\beta$ -1,4-glucosidase of Family 3 Glycoside Hydrolase (PsGH3) from *Pseudopedobacter saltans*
4. **Dr. Sachin Kumar:**
    - Signed an agreement with Hester Biosciences Pvt Ltd to develop vaccine against COVID-19 using recombinant Newcastle disease virus as a vector.

- Signed an agreement with *Hester Biosciences Pvt Ltd* to develop ELISA based diagnostics platform for various poultry viral diseases.
  - Signed a research agreement with *Dalhousie University* to develop viral vector for cancer immunotherapy.
  - DBT grant sanctioned for the development of vaccine against African Swine fever virus
  - DHR grant sanctioned for the development of diagnostics and biomarker against Japanese encephalitis virus
- 5. Prof. Biman B Mandal: Technology Licensed to Industry:**
- Antimicrobial formulation as hand sanitizer: Successfully licensed to Industry i.e. M/S Stanvac Med in 2020.
  - (b) Antimicrobial formulation as disinfectant: Successfully licensed to Industry i.e. M/S Berger Paints India Ltd. in 2020.
  - (c) Silk based gel for wound healing: Successfully licensed to Industry i.e. M/S Stanvac Med in 2020.
- 6. Dr. Lalit Mohan Pandey:**
- Design of Engineered Surfaces for the detection and protection against novel coronavirus SARS CoV-2
  - Mechanistic insights of the effect of the thermomechanical process on unfolding and fibrillation of proteins
  - Design of engineered nanomaterials for nano-antibiotic and hyperthermia applications
  - Experimental demonstration of molasses as a sole nutrient for the production of an alternative metabolite biosurfactant
  - Design of multifunctional bio-sorbent beads filter for the treatment of sewage wastewater
- 7. Prof. Vibin Ramakrishnan: Mapping drug-target interactions and synergy in multi-molecular therapeutics for pressure-overload cardiac hypertrophy:** Study published in 'Systems biology and applications' of nature publishing group, under the guidance of Professor Vibin Ramakrishnan of IIT Guwahati and Professor C. C. Kartha of Academy of Cardiovascular Sciences, points to the possibility of integrating both systems of medicine. In this study, they presented, probably for the first time, a comprehensive effort to re-invent an Ayurvedic preparation through the scientific protocols of modern medicine, by systematically verifying its efficacy and synergy employing state of the art tools and techniques of drug discovery. Amalaki Rasayana, a commonly made ayurvedic rejuvenate was examined for its efficacy in treating cardiovascular diseases, employing in-vivo studies, gene-expression and proteomics analysis, informatics tools and techniques of systems medicine. Long term oral intake of AR was found to improve cardiac function, and their focus on 'how it works in human system' is explained in the published work
- 8. Prof Aiyagari Ramesh:** Multifunctional synthetic amphiphiles were designed to have translational potential as a therapeutic for implant-associated methicillin-resistant *Staphylococcus aureus* (MRSA) infections and skin wound healing.
- 9. Dr. Souptick Chanda:** Double Oblique Device for Osteosynthesis (DODO) of hip: Novel design of proximal femur implant based on the morphometrics of the Northeast (NE) Indian population (Patent filing under process).
- 10. Prof. Sanjukta Patra:** Patent granted on a process for application of Xanthine as a scaffold for synthesis of new compounds
- International Projects:** Strategic planning for water resources and Implementation of novel biotechnical treatment solutions and good practices (SPRING) – Indo EU – H2020 project. 2020-2023 – 9 crores
- 11. Dr. Selvaraju Narayanasamy:**
- Preparation of polypyrrole embedded nanocellulose and surfactant (CTAB) modified carbon adsorbent for efficient elimination of azo-anionic dyes.

- Elimination of pharmaceutical wastes viz. antibiotics using carbon and grass based nanocellulose adsorbents.
- Phyto, microbial and fish toxicity studies for ecotoxicological assessment of the prepared adsorbents to understand its significance in eliminating pollutants from aqueous bodies.

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

S.No	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
1	Manish Kumar	Biotechnological approaches in animal research and disease diagnostics	GADVASU, Panjab, India (Virtual)	01/02/2021 - 12/02/2021	International
2	Manish Kumar	COVID-19 disease control-opertunities and chalenegees for vaccines, bio-therapeutics and diagnostics	VIT, Vellore, India (Virtual)	09/07/2020 - 10/7/2020	International
3	Manish Kumar	Modern analytical tools for Bio-medical research and teaching	IIT Guwahati	22/02/2021 - 26/02/2021	National
4	Kannan Pakshirajan	7 <sup>th</sup> International Conference on Research Frontiers in Chalcogen Cycle Science & Technology	Online mode	10/11/2020 - 11/12/2020	International
5	Dr. Lalit Pandey	28 <sup>th</sup> International Conference on Processing and Fabrication of Advanced Materials (PFAM28)	VIT Chennai (online)	07/12/2020	International
6	Dr. Lalit Pandey	7 <sup>th</sup> Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2020+1)	Tohoku University, Japan (Online)	13/03/2021 - 15/03/2021	International
7	Prof. Vibin Ramakrishnan	Heart failure conflux	SCTIMST Thiruvananthapuram (virtual)	05/02/2021 - 07/02/2021	International
8	Prof. Vibin Ramakrishnan	Biophysical Society Annual Meeting 2021	Virtual	22/02/2021 - 26/02/2021	International
9	Prof. Lingaraj Sahoo	International Symposium on Advances in Plant Biotechnology and Genome Editing -2021 (APBGE-2021) and 42 <sup>nd</sup> Annual Meeting of Plant Tissue Culture Association (India)	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi	08/04/2021 - 10/04/2021	International
10	Prof. Rajaram Swaminathan	BPS2021: 65 <sup>th</sup> Biophysical Society Annual Meeting	Virtual	22/02/2021 - 26/2/2021	International
11	Prof. Sanjukta Patra	Webinar on Nano - Advance Biosensing and Diagnostic Technologies [Deployable Nanobioengineered Sensing Technologies	Indian Institute of Technology (BHU) in collaboration with Nano @ Springer Nature	23/01/2021	International

12	Prof. Sanjukta Patra	Shastri Indo-Canadian Institute sponsored Indo-Canada online workshop on Nano-Bioengineering	Department of Biotechnology, Indian Institute of Technology Roorkee and Centre for Biomedical Research, University of Victoria, Canada	13/03/2021	International
13	Prof. Sanjukta Patra	Flow Cytometry Techniques & Applications	IIT Guwahati	21 /12/2020 - 22/12/2020	National
14	Prof. Sanjukta Patra	Intellectual Property Rights and Intellectual Property Facilitation Centre	IIT Guwahati	16/03/2021	National

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

S.No	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Dr. B. Anand	CRISPR-Cas System: From Genome Defence To Genetic Scissors	Institute of Advanced Study in Science and Technology	Guwahati	28/02/2021
2.	Prof Utpal Bora	STI for Sustainable Food Security	Jorhat Kendriya Mahavidyalaya, Assam	Jorhat	28/02/2021
3.	Prof Utpal Bora	Food Security	Gauhati University	Guwahati	16/03/2021
4.	Prof Utpal Bora	Scope of Biodesign in North-East India: The Way Ahead	Srimanta Sankaradeva University of Health Sciences, Assam	Guwahati	22/01/2021
5.	Dr. Biplab Bose	Percolation in Planar Cell Polarity	The Institute of Mathematical Sciences	Chennai (online talk)	24/07/2020
6.	Prof. Rakhi Chaturvedi	National Seminar on Contemporary Research in Biotechnology	North-Eastern Hill University, Shillong, Meghalaya	live, (virtual event)	25/03/2021
7.	Prof. Rakhi Chaturvedi	Webinar on Life Sciences	Gauhati University, Guwahati, Assam, India	live, (virtual event)	22/03/2021
8.	Prof. Rakhi Chaturvedi	TEQUIP Lecture- Plant tissue Culture and its Applications.	IIT Guwahati, Assam, India	live, (virtual event)	22/02/2021 - 26/02/2021
9.	Prof. Rakhi Chaturvedi	Webinar on Research Methodology in Sciences- Research & Innovation Ecosystem	Panjab University, Chandigarh, India	live, (virtual event)	13/02/2021
10	Prof. Rakhi Chaturvedi	Webinar on Plant-Environment Interactions and Sustainable Production	Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, India	live, (virtual event)	10/02/2021
11	Prof. Rakhi Chaturvedi	Webinar on Life	University of Delhi, Delhi India	live,	25/01/2021 -

		Sciences and Biotechnology: Recent Trends, Advances and Challenges		(virtual event)	08/02/2021
12	Prof. Rakhi Chaturvedi	International Joint Symposium - Plant Cell and Organ Culture: Value Addition to the Bioresources of NE Region of India	Jointly by Gifu University, Gifu, Japan and IIT Guwahati, Guwahati, India	live, (virtual event)	08/12/2020 - 10/12/2020
13	Prof. Rakhi Chaturvedi	Webinar Series -Trends in life sciences	Bangalore University, Bangalore, Karnataka, India	live, (virtual event)	27/07/2020 - 05/08/ 2020
14	Prof. Rakhi Chaturvedi	National Lecture Series- Biotechnology and its Applications	CMP College, Prayagraj, Uttar Pradesh, India	live, (virtual event)	18/07/ 2020
15	Prof. Siddhartha Sankar Ghosh	Developing Nanotheranostic Devices and COVID Detection Kits	Emerging Trends in Biotechnological Advancements: Challenges and Prospects in Tackling Human Diseases. NIT Warangal	NIT Warangal (An Online Faculty Development Programme )	17/07/2020
16	Prof. Siddhartha Sankar Ghosh	Translational Research on Theranostic Devices	Recent Advances in Biomedical Engineering, IIT Roorkee	IIT Roorkee (Online)	02/12/2020
17	Prof. Siddhartha Sankar Ghosh	Translational Research on Cancer Theranostics	On World Cancer Day-2021. IASST Guwahati	Institute of Advanced Study in Science and Technology (IASST), Guwahati	04/02/2021
18	Prof. Siddhartha Sankar Ghosh	Biologic Microfluidic Devices in Cancer Research	TEQIP Sponsored Two-day Symposium on "Biomicrofluidics", IIT Guwahati	IIT Guwahati (Online)	20/02/2021
19	Prof. Siddhartha Sankar Ghosh	Theranostic Applications of Nanostructured Materials	National Conference on "Chemistry of Chalcogenides" (NC3-2021), Pune	Department of Applied Chemistry, Defence Institute of Advanced Technology, Pune (Online)	24/03/2021
20	Dr. Cota Navin Gupta	Futuristic Trends in neurotechnology	Online <a href="https://www.youtube.com/watch?v=LK-eR3MBt4w">https://www.youtube.com/watch?v=LK-eR3MBt4w</a>	17/10/2020	International
21	Manish Kumar	Basics of Immunological assay system and ELISA	IIT Guwahati	Guwahati	23/02/2021
22	Manish Kumar	The burgeoning CRISPR-Cas applications	GADVASU	Ludhiana	06/02/2021

23	Sachin Kumar	Brief overview on the blood borne pathogens	Sri Venkateswara College of Engineering Pennalur, Sriperumbudur tk, Tamil Nadu-602117	Online	26/03/2021
24	Sachin Kumar	"Discovery of Hepatitis C Virus"	INSTITUTE OF ADVANCED STUDY IN SCIENCE AND TECHNOLOGY (IASST) Govt. of India, Guwahati.	Guwahati	28/02/2021
25	Sachin Kumar	Understanding the biology of avian paramyxovirus for the development of recombinant vaccine	College of Animal Biotechnology Guru Angad Dev Veterinary and Animal Sciences University	Online	12/02/2021
26	Sachin Kumar	Prospects of viral vectored vaccines	College of Animal Biotechnology Guru Angad Dev Veterinary and Animal Sciences University	Online	11/01/2021
27	Sachin Kumar	Current understanding of SARS-COV-2 biology	School of life sciences and biotechnology, Adamas University	Online	21/05/2020
28	Sachin Kumar	Understanding the biology of Avian Paramyxovirus for the development of recombinant vaccine with special reference to COVID-19	Assam Don Bosco University	Guwahati	27/11/2021
29	Sachin Kumar	Understanding the biology of avian paramyxovirus for the development of recombinant vaccine	IITG	Online	02/08/2020
30	Sachin Kumar	Nanostructured Materials and their Applications in Nanotechnology	IITG	Online	28/10/2020
31	Sachin Kumar	Nobel Prize 2020 in medicine	IITG	Online	20/10/2020
32	Prof. Biman B Mandal	Bioengineered human organs and tissues: The way forward	Society of Polymer Science India, Mumbai Chapter	Online	27/03/2021
33	Prof. Biman B Mandal	Science, Technology and Innovations for SDGs in India and Japan	Yokohama National University, Japan	Online	28/12/2020
34	Prof. Biman B Mandal	Nanostructured Materials and their Applications in Nanotechnology	IIT Guwahati	Online	28/10/2020
35	Dr. Shirisha Nagotu	"Seeing is believing?: the impact of microscopy on biological research"	TEQIP short term course entitled Modern analytical tools for Bio-medical	Online	23/02/2021



			research and teaching, IIT Guwahati		
36	Dr. Shirisha Nagotu	"Seeing is believing: the impact of Confocal microscopy on biological research"	Online Training on "Biotechnological Approaches in Animal Research and Disease Diagnosis" College of Animal Biotechnology Guru Angad Dev Veterinary and Animal Sciences University	Online	01/02/2021
37	Kannan Pakshirajan	Challenges in metal bio-recovery from wastewater by sulfide precipitation	National University of Ireland Galway	Online	11/12/2020
38	Kannan Pakshirajan	Bioenergy and nano biochar from biomass gasification waste: a biorefinery approach	Coimbatore Institute of Technology	Online	21/10/2020
39	Kannan Pakshirajan	Treatment and value addition of refinery wastewater using <i>Rhodococcus opacus</i>	National Institute of Technology Warangal	Online	11/09/2020
40	Kannan Pakshirajan	Microbial synthesis and characterisation of metal nanoparticles from contaminating metal ions in wastewater	Coimbatore Institute of Technology	Online	24/08/2020
41	Kannan Pakshirajan	Recent trends in biohydrogen production	National Institute of Technology Andhra Pradesh	Online	06/07/2020
42	Dr. Lalit Pandey	Design of Engineered Surfaces for Prospective Detection of SARS-CoV-2	One Day Virtual Outreach Programme, IIT Guwahati	Guwahati (Online)	18/12/2020
43	Prof. Vibin Ramakrishnan	Systems biology applications for cardiovascular drug discovery	SCTIMST Thiruvananthapuram	Thiruvananthapuram	05/02/2021
44	Latha Rangan	Flow Mining for Genome Size Estimation	Indo US Cytometry Workshop	Virtual	26/02/ 2021
45	Latha Rangan	Homeopathy & Traditional Medicine	Sukul Institute of Homeopathic Research	Virtual	20/01/2021
46	Latha Rangan	Role of biotechnology in understanding the impact of climate change on plants	IIT Guwahati	Guwahati	08/12/2020
47	Latha Rangan	Bio-economy Research & Innovation for Post COVID World	5 <sup>th</sup> NE Summit	Virtual	16/11/2020 - 18/11/2020
48	Latha Rangan	Mining <i>Pongamia</i> alias 'Karanj'- Journey So Far	Tripura University	Virtual	07/11/2020
49	Latha Rangan	Herbal therapeutic product development	IIT Guwahati	Guwahati	16/11/2020

50	Latha Rangan	Zingiberaceae: Ethno-medicinal usage and Genome variation	Mizoram University	Virtual	07/09/2020
51	Latha Rangan	GM Seeds and IPR: Two opposite sides of the same coin.	NERIST, Arunachal Pradesh	Virtual	04/08/2020
52	Prof. Lingaraj Sahoo	Field trial of RNAi-transgenic cowpea exhibiting resistance to MYMIV	ICAR-Indian Institute of Agricultural Biotechnology	Ranchi	08/04/2021
53	Prof. Lingaraj Sahoo	Small RNA on the move	Refresher Course on "Life Sciences" at Gauhati University	Guwahati	15/03/2021
54	Prof. Lingaraj Sahoo	Gene discovery – Understanding Gene Function	Refresher Course on "Life Sciences" at Gauhati University	Guwahati	16/03/2021
55	Prof. Lingaraj Sahoo	RNA interference-based resistance in Cowpea against Geminivirus	National Webinar on "Advances in Biotechnology for Sustainable development at Gangadhar Meher University	Sambalpur	12/09/2020
56	Prof. Lingaraj Sahoo	Sustainable Utilization of Bioresources of Northeast India –Indo-Japan Cooperation	Webinar of Centre of Excellence of North East India Studies (under RUSA 2.0) Utkal University	Bhubaneswar	10/08/2020
57	Prof. Lingaraj Sahoo	Sustainable Management of Natural Resources in Northeast India – Experience from Indo-Japan Cooperation	Royal University, Guwahati	Guwahati	20/06/2020
58	Dr. Priyadarshi Satpati	Classical Molecular Dynamics Simulation and Biomolecular Recognition	Chemical Society Department of Chemistry, IIT Jodhpur.	Virtual mode	19/03/2021
59	Dr. Priyadarshi Satpati	Biomolecular Recognition - Insight from Molecular Dynamics Simulations	International workshop: Tools and techniques to perform molecular modelling and computer-aided drug design. (MMTT-2021, Virtual mode), January 11th-17th, 2021, Department of Medicinal Chemistry, NIPER Guwahati.	Virtual mode	14/01/2021
60	Dr. Priyadarshi Satpati	How Biomolecules Recognize Right from Wrong - Insight from Molecular Dynamics Simulations	Faculty Development Program on "Recent Trends in Computer	Virtual mode	20/08/2020

			Simulations for Applications in Biotechnology: Teaching and Learning Strategies". Department of Biotechnology in association with the Teaching Learning Centre (TLC), NIT Warangal.		
61	Dr. Selvaraju Narayanasamy	Water Purification from Lab scale to Pilot Scale	NITK Surathkal	Mangalore	19/03/2021
62	Dr. Selvaraju Narayanasamy	Experimental and Mathematical modeling of environmental engineering problems	SRM University	Chennai	20/09/2020
63	Dr. Souptick Chanda	Finite Element (FE) Based in silico Assessment of Orthopaedic Implants	1st National Conference on Materials, Mechanics & Modelling, NIT Jamshedpur	NIT Jamshedpur	29/08/2020
64	Dr. Rajkumar P. Thummer	Reimagining Education System for Health Care Professionals: Innovations; From an Indian Perspective	Asian Institute of Nursing Education (AINE)	Guwahati	17/07/2020
65	Dr. Rajkumar P. Thummer	Transfection and visualization of cell	Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati	Guwahati	24/02/2021
66	Dr. Rajkumar P. Thummer	Stem Cells for Biomedical Applications	Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati	Guwahati	25/02/2021
67	Prof. Sanjukta Patra	Algae in environmental restoration and biomass valorization: An ecofriendly sustainable process	Indo-Sri Lanka International Webinar, 8th- 9th March, 2021 (ISW-21)- "Global trends in Algal Research: Environmental Restoration, Biomass Valorization and Sustainability, IIT Delhi	IIT Delhi	08/03/2021
68	Prof. Pranab Goswami	Bioelectronics of Bioelectrodes involved in Amperometric and Biofuel cell Biosensors	Tezpur University	Tezpur	27/02/2021

69	Prof. Pranab Goswami	Biofuel Cell: An emerging Sensing Device for Advance Healthcare Applications	Maharaja Ranjit Singh Punjab Technical University	Punjab	24/02/2021
70	Prof. Pranab Goswami	Biofuel Cell: A Smart Sensing Device for Advance Healthcare Applications	GEMS Arts and Science College, Kerala	Kerala	17/09/2020
71	Prof. Pranab Goswami	Biofuel Cell: A smart Sensing Device for Advance Healthcare Applications	Assam Science and Technology University (ASTU)	Guwahati	10/09/2020
72	Prof. Pranab Goswami	Application of Advance materials for efficient signal transduction in electrochemical biosensors	School of Mechanical Engineering, KIIT, Bhubaneswar	Bhubaneswar	25/07/2020
73	Prof. Ranjan Tamuli	Real Time-Polymerase Chain Reaction	TE-QIP-3 short term course on "Modern analytical tools for Bio-medical research and teaching", IIT Guwahati.	Department of Biosciences and Bioengineering, IIT Guwahati	22/02/2021

#### VISITORS FROM OTHER INSTITUTES / UNIVERSITIES / ORGANISATIONS / INVITED LECTURES

S.No	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
1	Dr. Athi N Naganathan	IIT Madras	Understanding the Design Principles of a Protein Sensor	09/10/2020	
2	Prof. Niels H Gehring	University of Cologne, Germany	Maintenance and Quality Control of Mammalian Gene Expression	16/10/2020	
3	Dr. Namrata Jain	HORIBA India Scientific	Follow Nanoparticle Size, Count & Kinetics using Advanced Multi-laser Nano-tracking Analyzer	06/11/2020	
4	Dr. Rama Akondy	Emory University, Atlanta, USA	Human memory CD8 T cell responses	13/11/2020	
5	Dr. Ravi Manjithaya	JNCASR, Bangalore	Insights into mechanisms of autophagy flux by chemical genetic approaches	20/11/2020	
6	Prof. Thorsten Wohland	National University of Singapore, Singapore	Four Lectures on Fluorescence Correlation Spectroscopy (FCS) for students of BT624 course: Fluorescence Techniques in Biotechnology.	02/11/2020 06/11/2020 09/11/2020 10/11/2020	Prof. Wohland is a world renowned expert in FCS.

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
1	Dr. Biplab Bose	Course on Measuring and Modeling the Epithelial/Mesenchymal Plasticity (EMP) Spectrum.	Online (organized jointly by IISc, Bangalore and Queensland University of Technology)	16/10/2020	International	
2	Dr. Bithiah Grace Jaganathan Prof. G. Krishnamoorthy	Workshop on Flow Cytometry Techniques & Applications	IIT Guwahati (Online)	21/12/2020 - 22/12/2020	National	100+
3	Prof. Biman B. Mandal and Dr. Uttam Manna	6th National Workshop on "NEMS/MEMS and Theranostic Devices" NWNTD 2020 (Online Mode)	Ministry of Electronics and Information Technology (MeitY), Govt. of India	01/12/2020 - 03/12/2020	National	280+
4	Prof. Biman B Mandal (Co-convener) jointly with IITD, IISC	30 <sup>th</sup> SBAOI Annual Meeting, 12 <sup>th</sup> STERMI Annual Meeting & International Virtual Conference on Biomedical Materials Innovation ICBMI-2020 (Online Mode).	SBAOI	06/12/2020 - 09/12/2020	International	400+

**PATENTS**

**No. of Patents Applied with details: 14**

**No. of Patents Granted with details: 02**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1.	<b>Prof. Sanjukta Patra;</b> Nivedita Singh	Xanthine as a scaffold for synthesis of novel compounds	26/02/2021	359847	Granted
2.	<b>Prof. Pranab Goswami,</b> Priyanki Das, Mallesh Santhosh, Phurpa Dema Thungon	Graphite paste ink with sericin for enhancing the conductivity and stability	07/10/2020 (Granted)	201631022633	The patent has been granted to the patentee PROF. PRANAB GOSWAMI

					for the term of 20 years from the 1 <sup>st</sup> day of July 2016 in accordance with the provisions of the Patents Act,1970
3.	<b>Sachin Kumar</b> , Rajiv Gandhi, Shankar Chinchkar	A recombinant vaccine for covid-19	20/05/2020	202031023926	Applied
4.	Uttam Manna, Avijit Das, <b>Sachin Kumar</b>	Method of preparing disposable water-repellent mask and a product thereof.	03/04/2020	202031014922	Applied
5.	Vimal Katiyar, Doli Hazarika, Amit Kumar, <b>Sachin Kumar</b>	A process of preparing an antiviral nanofabric and an antiviral nanofabric thereof	21/04/2021	<u>202131013654</u>	Applied
6.	<b>Prof. Biman B Mandal</b> and Bibhas K. Bhunia	Antimicrobial coatings and preparation process thereof	03/04/2020	202031014932	Filed
7.	<b>Prof. Biman B Mandal</b> , Saptarshi Biswas and Bibhas K. Bhunia	Hemostatic silk fibroin composite powder	28/11/2020	202031051948	Filed
8.	<b>Prof. Biman B. Mandal</b> and Janani G	Silk-Liver ECM composite for bioartificial liver	24/12/2020	202031056432	Filed
9.	<b>Prof. Vibin Ramakrishnan</b> , Dr. Aparna Rai	Amalaki Rasayana constituents for the treatment of cardiac hypertrophy	22/06/2021	TEMP/E1/28937/2020-KOL	Applied
10	<b>Prof. Vibin Ramakrishnan</b> , Dr. Aparna Rai	Repositioning of Existing Drug Molecules for Treatment of Cardiac Hypertrophy	22/06/2021	TEMP/E1/28939/2020-KOL	Applied
11	Sanjana Senthilkumar, Sadokpam Shreekant, Manish Kumar Gupta, Heeramoni Boro, Prof. Rajaram Swaminathan, <b>Prof. Latha Rangan</b>	Device for evaporation and recovery of organic solvents using simple labwares	06/02/2021	202131005168	Provisional patent application applied
12	Puneet Talesara, Aditya Kochar, Senthilmurugan Subbiah, <b>Selvaraju Narayanasamy</b> , Rohan Sharma	Disinfectant Tunnel	03/11/2020	202011030617	Applied

13	Puneet Talesara, Harish Vyas, Senthilmurugan Subbiah, <b>Selvaraju Narayanasamy</b>	A Smart Conveyor System for Disinfecting Belongings & Hands And Predicting Viral Infections	02/11/2020	202011027891	Applied
14	Puneet Talesara, Harish Vyas, Senthilmurugan Subbiah, <b>Selvaraju Narayanasamy</b>	A smart checkin system and method for disinfecting hands & belongings and predicting viral infection	02/11/2020	202011024053	Applied
15	<b>Prof. Rakhi Chaturvedi</b> Ruchira Bajpai and Vijay Kumar Mishra	A method for in vitro production of pure line haploids and doubled haploids in <i>Camellia ssp.</i>	09/09/2020	201931024739	Applied
16	<b>Prof. Rakhi Chaturvedi</b> Ruchira Bajpai and Priyanka Srivastava	A method for in vitro production of haploids and doubled haploids in <i>Azadirachta indica A. Juss.</i>	11/03/2021	201931033189	Applied

#### AWARDS AND HONOURS

- **Prof Utpal Bora:** Top Cited Paper Award, 2020' as an author of one of the top 1% most-cited papers in materials published over the period of 2017-2019 for the publication "Electrospun silk-polyaniline conduits for functional nerve regeneration in rat sciatic nerve injury model, Suradip Das *et al* 2017 Biomed. Mater." by IOP publishing.
- **Dr. Sachin Kumar:** ICMR- Dr. J. B. Srivastav Oration Award. ICMR Virology Research Citation/Cash.
- **Prof. Biman B Mandal:** SWARNAJAYANTI Fellowship 2020 in Life Science Department of Science and Technology (DST), Govt of India Scientific excellence. Cash award and citation.
- **Prof. Biman B Mandal:** S. Ramachandran NATIONAL BIOSCIENCE AWARD for Career Development 2021
- Department of Biotechnology (DBT), Govt of India Scientific excellence Cash award and citation. Dd
- **Dr. Lalit M Pandey:** Shastri Covid-19 Pandemic Response Grant (SCPRG) Shastri Indo-Canadian Institute Innovative Solutions titled "Nanoengineered Medicines for Treatment of COVID-19"
- **Prof. Latha Rangan** Elected Fellow Biotech Research Society of India (BRSI) Contribution in area of Plant Biotechnology Citation- Plaque
- **Prof Latha Rangan:** Council Member The Inter-Academy Panel for Women in STEMM 2021-2025
- **Prof. Latha Rangan:** Elected member Board of Governors BRSI 2021-2023

#### STUDENTS' ACHIEVEMENTS

- Mr. Rajib Shome: Best Poster Award Defence Institute of Advanced Technology (DIAT), Pune Poster Title: D-penicillamine templated Au-Cu bimetallic nanocluster containing nanocomposite inhibits metastatic property of triple negative breast cancer] CitationMr. Pratik Nag (PhD student) got selected for 'DBT sponsored BIRAC-National Biopharma Mission in association with Biotech Consortium India Limited Training program' for a

hands-on training in 'Medical Device Prototyping' held at IIT, Kanpur from 13<sup>th</sup> – 17<sup>th</sup> January, 2020.

- Kedar Sharma: COVID-19 Grand Challenge, May 2020 Cash prize of Rs. 10,000.00 for his idea on "Repurposing of FDA approved drug for targeting NEDD8 activating enzyme (NAE) of ubiquitination pathways to combat SARS-CoV-2 infection" in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park.
- Ms Tanmayee Samantaray: Poster presentation: Meta-Analysis of clinical Symptoms and Data driven Subtyping Approaches in Parkinson's Diseases The Brain Conference, Organizing Country: London, UK Type: International Conference Participant
- Mr Kamal Shokeen "Deepika Phukan Oncology Research Grant Award" Dr. B. Barooah Cancer Institute Cancer Research Citation, Medal and Cash.
- Sudhir Morla: COVID-19 Grand Challenge, May 2020 Cash prize of Rs. 10,000.00 for his idea on "Detection of SARS-CoV-2 using Ultrasensitive Magnetic nanoparticle DNA probe-based PCR assay" in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park.
- Shambhavi Pandey: COVID-19 Grand Challenge, May 2020 Cash prize of Rs. 10,000.00 for her idea on "Possible therapeutic targets of SARS-CoV-2 Infection Cycle." in COVID-19 Grand Challenge organized by Indian Institute of Technology Guwahati jointly with IIT Guwahati Research Park.
- Dr. Dimple Chouhan INYAS National Award 2020 for Research Excellence Indian National Young Academy of Science (INYAS) jointly supported by Indian National Science Academy (INSA). Best research with societal impact Cash award and citation.
- Poulami Datta: Best Paper 5th International Conference on Bioenergy, Environmental and Sustainable Technologies" (virtual mode) organized by Arunai Engineering College, Tamil Nadu, India, January 29 – 30, 2021 "Suitability Evaluation of Surfactin Produced by Bacillus tequilensis MK 729017 for Enhanced Oil Recovery Applications" Certificate
- Aman Bhardwaj International cooperative exchange program National institute of materials science MOU research proposal Fellowship
- Mr. Vivek Prakash: Among Top 20 ideas for Covid 19 Grand Idea Challenge IIT Guwahati with IIT Guwahati Research Park Research Idea
- Ms. Tasrin Shahnaz Best Poster SRM Institute of Science Technology Best Poster presentation Citation
- Mr. Vishnu Priyan V Best Poster SRM Institute of Science Technology Best Poster presentation Citation
- Dr. Lightson Ngashangva BIRAC-BIG grant (NE region) BIRAC, DBT, Govt. Of India For the proposal: Paper-based kits for onsite detection of methanol and formaldehyde Rs. 25 lakhs approved
- Dr. Sudarshan Gogoi BIRAC-BIG grant (NE region) BIRAC, DBT, Govt. Of India For the proposal: A paper-based point of care test kit or detection of Pan Malaria and Plasmodium Falciparum Species in Human Blood Serum Rs. 25 lakhs approved
- Ms. Priyanki Das Fourth prize in Talent Search Contest 2021 Guwahati Biotech Park and Assam Science Society Selected as fourth best Research proposal Trophy and Certificate with 30,000/- cash prize01



## SPECIAL MENTION

### 1. Prof Biman B Mandal:

- Inducted as Editorial Board member of prestigious journal "Biofabrication" published by Institute of Physics (IOP) Publishing, UK with impact factor 8.2
- Inducted as Editorial Board member of journal "In Vitro Models" published by Springer Nature, USA.
- Inducted as Editorial Board member of journal "Frontiers in Bioengineering and Biotechnology, Biomaterials" (Associate Editor) with impact factor 3.64
- Inducted as Editorial Board member of journal "Frontiers in Materials" (Associate Editor) with impact factor 2.70
- Inducted as Editorial Board member of journal "Frontiers in Molecular Biosciences" (Associate Editor) with impact factor 4.1
- Elected "President" of STERMI (Society for Tissue Engineering and Regenerative Medicine, India) for a 03-year period.

### 2. Prof. Arun Goyal:

- Invited for evaluation of research proposals for GYTI 2021 Awards. Feb 2021
- Invited for evaluation of research proposals for SITARE-GYTI Awards by BIRAC, Department of Biotechnology, Govt. of India, Jan 2021
- Invited as member of Assessment Committee Meeting at Center of Innovative and Applied Bioprocessing, CIAB, Mohali for regularization of Scientist, Dec 15, 2020.
- Invited to evaluate proposals for BIRAC's (Biotechnology Ignition Grant) Scheme Sep. 2020.
- Invited to evaluate applications for Shastri Indo-Canadian Institute Grants and Fellowships, Sep 2020.
- Invited as selection committee member for selection of faculty members at Department of Biotechnology, IIT Hyderabad, 20th Aug 2020

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1	B. Anand	Indian Institute of Technology Kanpur, Kanpur	Associate Professor	RNA Biology, CRISPR Biology, Ribosome Biogenesis
2	Bora Utpal	Institute of Genomics and Integrative Biology, Delhi	Professor	Biomedical Engineering, Biodiversity and Bio-entrepreneurship
3	Bose Biplab	All India Institute of Medical Sciences	Associate Professor	Systems Biology, Cell signaling, Recombinant therapeutics
4	Chanda Souptick	Indian Institute of Technology Kharagpur, India	Assistant Professor	Biomechanics, implant design and optimization, surgical simulations and soft computing
5	Chandra Pranjali	Pusan National University, Busan, South Korea	Assistant Professor and Ramanujan Fellow	Clinical Bio-sensors, Paper-based bio-sensors, Nano-medicine, Material engineering, Microfluidics and Nanomachines.
6	Chaturvedi Rakhi	University of Delhi, Delhi	Professor and Dean, Alumni and	Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and

			External Relations (AER)	Characterization of Plant Secondary Metabolites
7	Chaudhary Nitin	CSIR-Centre for the cellular and Molecular Biology, Hyderabad	Associate Professor	Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions Curvature inducing proteins
8	Das Debasish	Indian Institute of Technology Bombay	Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel
9	Dasu V. Venkata	Indian Institute of Technology Madras	Professor	Bioprocess Development, Metabolic Engineering
10	Ghosh Siddhartha S.	Indian Institute of Chemical Biology (IICB), Kolkata	Professor	Cancer Gene Therapy, Nanobiotechnology, Molecular Pathways Involving Drug Resistance
11	Goswami Pranab	Gauhati University	Professor (HAG)	Biosensors and Biofuel cells
12	Goyal Arun	Indian Institute of Technology Kanpur, Kanpur, India	Professor and Former Head	Molecular Biology, Protein Engineering, Rational Enzyme Engineering, 3-Dimensional Structure (In silico, crystal and solution) and Function analysis of enzymes and their industrial (Biorefinery, therapeutic, food, Pulp and paper) applications
13	Gupta Navin	Brain Computer Interfaces and Neural Engineering (BCI-NE) Group, University of Essex	Assistant Professor	Imaging Genetics, Biomedical Signal/Image Processing, Multimodal Analysis, Computer Aided Diagnosis, Biomedical Instrumentation
14	Jaganathan Bithiah G.	Johann Wolfgang Goethe University, Frankfurt, Germany	Associate Professor	Stem Cell Biology, Cancer signaling
15	Kanaujia Shankar Prasad	Indian Institute of Science Bangalore	Associate Professor	Structural Biology and Bioinformatics Studies
16	Kumar Manish	University of Maryland, College Park, USA	Associate Professor	Molecular interaction of host-pathogen-vector of infectious diseases
17	Kumar Sachin	University of Maryland, College Park, USA	Associate Professor	Molecular biology of paramyxoviruses
18	Kunnumakkara A. B.	University of Calicut, Kerala	Professor	Role of inflammatory pathways in cancer development, Identification of novel biomarkers for cancer diagnosis and prognosis, Cancer drug discovery.

19	Limaye Anil Mukund	Indian Institute of Science Bangalore	Associate Professor	Hormonal regulation of gene expression
20	Maiti Soumen Kumar	Indian Institute of Technology Bombay	Assistant Professor	Bioprocess Engg, biofuel
21	Mandal Biman B	Indian Institute of Technology Kharagpur	Professor	Regenerative Medicine, Biomaterials, Tissue Engineering, Stem Cells
22	Nagotu Shirisha	University of Groningen, Groningen, The Netherlands	Assistant Professor	Organelle biology and Inter-organelle communication, Cellular Ageing, Membrane fission and fusion
23	Pakshirajan Kannan	Indian Institute of Technology Madras	Professor	Environmental Technology
24	Pandey Lalit Mohan	Indian Institute of Technology Delhi	Associate Professor	Bio-interfaces and Biomaterials, Protein's adsorption and aggregation, Nanomaterials and composites for Biomedical applications, Environmental Chemical Engineering
25	Patra Sanjukta	Central Food Technological Research Institute, Mysore	Professor	Enzyme and microbial technology, Metagenomics, Biosensors, Environmental Biotechnology
26	Ramesh Aiyagari	CFTRI, Mysore (Degree awarded by Mysore University)	Professor	Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors
27	Ramakrishnan Vibin	Indian Institute of Technology Bombay	Professor	Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bio-nanotechnology
28	Rangan Latha	University of Madras (Research work carried at IRRI, Manila)	Professor and HOD	Molecular systematics, Biofuel, IPR
29	Sahoo Lingaraj	Maharshi Dayanand University, Rohtak, India	Professor	Genetic engineering and functional genomics of plants
30	Saini Gurvinder Kaur	Andhra University, Visakhapatnam	Professor	Fungal Biotechnology, Biological Control, DNA fingerprinting and Transformation studies, Studies on extracellular enzymes and toxic metabolite production, Development of a potent biopesticide
31	Satpati Priyadarshi	Indian Institute of Science Bangalore	Assistant Professor	Classical molecular dynamics (MD) free energy simulation, Electronic Structure calculations that predict the structure, properties, reactivity, bonding etc. of small molecules
32	Selvaraju Narayanasa my	Indian Institute of Technology Madras, India	Assistant Professor	Environmental Biotechnology, Bioprocess Engineering, Biochemical Engineering

33	Senthilkumar S	Central Leather Research Institute, Chennai	Associate Professor	Biocalorimetry, BioPAT, Real-time monitoring and control of bioprocess systems
34	Singh Kusum K	Institute of Molecular Medicine, Heinrich-Heine University of Duesseldorf, Germany	Assistant Professor	Post-transcriptional gene regulation by RNA binding Proteins
35	Swaminathan Rajaram	Tata Institute of Fundamental Research, Mumbai	Professor	Protein Structure and Function; Protein Charge Transfer Spectra.
36	Tamuli Ranjan	CSIR-Centre for the cellular and Molecular Biology, Hyderabad	Professor	Calcium signaling, Genetics, DNA repair
37	Rajkumar P. Thummer	University of Groningen, Groningen, The Netherlands	Assistant Professor	Stem Cell Engineering and Regenerative Medicine
38	Trivedi Vishal	Central Drug Research Institute, Lucknow	Professor	Intracellular Signaling in Plasmodium falciparum

## LABORATORY FACILITIES

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

**Mechanical Operation Lab:** Ball Mill, Froth Floatation Cell, Hammer Mill, Jaw Crusher, Roll Crusher, Plate and Frame Filtration, Rotary Drum Vacuum Filter, Vibrating Screen, Sieve Shaker, Cyclone Separator, Cyclone Scrubber, Elutriator, Sedimentation, Leaf Filter

**Heat Transfer Lab:** Extended Surface Heat Exchanger, Tubular Heat Exchanger, Jacketed Vessel Heat Exchanger, Plate Heat Exchanger, Shell and Tube Heat Exchanger, Emissivity Measurement Apparatus, Composite Wall, Conductivity of Metal Rod, Calandria Evaporator, Vertical & Horizontal Condenser, Unsteady State Heat Transfer, Heat Transfer in Forced Convection, Multi Effect Evaporator

**Mass Transfer Lab:** Double Glass Wall Distillation Apparatus, Bubble Cap Distillation Set Up, Packed Bed Distillation Set Up, Mass Transfer with and without Chemical Reaction, Liquid - Liquid Extraction in Packed Bed, Solid - Liquid Extraction in Packed Bed, Absorption in Packed Bed, Vapour in Air Diffusion, Rotary Drier, Forced Draft Tray Drier, Water Cooling Tower, Batch Crystallization

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

**Thermodynamics Lab:** Vapour - Liquid Equilibrium Apparatus, Liquid - Liquid Equilibria, Equilibrium Flash Distillation Apparatus, Separating & Throttling Calorimeter

**Petroleum Lab:** Acidity and Alkalimetry, Aniline Point, Burning Test Lamp, Cloud & Pour Point, Flash & Fire Point, Melting Point Apparatus, Red Wood Viscometer, Reid Vapour Pressure, Smoke point, U-Tube Viscometer, ASTM Distillation, Kinematic Viscometer Bath, Drop Point Grease Apparatus, Burning Quality of Kerosene, Contamination Detector, Tar Viscometer, Softening Point Apparatus, Carbon Residue Apparatus, Bomb Calorimeter, Vapour-Liquid Equilibrium, Steam Distillation, Digital Penetrometer

**Analytical Lab:** Atomic Absorption Spectrophotometer, Autotitrator, BET Surface Area Analyzer, Buchi Rheometer, Chemisorb Surface Area Analyzer, Differential Scanning Calorimeter, Digital Polarimeter, Ellipsometer, Fourier Transform Infrared Spectrophotometer, Gas Chromatography with TCD, FID, ECD Detector, Gas Chromatography with TCD, FID, PFD Detector, Gas Chromatography-Mass Spectroscopy, High Performance Liquid Chromatography, High Pressure Thermo Gravimetric Analyser (HPTGA), Interfacial Rheometer, Karl Fisher Titrator, Laser Particle Size Analyser, Mercury Intrusion Porosimeter, Microscope, Microwave Assisted Reactor, Millipore Water Purification, Refractometer, Rheometer, Spinning drop Tensiometer, Tensiometer, Thermogravimetric Analyzer, Time Resolved Stereoscopic Particle Image Velocimetry (PIV), Total Organic Content Analyzer, UV-Visible Spectrophotometer, X Ray Diffraction, Zeta Potential

**CoE-SusPol:** Centre of Excellence for Sustainable Polymers (CoE-SusPol) is funded by Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers. The objective of CoE-SusPol is to develop cost effective and scalable technologies for the

production of biodegradable polymer based end products using both petrochemical and renewable bio- feedstock and to establish state of the art facilities in biodegradable polymers area. Both experimental and computational laboratory has been setup under this project facility and significant high-end equipments have been purchased in the department

## **MAJOR AREAS OF RESEARCH AND DEVELOPMENT**

### **Fluids**

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

### **Reaction Engineering**

- Catalysis electrolysis and Heterogeneous reactions
- Electrochemical corrosion
- Electroless plating
- Hydrocarbon processing
- Interfacial reactions
- Kinetic analysis
- Micro- and nano-fluidic reactors
- Non-equilibrium reactive systems
- Pyrolysis of waste plastics
- Separations with chemical reaction
- Sono-process engineering

### **Chemical Engineering Science**

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

### **Environmental Pollution Control**

- Air pollution
- Biological wastewater treatment (biosorption, bioaccumulation, biodegradation, bioreduction, biotransformation)
- Electro remediation of water/wastewater
- Membrane bioreactors
- Physiochemical water/ wastewater treatment techniques
- Screening of novel microbial strains for treatment of organic/inorganic wastewater
- Sonolysis and sono-hybrid advanced oxidation techniques

- Treatment of industrial effluent
- Pollution trading

### **Process Systems Engineering**

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

### **Materials Engineering**

- Bio-lubricant
- Complex organic solids
- Functional multiscale structures & composites
- Graphene synthesis and application
- Ionic liquids
- Liquid crystalline materials
- Low cost ceramic membranes
- Micro and nano sensors
- Non Newtonian fluids
- Palladium membranes
- Reactive systems and gels
- Responsive materials for environmental, biological and chemical separation
- Self-healing surfaces
- C-C composites and C-Polymer composites

### **Polymer Science and Engineering**

- Polymers synthesis and characterization
- Polymer reaction engineering
- Polymer processing
- Polymer rheology
- Polymer solutions and thermodynamics
- Polymer simulation and computing
- Polymer based nano and bio composites
- Polymer degradation
- Polymer and nano-material migration studies
- Polymer recycling and reuses
- Biodegradable polymers
- Polymer based technology development, licensing, training and entrepreneurship

- Biodegradable polymers and bio based nanocomposites

### Energy Engineering

- Artificial photosynthesis
- Biofuels: biodiesel, bioethanol, bio butanol, bio hydrogen and bio oil
- Biomass gasification and pyrolysis
- Carbon dioxide capture and conversion to fuel
- Clean coal technology
- Combustion and gasification reaction kinetics
- Fischer-Tropsch synthesis
- Fuel cells
- Hydrogen production and storage
- Utilisation of lignocellulosic biomass for fuel/chemicals
- Solar cells
- Nuclear reactor
- Membrane reformer for hydrogen production

### Separation and Mixing Processes

- Adsorption
- Bio-separation
- Membrane separation processes
- Micro-mixers & separators
- Post CMP cleaning
- Separation using supercritical fluids
- Surfactant mediated separation processes

### Food Science and Technology

- Food Processing
- Food packaging
- Membrane technology based juice processing
- Drying technologies (RWD, Tray and Oven) for food product development from North-East horticulture resources
- Microwave assisted food processing
- Functional foods
- Extraction of bioactive compounds and their applications in food product development
- Nutritionally rich low cost food products

### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
1.	Dr. Partho S G Pattader	Symposium on Ionic Liquid and DES, SPARC 2021	IITG	10/03/2021	International
2.	Dr. Partho S G Pattader	FMFP2020	IITG	11/12/2020	International
3.	Dr. Partho S G Pattader	DES SPARC Workshop	IITG	29/07/2020	International
4.	Ms. Sushma Chakraborty, Prof. Chandan	AIMS'20, BMSITM	Bengaluru	04/08/2020 – 07/08/2020	National



	Das and Prof. Ramagopal Uppaluri				
5.	Ms. Sushma Chakraborty, Prof. Chandan Das and Prof. Ramagopal Uppaluri	Virtual 45 <sup>th</sup> International Conference and Expo on Advanced Ceramics and composites, 2021	Florida	08/02/2021 - 12/02/2021	International
6.	Preetisagar Talukdar and Prof. Ramagopal Uppaluri	Indian Chemical Engineering Congress & 73rd Annual Session of Indian Chemical Engineers 2020 (Chemcon 2020)	Hyderabad	27/12/2020 - 29/12/ 2020	National

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

Sl. No	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Prof. Prabirkumar Saha	FDP on Future of Automation, Control & Technologies	VJTI, Mumbai	Online	27/12/2020
2.	Prof. Prabirkumar Saha	Application of Artificial Intelligence (AI) in Environmental and Process Engineering	CSIR-NIIST, Thiruvananthapuram	Online	09/03/2021
3.	Dr. Partho S G Pattader	Fabrication of Microfluidic Device and Microextraction Using DES	IITG	IITG	10/3/2021
4.	Prof. Chandan Das	Treatment of tannery wastewater using membrane Separation Technology" at four day Webinar Lecture Series on "Recent trends in Wastewater treatment with Membrane for Sustainable Development	Assam Engineering College	Guwahati, Assam, India	10/12/2020
5.	Prof. Vimal Katiyar	"Introduction to Polymeric Materials" and "Advances in Biodegradable Polymeric Materials" in the faculty Development Program titled "Technological Advances in Environmental Friendly Materials and Processing"	Katihar College of Engineering		20/07/2020 - 25/07/2020
6.	Prof. Vimal Katiyar	"Nanobiocomposites for Commodities Applications"	Nanomaterials for Engineering and Biomedical Application-2020		27/07/2020 - 29/07/2020
7.	Prof. Vimal Katiyar	"An Overview of Industry and academia Relationship", "Challenges in Polymer Industries: Role of Academic Institutions" and "Growth of Indian Economy through	Academia to Industry: Challenges and Opportunities-2020		31/08/2020 - 05/09/2020

		Industry Academia Intervention"			
8.	Prof. Vimal Katiyar	"Advances in Biocomposites" in a seminar entitled "Advances in Manufacturing, Materials and Modelling Process"			17/08/2020 - 22/08/2020
9.	Prof. Nanda Kishore	Density Functional Theory Study on Conversion of Levulinic Acid to Value Added Chemicals in Supercritical Water" in GUJCOST sponsored Faculty Development Programme on "Green Chemistry & Technology for Sustainable Engineering"	Organized by PP Savani University	Surat, Gujrat, India	18/01/2021
10.	Prof. Nanda Kishore	ANSYS Implementation Procedure – HDO of 2-HB in a Fluidized Bed Reactor" – Hands on Session in AICTE STTP-1 on "Industrial Pollution & Control Strategies"	Organized by Anurag University, Hyderabad, Telangana, India	Hyderabad, Telangana, India	29/08/ 2020
11.	Prof. Nanda Kishore	Role of Modelling and Simulation of Hydrodeoxygenation to Upgrade Sustainable Bio-oils Required for Combating Pollution Concerns" in AICTE STTP-1 on "Industrial Pollution & Control Strategies"	Organized by Anurag University	Hyderabad, Telangana, India	28/08/ 2020
12.	Prof. Nanda Kishore	Computational Fluid Dynamics Applied to HDO of Bio-oil: A Non-Isothermal Multiphase Multicomponent Catalytic Reactive System" in AICTE STTP-1 on "Computational Fluid Flow and Heat Transfer"	Organized by Gayatri Vidya Parishad College of Engineering (Autonomous), Visakhapatnam, Andhra Pradesh, India	Visakhapatnam, Andhra Pradesh, India	27/08/2020
13.	Prof. Nanda Kishore	ANSYS Implementation Methodology for HDO of Bio-oil in a Fluidized Bed Reactor" – Hands on Session in AICTE STTP-1 on "Computational Fluid Flow and Heat Transfer"	Organized by Gayatri Vidya Parishad College of Engineering (Autonomous)	Visakhapatnam, Andhra Pradesh, India	27/08/2020
14.	Prof. Nanda Kishore	Technoeconomical Challenges of Pyrolytic Conversion of Biomass Waste	Organized by University College of Technology, Osmania University	Hyderabad, Telangana, India	30/07/2020
15.	Dr. N. R Peela	"Lignocellulosic Biomass Conversion to Bio-Products" in the TEQIP Short-term Training Program on "Emerging Technologies for Next-	Dr. B. R. Ambedkar National Institute of Technology, Jalandhar		21/02/2020 - 25/02/2020

		Generation Bio-fuels and Bio-products"			
16.	Dr. N. R Peela	"Lignocellulosic Biomass Conversion to Value-Added Chemicals and Fuels" in the National Conference on "Recent Advances in Chemical Engineering"	Department of Chemical Engineering, Andhra University		21/01/2020 – 22/01/ 2020

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
1.	Prof. Tamal Banerjee, Dr. Partho S G Pattader	DES SPARC Workshop	SPARC	29/07/2020	International	120
2.	Prof. Ramagopal Uppaluri (Speaker) and Co-ordinator	International Joint Webinar on Recent Advances in Translational Research in Food Science and Technology		06/10/2020	National	100

#### PATENTS:

- No. of Patents Applied with details: 8
- No. of Patents Granted with details: 4

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.
1.	Prof. Prabirkumar Saha	Apparatus/system for electrolytic treatment of water.	Filed on 25/09/2020	Indian Patent No. 347762
2.	P. Biswas, V.K. Chandaliya, P.K. Banerjee, C. Das, M.K. Purkait	A fabrication process to produce defect-free inorganic ultrafiltration range ceramic membrane device, Application Number: 725/KOL/2010.	Granted on 01/09/2020	Indian Patent No. 345860
3.	P K Saha, M K Purkait, A B Paul, R Saikia, Anweshan, J K Deka, S K Saikia	Apparatus/System for electrolytic treatment of water	Granted on 25/09/2020	Indian Patent No. 347762
4.	M K Purkait, Deepti, A Sinha, P. Biswas, S Sarkar	Separation of ions from the rejected stream of industrial wastewater	Granted on 11/02/2021	Patent No. 358257
5.	A Sinha, P. Biswas, S Sarkar, M	A ceramic membrane, A	Granted on 30/03/2021	Patent No. 363544

	Changmai, M K Purkait	process of preparation and application thereof.		
6.	P Mandal, M K Purkait	Aromatic carbon coated iron aluminium nanocomposite and its green synthetic process.	Filed on 01/11/2020	Patent Application No. 202031047652
7.	Prof. Tamal Banerjee	A Deep Eutectic solution as heat transfer fluid comprising Diphenyl Ether and Benzophenone	Filed on 30/12/2020	TEMP/E-1/63172/2020-KOL
8.	Dr. N. R. Peela, B. Velaga	A one step process for preparing Levulinic acid from C5 furanic compounds	Filed on 16/06/2020	Reference number: 202031025327
9.	Puneet Talesara, Aditya Kochar, Senthilmurugan Subbiah, Selvaraju Narayanasamy, Rohan Sharma	Disinfectant Tunnel	2020	Application No 202011030617
10.	Puneet Talesara, Harish Vyas, Senthilmurugan Subbiah, Selvaraju Narayanasamy	A Smart Conveyor System for Disinfecting Belongings & Hands And Predicting Viral Infections	2020	Indian patent Application No 202011027891
11.	Puneet Talesara, Harish Vyas, Senthilmurugan Subbiah, Selvaraju Narayanasamy	A smart checkin system and method for disinfecting hands & belongings and predicting viral infection	2020	Indian patent Application No 202011024053
12.	Senthilmurugan Subbiah, Balakumara Vignesh M, Bijoyendra Sharma, Suryaprakash Maguluri, Ravikumar Rajendraprasad, Venkateswaran Narayanan	An automated apparatus for sanitizing and disinfecting a pre-defined vicinity	2020	Indian patent Application No. 202031018815

## AWARDS AND HONOURS

- Prof. Prabirkumar Saha was elected as the Fellow of Indian Institute of Chemical Engineers
- Prof. Mihir Kumar Purkait was elected as the Fellow of the Institution of Engineering and Technology (FIET), UK (2020)
- Prof. Mihir Kumar Purkait was elected as the Fellow of West Bengal Academy of Science and Technology (FAScT) 2021
- Prof. Mihir Kumar Purkait was elected as the Fellow of Indian Institute of Chemical Engineers (IChE) (2020, LF-19472)
- Prof. Mihir Kumar Purkait was elected as the Fellow of Indian Desalination Association (InDA) 2021
- Prof. Mihir Kumar Purkait received the Abdul Kalam Technology Innovation National Fellowship (2020) from the Indian National Academy of Engineering (INAE)
- Prof. Mihir Kumar Purkait was appointed as Expert Consultative Committee (ECC) member of "Waste to Wealth" Mission under Prime Minister's office (PMO), New Delhi, 2021
- Prof. Mihir Kumar Purkait was appointed as PAC member of Department of Biotechnology (DBT), Govt. of India, 2020-2022
- Prof. Mihir Kumar Purkait was appointed as Expert in Faculty selection committee, IIT Roorkee, Feb (2020) and March (2021)
- Prof. Tamal Banerjee was elected as the Fellow of Royal Society of Chemistry (FRSC) (2021)
- Prof. Tamal Banerjee was appointed as Editorial Board Member of Fluid Phase Equilibria (2020), Elsevier

## STUDENTS ACHIEVEMENTS

- Seera Sai Dileep Kumar, Best M.Tech Thesis Award from Department of Chemical Engineering, IIT Guwahati (2020)

## SPECIAL MENTION

- S. K. Majumder, Massive open online course (MOOC) on "Basic Principles and Calculations in Chemical Engineering" published by Ministry of Human Resource Development, Govt. of India, under National Programme on Technology Enhanced Learning (NPTEL), January, 2020
- S. K. Majumder, Massive open online course (MOOC) on "Chemical Engineering Process Intensifications" published by Ministry of Human Resource Development, Govt. of India, under National Programme on Technology Enhanced Learning (NPTEL), July, 2020

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute /Org PhD degree received from	Designation	Areas of Interest
1	Anandalakshmi R.	IIT Madras	Associate Professor	Computational Heat Transfer and Fluid Flow, Process Modelling and Simulation, Solar Thermal Energy Conversion, Energy Efficient Design of Thermal Systems
2	Bandyopadhyay Dipankar	IIT Kanpur	Professor	Colloid and Interfacial Phenomena, Computational Fluid Dynamics, Micro and Nano Fluidics, Complex Flow and Fluids, Clean Energy – Fuel and Solar cells

3	Banerjee Tamal	IIT Kanpur	Professor	Phase equilibria of ionic liquids, Molecular simulations, Global optimisation, Statistical thermodynamics
4	Das Chandan	IIT Kharagpur	Professor	Wastewater Treatment, Bioremediation, Membrane based Separation Process
5	Dasmahapatra Ashok Kumar	IIT Bombay	Professor	Complex fluids, Phase transition in polymers (Nucleation, crystallization, collapse transition, etc.), Structure-property relations, Molecular simulations, Biological physics
6	De Mahuya	IIT Kanpur	Professor	Catalysis and reaction engineering, adsorption, hydrocarbon processing
7	Deshmukh Omkar Suresh	University of Twente, Netherlands	Assistant Professor	Colloids & Interfaces, Flow of Complex fluids, Polymer Dynamics, Glassy systems, Food oral processing, Food Physics, Bio-materials, Biophysics.
8	Ghosh Pallab	IIT Bombay	Professor	Interfacial phenomena, Interfacial reactions, Membrane separation, Randomised algorithms
9	Ghoshal Alok Kumar	IIT Kharagpur	Professor	Advanced Separation Technology, Modelling & Simulation, Environmental Pollution Control, Pyrolysis of waste plastics
10	Gooh Pattader Partho Sarathi	Lehigh University	Assistant Professor	Stochastic dynamics, Colloid and Interface science, Tribology, Soft matter
11	Golder Animes Kr.	IIT Kharagpur	Professor	Electroremediation of water/wastewater, Physiochemical water/wastewater treatment techniques, Bioremediation, Electrochemical corrosion
12	Goud Vaibhav V.	IIT Kharagpur	Professor	Heterogeneous Reactions, Bio-energy and Green Engineering, Biolubricant, Utilisation of Lignocellulosic Biomass for Fuel/Chemicals, Supercritical Fluids
13	Gupta Raghvendra	The University of Sydney, Australia	Associate Professor	Biofluid Mechanics, Multiphase Flows, Microfluidics, Experimental and computational fluid dynamics
14	Katha Anki Reddy	IISc Bangalore	Associate Professor	Granular Physics, Energy and Environmental Sciences, Animal Locomotion and Terramechanics, Computational Biophysics, Fluid Dynamics and Suspensions
15	Katiyar Vimal	IIT Bombay	Professor	Synthetic and Natural Polymers, Polymer Processing, Biothermoset, Nanobiocomposite, Organic Solar Cells, Biodegradable Polymers, Energy
16	Kishore Nanda	IIT Kanpur	Professor	Biofuels, Computational Fluid Flow and Heat/Mass Transfer, Density Functional Theory, Non-Newtonian Fluids
17	Kotecha Prakash	IIT Bombay	Associate Professor	Optimization, Process Control, Artificial Intelligence, Planning and Scheduling
18	Kumar Amit	University of Delaware, USA	Associate Professor	Polymers and Polymer Nanocomposites, Molecular Modelling and Simulation, Gas Separation in Porous Materials
19	Mandal Bishnupada	IIT Kharagpur	Professor	Separations with chemical reaction, Molecular based membrane separation, Modelling and simulation of separation processes, Environmental pollution control

20	Mandal Tapas K	IIT Kharagpur	Professor	Multiphase flow & Measurement in multiphase flow, Bio-diesel
21	Mazumdar Subrata Kumar	IIT Kharagpur	Professor	Petroleum Science & Technology, Multiphase flow and reactor development, Hydrodynamics in multiphase flow, Mineral processing, Process intensifications, Micro-nano bubble science and technology and its applications, Waste water treatment, Microchannel-based extraction, Jet driven gas-aided extraction
22	Mohanty Kaustubha	IIT Kharagpur	Professor	Biofuels, Biomass pyrolysis, Biological wastewater treatment, Heterogeneous catalysis, Microalgae bio refinery, Membrane based separations, Ionic liquid based separations, Waste management.
23	Moholkar Vijay S.	University of Twente, Netherlands	Professor	Bubble dynamics, CFD, Sono-process engineering, Bio-mass gasification
24	Peela Nageswara Rao	IIT Kanpur	Associate Professor	Heterogeneous Catalysis and reaction engineering, Biomass conversion to value added chemicals, Bio-oil up-gradation to transportation fuels, Carbon dioxide activation to valuable chemicals, Metal encapsulated zeolites
25	Prabu Vairakannu	IIT Madras	Associate Professor	Clean Coal Technology, Combustion and Gasification, Reaction kinetics
26	Pugazhenth G.	IIT Kanpur	Professor	Membrane Separation, Polymer Nanocomposites, Nanomaterials, Catalysis & Refinery Processes
27	Purkait Mihir Kumar.	IIT Kharagpur	Professor	Membrane technology; Effluent treatment and waste management; Advanced separation processes; Catalysis; Nanoparticles and nano-composites; Bio-diesel; Bio-products, vegetable and fruit juice processing; CO <sub>2</sub> to products and liquid fuels.
28	Saha Prabirkumar	IIT Madras	Professor	Process Modelling, Optimisation and control, Membrane Based separation Process
29	Senthilmurugan S	IIT Delhi	Associate Professor	Modelling and Optimization of Novel Processes, Process Design and Operation of Membrane Separation Processes, Waste and waste water treatment (WWWT) for Process Industries, Novel Desalination Technologies, Smart Water Grid, Waste to Energy
30	Singh Anugrah	IISc Bangalore	Professor & Head of the Department	Computational and Experimental Fluid Dynamics, Microfluidics/Nanofluidic, Material Processing, Flow through Porous Media
31	Suresh Resmi	IIT Madras	Assistant Professor	Systems and control, Energy systems, Fault detection and diagnosis
32	Tiwari Pankaj	University of Utah, Salt	Associate Professor	Conventional and unconventional energies, Reservoir Engineering, Complex organic

		Lake City, UT, USA		solids, Biomass conversion, Pyrolysis process, Kinetic analysis
33	Uppaluri Ramgopal V. S.	UMIST, Manchester , UK	Professor	Food Processing, Extraction of bioactive compounds and their applications in food product development, polymeric hydrogel fabrication, nutritionally rich low cost food products, membrane science and technology, functional adsorbent synthesis, wastewater treatment
34	Venkatesh R. Prasanna	IIT Madras	Associate Professor	Electrochemistry, Chemical Mechanical Polishing (CMP), Post CMP cleaning, Refinery Processes



**DEPARTMENT OF CHEMISTRY**
**LABORATORY FACILITIES**

Sr. No.	Details of Laboratory	Number	Approx. Floor space (m <sup>2</sup> )	Availability of facilities like board, LCD, PC/Laptop, AC, internet
<b><u>Laboratories for B. Tech and M. Sc program</u></b>				
01	Chemistry Laboratory (B. Tech, 1 <sup>st</sup> sem) / Chemical Technology Lab – I, B. Tech (CST)	01	200	White board, PC, internet, phone
02	Chemical Technology Lab – II, B. Tech (CST)	01	140	White board, PC, internet, phone
03	Chemical Technology Lab – III, B. Tech (CST) / Physical Chemistry Lab (M. Sc)	02	300	White board, PC, internet, phone
04	Inorganic Chemistry Lab (M. Sc) / Organic Chemistry Lab (M. Sc)	01	180	White board, PC, internet, phone
<b><u>Research Laboratories:</u></b>				
05	CHL –101, CHL – 102, CHL –103, CHL – 104, CHL –105, CHL –106, CHL – 201, CHL-202, CHL-203, CHL-204, CHL – 205, CHL – 206, CHL-3201, CHL-3202, CHL-3203, CHL-3204, CHL-3207, CHL-3209, CHEL-004, CHEL-005, CHEL-006, CHEL –101, CHEL –102, CHEL –103, CHEL – 104, CHEL – 105, CHEL – 106, CHEL –107, CHEL –108, CHEL – 109, CHEL –201, CHEL –202, CHEL –203, CHEL – 204, CHEL – 205, CHEL – 206, CHEL –207, CHEL –208, CHEL – 209, CHEL –301, CHEL –302, CHEL –303, CHEL – 304, CHEL – 305, CHEL – 306, CHEL –307, CHEL –308, CHEL – 309.	48	80 (average)	White board, computers, internet, phone, Fume hoods, Centralized AC
06	Analytical equipment Lab I – VI	06	540	phone, computers, internet, AC
07	Computer Lab	02	80	phone, computers, internet, AC
08	Ultrapure (Millipore) water Lab	01	50	AC

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

The Department is engaged in various research and Development activities such as: Catalysis, Supramolecular Chemistry, Nanoscale Science and Technology, Synthesis, structure and reactivity of Inorganics, Newer reagents, Protocols and Newer methodologies, Synthesis of natural products and Carbohydrate Chemistry, Bio-organic Chemistry, Bio-inorganic Chemistry and Co-ordination Chemistry & Organometallics, Chiral recognition using metal complex based host, Metal removal from wastewater using polymer based chelators, Polymer synthesis, Organic Photochemistry, Molecular dynamics, Quantum Molecular dynamics, Physical Chemistry – Spectroscopic and Theoretical investigations on Novel Materials, peptide chemistry, Development of new theoretical approaches to: Laser Assisted Control of Chemical

Reactions, and, Resonances in Electron – Molecule Scattering, Biomimetic Chemistry and Chemical Biology, Computational Biophysics and Chemistry, Oxidation Catalysis, Molecular Magnetism, Synthesis of Single-Molecule Magnets (SMMs), MRI Contrast agents, Water Oxidation Chemistry, Experimental & Theoretical Physical Chemistry, Self-organization and Nonlinear dynamics, Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Supramolecular dynamic aggregates, peptides, lipids, Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS, Synthetic organic chemistry, Natural product synthesis with the emphasis of new synthetic methodology; development of new reactions, asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study, solar fuel from water, Gas/Vapor/Liquid Adsorption and Catalytic Applications of Metal-Organic Frameworks (MOFs), Peptidomimetics: Synthesis, Conformation and Biological activity, Nanofluidics, Organometallic Chemistry and Catalysis, Bio-inspired Polymer Materials, Drug Delivery, Open Microfluidics, Chemical Sensor, Organofluorine Chemistry etc.

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

### Major Initiatives in R&D:

Development of novel methods for the construction of diverse organic molecules those are of important in biological and medicinal sciences, Development of novel strategies for C-H activation for the regioselective carbon-carbon and carbon-heteroatom bonds formations, which are important in academia and chemical industries from both environmental and economic standpoint, Development of novel materials for water harvesting, Design of catalysts to transfer waste to chemicals, Supramolecular chemistry of polypeptides which are important in drug delivery and nanotechnology, Design and development of novel approaches for the development drugs for misfolding diseases, such as Alzheimer's disease (AD) and Parkinson's disease etc. Development of atom economic routes for the construction of novel molecules which are important in pharmaceuticals, materials chemistry such as construction of devices etc.,.

### Breakthrough Innovations:

There are some salient research achievements observed in the ongoing research and development under institutional and sponsored research projects which has appeared in reputed peer-reviewed journals and newspapers recently in various fields of chemistry as mentioned below,

- Development novel materials that can efficiently harvest water from humid air.
- Development of efficient catalysts for transforming industrial waste into valuable chemicals etc.

## CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
1	Dr. Subhendu Sekhar Bag	2 <sup>nd</sup> Webinar on "E-Meeting On Advanced Catalysis (Adcat-2021)", Organized by Coalesce Research Group	Virtual	11/03/2021 - 12/03/2021	International
2		National webinar on National Educational Policy 2020: Revisiting Ancient Indian Knowledge System for Atmanirbhar Bharat. Organized by IGNOU	Virtual	28/02/2021	National
3		National Webinar on Academic Contribution of	Virtual	19/11/2020	National

		Shri Shri Anandamurti ji. Organized by Rajasthan University			
4	Dr. Debapratim Das	Recent Advances in Organic and Biomolecular Chemistry 2021 Organized by NIT Sikkim	Virtual	24/03/2021	International
5		Meet IIT Roorkee Chemistry Alumni Organized by IIT Roorkee	Virtual	13/08/2020	National
6		ChemSci 2020, organized by IISER Kolkata	Virtual	07/12/2020 - 10/12/2020	International
7	Dr. Manabendra Sarma	International e-Poster Conference on Current Outlook in Material Science and Engineering 2020 (COMSE – 2k20)	Online	15/05/2020 - 16/05/2020	International
8		ACS Science Talk: Virtual Lecture Series	Online	24/07/2020	International
9		New Horizons in Density Functional Theory Faraday Discussion	Online (Royal Society of Chemistry, UK)	02/09/2020 - 04/09/2020	International
10	Dr. Kingsuk Mahata	Molecules to Materials	NIT Surat, Virtual	17/12/2020 - 18/12/2020	International
11	Dr. Uttam Manna	ACS Science Talk	Virtual lecture	10/07/2020	International
12		International Conference on Recent Trends in Chemical Sciences (RTCS-2020)	Virtual lecture	27/12/2020	International
13	Dr. Akshai Kumar A S	"Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17th January, 2021	Virtual	11/01/2021 - 17/01/2021	International
14		International Webinar "Recent Trends in Chemical Science: Development and Application" organized by Department of Chemistry, Poomaprajna College and Postgraduate Centre, Udupi,	Virtual	09/09/2020	International
15		EURIDITION-2020 organized by Department of Chemistry and IQAC, Payyanur college, Payyanur, Kerala under the auspices of The Kerala State Higher Education Council	Virtual	06/05/2020	National

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Prof. A. T. Khan	Chemistry plays a pivotal role for Mankind and Exploration of Amines Towards Heterocycles synthesis	Nowgong College	Nowgong, Assam	20/08/2020
02	Dr. Subhendu Sekhar bag	A Photocatalytic Route to Click Reaction: Synthesis of 1,2,3-Triazoles of Biological Importance	2 <sup>nd</sup> Webinar on "E-Meeting On Advanced Catalysis (Adcat-2021)", Organized by Coalesce Research Group	Virtual	11/03/2021 - 12/03/2021
03		NEP 2020 and Role of Technology for Equity and Access	National webinar on National Educational Policy 2020: Revisiting Ancient Indian Knowledge System for Atmanirbhar Bharat. Organised by IGNOU	Virtual	28/02/2021
04		Microvitum –In Quest Of An Unified Theory Of Natural Science	National Webinar on Academic Contribution of Shri ShriAnandamurtiji. Organized by Rajasthan University	Virtual	19/11/2020
05	Prof. Achalkumar Ammathnadu Sudhakar	Columnar self-assembly and applications	NIT Rourkela	Webinar on Frontiers in Organic Electronics	29/06/2020-03/07/2020
06	Dr. Debapratim Das	Supramolecular Aggregates of Short Peptides for Various Applications	Recent Advances in Organic and Biomolecular Chemistry 2021 Organized by NIT Sikkim	Virtual	24/03/2021
07		Supramolecular Aggregates: The Surprise Continues	Meet IIT Roorkee Chemistry Alumni Organized by IIT Roorkee	Virtual	13/08/2020
08		Unusual assemblies of KC peptides: New avenue to create functional biomaterials	ChemSci 2020, organized by IISER Kolkata	Virtual	07/12/2020 - 10/12/2020
09		Unexpected Supramolecular Aggregates: The Case of KC Peptides	The Saturday COVID-19 Lecture series at University of Miami, USA	Virtual	29/07/2020
10	Prof Subhas Chandra Pan	Metal Free Synthesis of Cyclic Molecules	Tezpur University	Virtual	07/01/2021
11		Significance of Chirality and Chiral Catalysts	NIT Surathkal	Virtual	18/02/2021

12		Metal Free Synthesis of Cyclic Molecules	NIT Durgapur	Virtual	03/03/2021
13	Dr. Manabendra Sarma	A National Webinar on Current Perspectives in Chemical Sciences	Department of Chemistry, Bhatler College, Dantan and Indian Chemical Society, West Bengal, India	Online	21/07/2020
14		A National Webinar on Theoretical Chemistry: Quo Vadis?	Department of Chemistry and IQAC, Goalpara College, Goalpara, Assam, India	Online	16/08/2020
15		Science Academies Sponsored Refresher Course on Theoretical and Computational Chemistry (Two Lectures)	Department of Chemistry, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India	Online	28/01/2021
16		Science Academies Sponsored Refresher Course on Theoretical and Computational Chemistry (Two Lectures)	Department of Chemistry, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India	Online	30/01/2021
17		Science Academies Sponsored Refresher Course on Theoretical and Computational Chemistry (Two Lectures)	Department of Chemistry, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India	Online	01/02/2021
18		Guest Lecture Series on Chemistry Education (Virtual)	Department of Chemical Sciences, Tezpur University, Assam, India	Online	10/02/2021
19		TEQIP – III Sponsored One-day Seminar on Theoretical and Computational Chemistry (Offline/Online)	Department of Chemistry, NIT Meghalaya, Shillong, India	NIT Meghalaya, Shillong	13/03/2021
20	Dr. Dipankar Srimani	Applicability of Acceptorless Dehydrogenation and Borrowing Hydrogen Catalysis in Chemical Synthesis	Assam Don Bosco University	Virtual	31/10/2020
21		Application of De(hydrogenative) Transformations in Chemical Synthesis	IIT Bhilai	Virtual	27/11/2020
22		Application of De(hydrogenative) Reactions in Sustainable Catalysis	Amity Institute of Applied Sciences, Amity University, Kolkata	Virtual	26/11/2020
23	Dr. Uttam Manna	Webinar Series, Dept of Chemistry	IIT Delhi	Delhi	13/08/2020

24		TEQIP-III Sponsored Short-term Course, Department of Applied Sciences	Punjab Engineering College	Chandigarh	20/08/2020
25		TEQIP-III Sponsored Short-term Course, Department of Chemistry	National Institute of Technology, Manipur	Manipur	18/10/2020
26		Complex Fluids-2020	IIT Bombay and the Indian Society of Rheology (ISR)	IIT Bombay	12/12/2020
27		SERB Webinar Series On COVID-19 Emerging Research	SERB, DST	Delhi	07/01/2021
28		One Day Virtual Outreach Programme	Indian Institute of Technology Guwahati In Association with Indian International Science Festival 2020	IITG	18/12/2020
29	Dr. Krishna P. Bhabak	Chemistry and Biology of Organochalcogen Compounds	NIT Manipur	Manipur	29/10/2020
30	Dr. Animesh Das	Transition metal-free regioselective C-H bond cyanation and chemoselective reduction of fused azines	Amrita Vishwa Vidyapeetham, Kerala	Kerala	02/06/2020
31	Dr. Akshai Kumar A S	Pincer-Metal Complexes in Catalytic Conversions: Synthesis of High-Value Fuels and Specialty Chemicals	Webinar "Know Your Members" organized by INYAS, New Delhi	Virtual	20/03/2021
32		The Fascinating Chemistry of Organometallic Complexes and Their Versatile Applications	International Webinar "Recent Trends in Chemical Science: Development and Application" organized by Department of Chemistry, Poornaprajna College and Postgraduate Centre, Udupi,	Virtual	09/09/2020
33		The Fascinating Chemistry of Organometallic Complexes and Their Versatile Applications	Webinar Series organized by Department of Chemistry St. Aloysius College, Mangalore	Virtual	08/07/2020
34		The Fascinating Chemistry of Metal Carbonyls and their Versatile Applications	EURIDITION-2020 organized by Department of Chemistry and IQAC, Payyanur college, Payyanur, Kerala under the auspices	Virtual	06/05/2020

			of The Kerala State Higher Education Council		
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#### SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
	Dr. Akshai Kumar (Member of the Organizing Committee)	"Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17th January, 2021	NIPER	11/01/2021 - 17/01/2021	International	>300
	Dr. Uttam Manna, Convener	6th National Workshop on NEMS/MEMS and Theranostic Devices	Ministry of Electronics and Information Technology (MeitY), Govt. of India	01/12/2020 - 03/12/2020	International	>200

#### PATENTS

No. of Patents Applied: 04

No. of Patents Granted: 01

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.
01	Prof. Bhubaneswar Mandal and Dr. Ashim Paul	BETA SHEET BREAKER PEPTIDES FOR DRUG DESIGN AGAINST DIABETES TYPE II	24/03/2021	Patent No.-362950 Application No. – 201631018104
02	Dr. Uttam Manna and Avijit Das, Dr. Sachin Kumar	A METHOD OF PREPARING DISPOSABLE WATER REPELLENT MASK AND A PRODUCT THEREOF	03/04/2020	202031014922
03	Dr. Uttam Manna and Velayudhan Pillai Nandakumar, Karthick Ramalingam, Manjunatha Megur Ganesh BHAT, Pramod Kumar HEGDE, Avijit Das, Arpita Shome, Manideepa Dhar	A COATING COMPOSITION AND A PROCESS OF PREPARATION THEREOF	16/05/2020	202041020725
04	Dr. Akshai Kumar A S	A PROCESS FOR UPGRADATION OF ETHANOL OR ALKYLATION OF ALCOHOLS	27/05/2020	202031022124

05	Dr. Akshai Kumar A S	A PROCESS FOR PRODUCTION OF LACTIC ACID FROM GLYCEROL	23/05/2020	202031021709
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#### AWARDS AND HONOURS

- Dr. Subhendu Sekhar Bag was Elected as Chartered Chemist (CChem) by Royal Society of Chemistry, London, UK
- Dr. Subhendu Sekhar Bag received the Global Faculty Award 2020 (GFA20IN0767) from AKSEducation Awards AKS Worldwide Pvt. Ltd.
- Dr. Subhendu Sekhar Bag received the Dr. A. P. J. Abdul Kalam Lifetime International Award from IRDP Group of Journal
- Dr. Subhendu Sekhar Bag received the Quarterly Franklin Membership (ID#RA87720) from the Editorial Board of London Journals Press
- Prof. Bhubaneswar Mandal was awarded Life Fellow of Chemical Research Society of India
- Prof Subhas Chandra Pan was invited to the Editorial Advisory Board of Journal of Heterocyclic Chemistry, Wiley Publishers, Germany
- Dr. Manabendra Sarma was selected as the Fellow of the Royal Society of Chemistry (FRSC)
- Dr. Uttam Manna was invited as the Fellow of the Royal Society of Chemistry (FRSC)
- Dr. Uttam Manna received the Humboldt Research Fellowship from the The Alexander von Humboldt Foundation
- Dr. Uttam Manna was invited as Editorial Advisory Board Member of Materials Horizons, RSC
- Dr. Uttam Manna was awarded the Emerging Investigator by Nanoscale
- Dr. Uttam Manna was awarded Life Fellow of Indian Chemical Society
- Dr. Akshai Kumar A. S. was selected as Member of Indian National Young Academy of Sciences (INAYAS), Indian National Science Academy 2021-2026
- Dr. Akshai Kumar A. S. found mention in "The list of Indian chemists making ACS great"

#### STUDENTS' ACHIEVEMENT

- Ms. Arpita Shome received the Prof. G. Gopalarao Centenary Young Scientist Award from the Indian Chemical Society
- Ms. Angana Borbora received the Research Excellence Award in the physical chemistry from the Indian Chemical Society
- Ms. Arpita Shome received the Sir C V Raman Award of Excellence from the Indian Chemical Society
- Mr. Dipanjan Bhattacharyya received 1<sup>st</sup> Position for Poster Presentation at the International Conference organized by Indian Chemical Society from 26 – 29th December 2020 "Recent Trends in Chemical Sciences-2020"
- Mr. Bikash Kumar Sarmah 1<sup>st</sup> Position for Oral Presentation at International Conference organized by Indian Chemical Society from 26 – 29th December 2020 "Recent Trends in Chemical Sciences-2020"
- Ms. Eileen Yasmin received the Consolation Poster Award for "Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17<sup>th</sup> January, 2021

#### SPECIAL MENTION

1. Prof. A. T. Khan delivered the Professor P K Bose Memorial Endowment Award Lecture entitled "Exploration of Nitro-alkene in Organic Synthesis" in the International Seminar on Recent Advances in Chemistry & Material Sciences -2020.
2. Dr. Manabendra Sarma received Appreciation from ACS Omega and International Journal of Chemical Kinetics for reviewing papers.
3. The research work of Dr. U. Manna related to water harvesting and antiviral coating have been highlighted at various national platforms—including in The Shilong



Times, Deccan Herald, The Hindu, Edex Live, Northeast Now, The Lallontop, Financial Express, Skilloutlook, Guwahatipius, Delhi post, The Guwahati Times, Northeast Today, The Telegraph, India Today, The Economic Times, Timesnownews, Zee News, Economic Times, The Sentinel, NDTV Education, EastMojo, The Assam Tribune, The Hindustan Times, Outlook India, The Tribune, BWEducation, The Times of India, Maharashtra Times, Namasthe Telangana, Dainik Jagran, Assam Post, Newsfile, The Print, YourStory on December 8, 2020.

4. The research work of Dr. Akshai Kumar A S and group related to "Development of efficient catalysts for transforming industrial waste into valuable chemicals" appeared in the following media.
5. Dr. Akshai Kumar A.S. is selected as New Members of INYAS
6. Prof. Subhendu Sekhar Bag has received the prestigious award CChem designation from the Royal Society of Chemistry for his outstanding academic, professional, research contributions in the field of Chemical Sciences and Chemical Biology. Honorable Minister of Education Dr. Ramesh Pokhriyal Nishank congratulated Prof. Bag for this great achievement. The Ministry of Education also congratulated Prof. Bag for this outstanding achievement.

#### FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
01	Achalkumar A.S.	Ph.D. (CSMR, Bangalore)	Professor	Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Green Chemistry
02	Akshai Kumar A. S.	Ph.D. (IISc Bangalore)	Assistant Professor	Organometallic Chemistry, Inorganic Chemistry, Organofluorine Chemistry, Catalysis (Homogeneous and Heterogeneous), C-H and C-F activation
03	Bag Subhendu Sekhar	Ph.D. (IIT Kharagpur)	Professor	Bioorganic Chemistry and Chemistry of Unnatural Nucleic Acid and Peptides
04	Baruah, Jubaraj B.	Ph.D. (IISc Bangalore)	Professor	Homogeneous Catalysis, Supramolecular chemistry and material design
05	Bhabak, Krishna Pada	Ph.D. (IISc Bangalore)	Assistant Professor	Organic and Bio-organic Chemistry
06	Biswas, Shyam Prosad	Ph.D. (Ulm University, Germany)	Associate Professor	Gas/Vapor/Liquid Adsorption and Catalytic Applications of Metal-Organic Frameworks
07	Chattopadhyay, Arun	Ph.D. (Columbia University)	Professor	Nanoscale Science and Technology
08	Chatterjee Sunanda	Ph.D. (IISc Bangalore)	Assistant Professor	Peptide Chemistry, Supramolecular Chemistry, Antimicrobial peptide research, Peptidomimetic chemistry
09	Das, Animesh	Ph.D. (University of Goettingen, Germany)	Assistant Professor	Organometallic chemistry and catalysis
10	Das, Debapratim	Ph.D. (IACS, Kolkata)	Professor	Supramolecular dynamic aggregates, peptides, lipids
11	Das, Gopal	Ph.D. (IIT Kanpur)	Professor	Supramolecular, Bioorganic chemistry and Biomineralization

12	Dutta, Sumana	Ph.D. (IACS, Kolkata)	Associate Professor	Experimental & Theoretical Physical Chemistry / Self-organization and Nonlinear dynamics
13	Gupta, Ashish K.	Ph.D. (Univ. of California, Los Angeles)	Professor	Quantum Molecular Dynamics
14	Iyer, Parameswar K.	Ph.D. (CSMCRI, Bhavnagar)	Professor	Polymer synthesis, Organic / Organometallic Chemistry & Device fabrication, Sensors
15	Jana, Chandan K.	Ph.D. (WWU Muenster, Germany)	Professor	Total Synthesis/ Natural Product Based Drug Discovery/ Synthetic Methodology/ Development of New Reaction
16	Kancharla, Pavan K.	Ph.D. (IIT Kanpur)	Assistant Professor	Organic Chemistry, Carbohydrate Chemistry, Development of Synthetic Methodology, Organocatalysis.
17	Khan, Abu Taleb	Ph.D. (Kalyani University, W.B)	Professor	Synthesis of Natural Products, Heterocycles and Carbohydrate Chemistry, Newer Methodologies
18	Krishnamoorthy, G.	Ph.D. (IIT Kanpur)	Professor	Organic Photochemistry & Spectroscopy
19	Kundu, Lal Mohan	Ph.D. (LMU Munich, Germany)	Associate Professor	Nucleic Acid / Peptide Chemistry, DNA / RNA Damage and Repair, DNA Hybrid Materials
20	Mahata Kingsuk	Ph.D (University of Siegen, Germany)	Associate Professor	Solar Fuel from Water, Supramolecular Catalysis, Theranostic Nano-Medicine
21	Manivannan, V.	Ph.D. (IACS, Calcutta)	Professor	Coordination Chemistry
22	Mandal, Bhubaneswar	Ph.D. (EPFL, Lausanne, Switzerland)	Professor	Peptide Chemistry and Amyloid Research
23	Manna, Debasis	Ph.D. (University of Illinois at Chicago)	Professor	Lipid-Protein Interaction, Lipid Synthesis
24	Manna, Uttam	Ph.D. (IISc, Bangalore)	Associate Professor	Bio-Inspired Polymeric Materials.
25	Mondal, Biplab	Ph.D. (IIT Bombay)	Professor	Coordination and Bioinorganic Chemistry
26	Mukherjee, Chandan	Ph.D. (Max-Planck Institute of Bioinorganic Chemistry, Muelheim, Germany)	Professor	Oxidation Catalysis / Molecular Magnetism / Synthesis of Single-Molecule Magnets (SMMs) / MRI Contrast agents / Water Oxidation Chemistry
27	Pan, Subhas Chandra	Ph.D. (Max-Planck-Institut fuer Kohlenforschung, Muelheim an der Ruhr, Germany)	Professor	Synthetic organic chemistry: Natural product synthesis with the emphasis of new synthetic methodology; development of asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study
28	Panda, Aditya N.	Ph.D. (IIT Kanpur)	Professor	Dynamics of bimolecular scattering processes
29	Patel, Bhisma K.	Ph. D. (IIT Kanpur)	Professor	Bio-Organic Chemistry and Newer Methodologies

30	Paul, Anumita	Ph.D. (Columbia University)	Professor	Surface Science, Catalysis, Thin Films
31	Paul, Sandip	Ph.D. (IIT Kanpur)	Professor	Computational Biophysics and Chemistry
32	Punniyamurthy, T.	Ph.D. (IIT Kanpur)	Professor	Synthetic Organic Chemistry
33	Qureshi, Mohd	Ph.D. (IIT Kanpur)	Professor	Materials Chemistry
34	Ray, Manabendra	Ph.D. (IIT Kanpur)	Professor	Bioinorganic and Coordination chemistry
35	Raidongia, Kalyan	Ph.D. (JNCASR)	Associate Professor	Physical Chemistry
36	Sahu, Kalyanasis	Ph.D. (IACS, Kolkata)	Associate Professor	Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS
37	Saikia, Anil Kr.	Ph.D. (RRL Jorhat)	Professor	New Synthetic Methodology & Natural Product Synthesis
38	Sastri, Chivukula V	Ph.D. (University of Hyderabad)	Professor	Biomimetic Chemistry and Chemical Biology
39	Sarma, Manabendra	Ph.D. (IIT Bombay)	Associate Professor	Development of new theoretical approaches to Laser Assisted Control of Chemical Reactions, and Resonances in Electron – Molecule Scattering Reactions
40	Srimani, Dipankar	Ph.D (IACS, Jadavpur)	Associate Professor	Organic, Organonometallic Chemistry

**LABORATORIES FACILITIES****Environmental Engineering Laboratory:**

Environmental Engineering laboratory is equipped with some of the sophisticated instruments such as Atomic Absorption Spectrophotometer (AAS) for heavy metals analysis in ppm and ppb levels, UV-Visible Spectrophotometer for the quantitative determination of different analytes like transition metal ions and highly conjugated organic compounds, Gas Chromatograph for separating and analyzing compounds that can be vaporized without decomposition, Ion Chromatograph for analyzing organic and inorganic compounds, Laser Particle Size Analyzer for particle size gradation in the range 0.02- 2000  $\mu\text{m}$  etc. The laboratory is also equipped with some of the major instruments for air quality monitoring like Micro-meteorological monitoring system with required accessories and data logging system and software (automatic), Cascade Impactor etc. The laboratory has also a well-equipped micro-biology division with microbial research facilities to enrich, isolate, and identify noble bacterial species. The laboratory is equipped with the instrumentation facilities for water quality and wastewater analysis, solid waste and hazardous waste characterization.

**Geotechnical Engineering Laboratory:**

The geotechnical engineering laboratory aims to conduct testing and research for the identification of the engineering behavior of geomaterials such as soils, rocks, geosynthetics, fly-ash, composite materials and different by-products of the geomaterials. The research expertise endorsed by the lab has been successfully used in multi-faceted geotechnical problems involving foundations, dams, embankments, tunnels, reservoirs, pavement subgrades, slopes, retention systems, seismicity and rainfall affected systems, as well as specialized applications like waste containment systems, biostabilization, nuclear repository containment and harnessing of geothermal energy. The precision of such design and analyses largely depends on the experimental information and numerical modeling skills supported by the geotechnical laboratory. The primary aim of the geotechnical laboratory is to look for avenues of safe and economic design, analyses and stabilization approaches, which is the need of the hour of North-Eastern region. The geotechnical laboratory is equipped with state-of-the-art instruments essential to determine the different physical, chemical, geotechnical and geophysical properties of the geomaterials. The major equipments already present in the laboratory are the Cyclic triaxial testing apparatus, Multi-channel data logging (MASW accompanied by cross-hole apparatus), Unsaturated triaxial setup, Rock testing equipments, Research Centrifuge, Guelph Permeameter, Cross permeability test apparatus, automated Direct shear and Consolidation setups and several others. The laboratory is also well equipped with specialized network licensed numerical and modeling softwares such as GeoStudio, PLAXIS 2D and 3D, RocScience, FLAC, 2007, to name a few. The major equipments which are under the process of acquirement in 2017-18 are Flame Photometer, High Accuracy Digital Balance, Vane Shear Apparatus, Direct Shear Apparatus, Torshear Ring Apparatus (arriving soon), ProCheck Digital/Analog Sensor Handheld Readout, and Water Distillation Unit.

**Infrastructure Engineering and Management Laboratory:**

Project Management Laboratory with well-equipped computing facilities along with the state of the art project management and infrastructure planning softwares such as MS Projects, Primavera Project Planner, and Autodesk Revit Building Suite.

**Some of the quantitative analyses carried out in this laboratory include:**

- Financial modelling of infrastructure projects
- Construction cost estimation and rate development
- Earned value analysis of infrastructure projects

- Resource driven scheduling
- nDimensional modelling of built facilities
- Risk analysis and assessment of infrastructure projects

Concrete Testing laboratory is equipped with sophisticated equipment for carrying out tests on special concrete such as self-compacting concrete (SCC) and foamed concrete. Other important facilities include the equipment to study the corrosion behavior of steel reinforcement, shrinkage and microstructure of concrete.

### **Structural Engineering Lab**

This lab is equipped with state of the art facilities for conducting high end experimentation in the field of Structural Engineering and is equipped with equipment like Overhead EOT Crane for Structural test hall, Universal Test frame, NDT equipment like Corrosion analyzing, Rebar locator. Permeability tester, Resistivity meter, extraction tester, Dynamic Actuator system, Earthquake simulator, Pseudo Dynamic Test Facility, FFT analyzer for vibration testing of structural elements, Resonant frequency meter, HBM-48channel data acquisition system, Hydraulic Fork Lift, A-Frame Aluminium Ladder (16ft high), Automatic Vicat's apparatus for SC, Initial and Final Setting of Cement, 300 LPM in Powerpack for MTS test system, Reaction Mass Assembly for Electoseis Long Stroke Shaker Model 113 etc. Abaqus V 6.8 software, ANSYS – v13, SAP 2000 – v14 , MIDAS , Primavara etc.

### **Engineering Survey Laboratory**

This lab is equipped with a wide array of state of the art facilities required for conducting Engineering Survey. Some of the crucial equipment available in this laboratory are Unmanned Aerial Vehicle (Drone), Terrestrial Laser Scanner (TLS), Differential Global Positioning System (DGPS), Total Station, Digital Theodolite, Auto Level and Hand-held Global Positioning System (GPS).

### **Transportation Systems Engineering Laboratory**

This lab has two major sub divisions - Pavement Engineering and Traffic Engineering encompassing all the specialized areas of Transportation Systems Engineering. The Pavement Engineering section is equipped with many state of the art equipment not only for testing pavement materials such as bitumen, aggregates and soil, but also for in-situ pavement evaluation. Some of the major equipment available in the lab are Setup of major equipment for production and design of Cold Mixes (Wet Track Abrasion, Cohesion Tester, Schulze Breuer and Loaded Wheel Tester), Pneumatic Universal Testing Machine (UTM), Gyrotory Compactor, Falling Weight Deflectometer (FWD), Dynamic Shear Rheometer (DSR), Digital Marshall cum Indirect Tensile Strength Tester, CoreDry and CoreLok. On the other hand, the Traffic Engineering Laboratory is equipped with a wide array of facilities required for Traffic data collection and analysis. This lab is well equipped with many sophisticated equipment such as Video VBox, Handheld Roughometer, Speed Radar Guns, Portable Mast Assembly and Dipstick. In addition to this, many software such as VISSIM, MXRoad and HDM-4 are also available in the simulation section of this laboratory.

### **Water Resources Engineering Laboratory**

Water Resources Engineering laboratory is equipped with some of the sophisticated instruments such as Acoustic Doppler Velocimeter (ADV) for recording instantaneous velocity components at a single-point, Acoustic Doppler Current Profiler (ADCP) for measuring water current velocities, DGPS, Spectro-radiometer, Miniature Tensiometer to measure soil suction pressure etc. The laboratory has a 5 m flow channel or flume which is mostly used for carrying out experiments and demonstrations in water flow, friction in a uniform flow channel, flow over a sharp-crested weir, crump weir, streamlined hump, flow under a sluice gate etc. The laboratory has also a 20 m long tilting flume for conducting real time open-channel flow simulation experiments.

Another 30 m long flume has been installed for undertaking cutting edge research in the area of open channel flow, sediment transport processes etc. Work is also being carried out in land use and land cover classification, river migration, water-shed delineation, flow accumulation and hill slope hydrology. The laboratory is also equipped with Drainage and Seepage Tank, 3D Ground Water Flow Laboratory Model for conducting experimental study regarding flow through permeable media, flow line visualization, flow net construction, determination of seepage rate, verification of Darcy's law etc. Research work is also being carried out regarding determination of soil hydraulic conductivity which is one of the governing factors for controlling flow through porous media. Both field and laboratory experiments are simultaneously conducted using different types of infiltrometers like Double Ring infiltrometer, Mini disc infiltrometer, tension infiltrometer etc. for determining hydraulic conductivity of soil, followed by mathematical analysis using numerical tools like HYDRUS to estimate the soil hydraulic properties. Latest versions of the applicable software such as Geomatica, MIKE 21C & CCHE3D have been procured to carry out research related work.

### **Computational Laboratory**

There are three nos. of computer laboratories out of which one lab is located in the M-Block which has around 60 number of Desktop Computers all properly connected to the network and to the centralized UPS system, a wide screen LED Display and a good number of computer related books. The other two labs are in the Annexure Building which has dedicated Wi-Fi facility. A Departmental Server Room is located at M-Block of our Department which has all the license servers for the licensed software of our Department. The licensed software are: SAP 2000, ANSYS 13.0 & 17.0, ABACUS 6.8, Arc GIS, COMSOL 4.2 & 4.2a, MIDAS GEN & MIDAS Civil, GROUND WATER MODELLING SOFTWARE (GMS), WMS 8.2, PLAXIS 2D & 3D, HYPERMESH, LS DYNA, ROC SCIENCE, ETAB, CSI BRIDGE, GEO STUDIO 2012, ERDAS, SPACE GASS. The Lab has three numbers of Servers. One Server is of Make DELL and Model Dell Power Edge R730, the second server is of Make HP and Model HP Proliant DL380 Gen9 and the third server is of Make IBM and Model X3650 M3. The Lab has one number of storage box of Make IBM and Model DS 3500. The Lab has a 26U Floor Mount Server Rack system of Make Valrack with two numbers of fan and 1 number of power distribution units. The Lab has a centralized UPS facility.

### **Earth System Science and Engineering**

Earth System Science and Engineering specialization is one of the seven specializations offered by Department of Civil Engineering, Indian Institute of Technology Guwahati. This specialization has a multidisciplinary approach to study various aspects of the Earth systems. This unique programme was started in 2016 with the objectives to provide high quality classroom, laboratory and field education. This specialization offers both M.Tech and Ph.D. program.

North-eastern region of India is blessed with natural resources (natural and mineral resources including oil and gas) and located in a seismic zone that demands close monitoring of geophysical parameters. In the backdrop of accelerated infrastructure development for national growth, growing incidences of geohazards and natural uncertainties such as climate change has necessitated systematic understanding of the Earth systems in order to build future infrastructures pragmatically, and seek sustainable solutions for hazard related uncertainties. To address these problems scientifically, this specialization is actively involved in various interdisciplinary research projects and consultancy assignments.

Apart from the contemporary learning, students of this specialization will be trained with latest techniques of quantitative analyses which can be directly used for the identification and exploration of natural resources. This will provide research and

employment opportunities in various sectors such as mineral & hydrocarbon exploration, natural resource management, geo-environment etc.

#### **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

- Hydraulic Actuator System-Actuator-power pack-controller-simulation software (Make: MTS, USA)
- Total Station (Make: Pentax Model: R-2502NS)
- Computer Workstation with Monitor, Keyboard & Mouse (Make : Dell Model : Precision 3640 Tower)
- Automatic Pressure Controller (Dual), Make: VJ Tech; Model: VJT226D-P

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

Soil Dynamics, Geo-environmental Engineering, Ground Improvement, Landslides, Behavior of Clays and Clay Minerals, Sustainable development, Public Private Partnerships, Risk Management, Construction Management, Durability studies in concrete, Corrosion of steel reinforcement and protection measures, High performance concrete, Mass transport in cementitious materials, Non-destructive testing of concrete structures, Light weight concrete (Foam concrete), Shrinkage behaviour and thermal performance of concrete, Sustainable materials in construction, Hydrological modeling, Earth and planetary exploration., Study of sediment dynamics in fluvial systems, Petrophysical Modelling for Petroleum Exploration, Environmental impact/risk assessment & management, Remote Sensing and GIS for mapping groundwater potential and recharge, Geodesy and mapping, Photogrammetry and LiDAR., Integration of remote sensing techniques, Sensor calibration and synthetic simulation, Airborne remote sensing (Unmanned Aerial Vehicles) for mapping and exploration, Advance Remote Sensing (hyperspectral, thermal and microwave) and GIS techniques Natural Resource Management, earthquake engineering, structural mechanics, structural dynamics, fracture and fatigue mechanics, finite element analysis, durability of structures, non-destructive testing, construction materials, numerical and analytical methods, computer aided analysis, passive and semi-active control, retrofitting of structures, computational mechanics, IT in construction management, structural analysis and design, performance based seismic design, system identification & structural health monitoring, seismic damage assessment, bridge engineering, wind induced vibration& control, random vibration, nonlinear behaviour of structures, ultrasonic wave propagation, acoustic-impact detection, time-frequency analysis, impact and blast resistant design, reliability analysis and performance based engineering, design and optimization of protection measures, sustainable construction and sustainable construction materials, Removal of heavy metals from wastewater using amine based functionalized polymers, Biodegradation of industrial wastewater, Removal of toxic pollutants like phenol, ammonia, thiocyanate, pyridine from wastewater in fed batch type reactors by indigenous cultures and Air quality modeling in urban transport and industrial environment, Pavement Evaluation and Management, Road Safety, Traffic Flow and Travel Behavior Modeling

#### **MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT**

Two proposals for setting up of a CENTRE OF EXCELLENCE (CoE) as part of National Mission for Sustaining the Himalayan Ecosystem (NMSHE) have been offered by Department of Science and Technology, Ministry of Science and Technology, Govt, worth project value of Rs.3 Cr. Each. Both the proposals have been initiated under the leadership of Professor T. G. Sitharam, Director. Centre of Excellence (CoE) for Glacial Dynamics and Sustainable Hydrological Resources in Eastern Himalaya will cover study on glacier melt modeling for hydrological disaster mitigation and sustainable water resources in parts of Arunachal Pradesh

#### **CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED**

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
01	Talukdar S	International Conference On Futuristic Technologies	IIT Delhi	22/01/2021 - 24/01/2021	International

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National
01	Dr. Anil Kumar Mishra and Dr. Ravi K	STC-Recent Advances in Geotechnical and Geoenvironmental Engineering <b>(ONLINE event)</b>	TEQIP, GOI	17/12/2020 - 21/12/2020	National
02.	Dr. Arun Chnadra Borsaikia and Prof. Hemant B Kaushik	STC-Recent advances in Building Construction Materials and Building Technologies <b>(ONLINE event)</b>	TEQIP, GOI	26/12/2020 - 31/12/2020	National
03.	Prof. Rajib Kumar Bhattacharjya	STC-Classical and Metaheuristic <b>(ONLINE event)</b>	TEQIP, GOI	22/02/2021 - 26/02/2021	National
04.	Dr. Indu Siva Ranjani G	Floated MOOCS course on " Construction methods and equipment management" in NPTEL for JAN 2021 run for 8 weeks	NPTEL	Jan.,2021 for 8 weeks	National

**PATENTS****No. of Patents Applied: 01****No. of Patents Granted: 00**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
01	Dr. Arun Chandra Borsaikia	Universal Foot Operated Hand Sanitization System	15/05/2020	202031020514	Applied

**AWARDS AND HONOURS**

- Prof. Hemant B Kaushik: Received the Best Paper Award in the theme "Concrete and Masonry Structures" at the International Conference on Materials, Mechanics and Structures 2020 (ICMMS2020) organized by National Institute of Technology Calicut, India
- Prof. Sudip Talukdar: Received the Best Research Paper Award at the International Conference in Futuristic Technologies, IIT Delhi
- Dr. Arindam Dey: Invited as Member of the Expert Committee for Capacity Building and Training on Geospatial Science and Technologies (Summer-Winter School)
- Dr. Arindam Dey: Invited as Member of the Scientific Committee at 3<sup>rd</sup> Conference of the Arabian Journal of Geosciences (2020).



## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
01	Barua, Gautam	Indian Institute of Technology, Kharagpur	Professor	*Flow through porous media
02	Bharat, T. Venkata	Indian Institute of Science, Bangalore, India	Associate Professor	*Behavior of unsaturated soils during infiltration & drainage *Settlement behavior of ultra-soft soils and mine tailings *Contaminant transport through landfill liners *Mineralogical aspects of clays *Inverse analysis of geotechnical & geoenvironmental engineering problems
03	Bharti, Rishikesh	Indian Institute of Technology Bombay, Mumbai.	Assistant Professor	* Application of remote sensing and Geographic Information System (GIS). * Airborne remote sensing (Unmanned Aerial Vehicles) for mapping and exploration. * Advance remote sensing (hyperspectral, thermal and microwave) and GIS techniques for the earth and planetary exploration.
04	Bhattacharjya, Rajib K.	Indian Institute of Technology Kanpur	Professor	*Water Resources System Management *Genetic Algorithms *Artificial Neural Networks
05	Buragohain, Dharendra. Nath.	IIT Bombay	Emeritus Professor	*Structural Mechanics * Finite Element Methods *Numerical Methods *Computer aided analysis *Design and drafting *Development of software
06	Chakraborty, Arunasis	Trinity College, Dublin, Ireland	Associate Professor	• Random Vibration & Wavelet Analysis • System Identification & Damage Detection • Uncertainty Quantification & Reliability Based Design
07	Chakraborty, Saswati	IIT Bombay.	Professor	• Heavy metal removal by polymers

				<ul style="list-style-type: none"> <li>• Aerobic granular reactors</li> <li>• Sequential treatment of industrial wastewater</li> <li>• Constructed wetland for wastewater treatment</li> </ul>
08	Choudhary, Rajan	Indian Institute of Technology Roorkee	Professor	<ul style="list-style-type: none"> <li>*Pavement Analysis and Design</li> <li>*Highway Construction and Quality Control</li> <li>*Pavement Material Characterization</li> <li>*Pavement Evaluation and Maintenance</li> <li>*Traffic Engineering</li> </ul>
09	Das, Sandip	Indian Institute of Technology Kanpur	Assistant Professor	<ul style="list-style-type: none"> <li>*Earthquake Engineering</li> <li>*Structural Dynamics</li> <li>*Random Vibration</li> </ul>
10	Dasgupta, Kaustubh	Indian Institute of Technology Kanpur, India	Associate Professor	<ul style="list-style-type: none"> <li>*Earthquake Engineering</li> <li>*Design of Reinforced Concrete Structures</li> <li>*Retrofitting of Structures</li> </ul>
11	Dashora, Ajay	IIT Kanpur	Assistant Professor	<ul style="list-style-type: none"> <li>* Synthetic Simulation</li> <li>* Sensor Calibration</li> <li>* Airborne and Terrestrial LiDAR</li> <li>* Thermography</li> <li>* Integration of Remote Sensing Technologies</li> <li>* Development of Lumped Parameter Models</li> <li>* Flight Planning</li> <li>* Unmanned Aerial Vehicles (UAVs) for Mapping</li> </ul>
12	Deb, Sajal Kanti	IIT Roorkee	Professor	<ul style="list-style-type: none"> <li>*Passive and semi-active control</li> <li>*Performance based seismic design</li> <li>*System identification &amp; structural health monitoring</li> <li>*Seismic damage assessment</li> </ul>
13	Dey, Arindam	IIT Kanpur	Associate Professor	<ul style="list-style-type: none"> <li>*Geosynthetic Reinforced Foundation Beds</li> <li>*Geotechnical Lumped Parameter and Continuum Mechanics Modeling</li> <li>*Parameter Estimation of Geotechnical Models</li> <li>*Optimization, GA, ANN</li> </ul>

				<p>and Soft Computing in Geotechnical Engineering</p> <ul style="list-style-type: none"> <li>*Ground Modification and Improvement Practices</li> <li>*Soil-Structure- Foundation Interaction</li> <li>*Reinforced Soil Structures</li> <li>*Landslides and Slope Stability Analysis</li> <li>*Seismic and Ambient Health Monitoring of Geotechnical Structures</li> <li>*Reliability and Uncertainty Analysis in Geotechnical Engineering</li> <li>*Forensic Investigation in Geotechnical Engineering</li> <li>*Subsurface Profiling and Soil Investigation</li> <li>*Soil Dynamics and Earthquake Engineering</li> </ul>
14	Dutta, Anjan	Indian Institute of Technology Delhi	Professor	<ul style="list-style-type: none"> <li>*Finite Element Mesh Generation</li> <li>*Optimization</li> <li>*Control, Health Monitoring and Retrofitting of structures</li> </ul>
15	Dutta, Subashisa	Indian Institute of Technology Kharagpur	Professor	<ul style="list-style-type: none"> <li>*Meso-Scale Distributed hydrological modeling</li> <li>*Satellite Remote Sensing and GIS for Water resources Management</li> <li>*Computational river hydraulics and its applications</li> <li>*Watershed and Irrigation Management</li> </ul>
16	Ghosh, Pranab Kumar	Indian Institute of Technology Kharagpur	Professor	<ul style="list-style-type: none"> <li>*Water treatment for domestic and industrial use</li> <li>*Domestic and Industrial wastewater treatment</li> <li>*Sludge treatment by physicochemical and biological process</li> </ul>
17	Gokhale, Sharad B.	Indian Institute of Technology Delhi.	Professor	<ul style="list-style-type: none"> <li>*Air Pollution and Environmental Noise</li> </ul>
18	Hazra, Budhaditya	University of Waterloo, Canada	Associate Professor	<ul style="list-style-type: none"> <li>*Deterministic and Stochastic Structural Dynamics</li> <li>*System Identification</li> </ul>

				<ul style="list-style-type: none"> <li>*Blind source separation</li> <li>*Time-frequency analysis</li> <li>*Vibration based condition monitoring</li> </ul>
19	Jawed, Mohammad	Indian Institute of Technology Kanpur	Professor	<ul style="list-style-type: none"> <li>*Biological Processes</li> <li>*Anaerobic Wastewater Treatment</li> <li>*Heavy Metal Removal and Recovery</li> <li>*Water Treatment and Supply</li> <li>*Domestic &amp; Industrial Wastewater Treatment</li> </ul>
20	K., Ravi	Indian Institute of Science (IISc) Bangalore	Assistant Professor	<ul style="list-style-type: none"> <li>*Geo-environmental engineering</li> <li>*Geo-energy systems</li> <li>*Engineering behaviour of unsaturated soils</li> <li>*Research on hazardous waste management</li> </ul>
21	Kalamdhar, Ajay	Indian Institute of Technology Roorkee, India	Professor	<ul style="list-style-type: none"> <li>*Solid waste management</li> <li>*Mechanical composting and vermicomposting</li> <li>*Analysis of solid wastes</li> </ul>
22	Kartha, Suresh A.	from Indian Institute of Technology Kanpur	Associate Professor	<ul style="list-style-type: none"> <li>*Flow and transport through porous media</li> <li>*Heap leaching</li> <li>*Hydrology</li> <li>*Numerical modeling</li> </ul>
23	Kaushik, Hemant B.	Indian Institute of Technology Kanpur, India	Professor	<ul style="list-style-type: none"> <li>*Earthquake Resistant Design</li> <li>*Nonlinear Behaviour of Structures</li> <li>*Retrofitting of Structures</li> <li>*Finite Element Modeling</li> </ul>
24	Kumar, Abhishek	Indian Institute of Science, Bangalore, India	Associate Professor	<ul style="list-style-type: none"> <li>*Seismic hazards of Urban Centers</li> <li>*Ground Motion Simulations</li> <li>*Liquefaction</li> <li>*Seismic hazard for Nuclear Power Plants</li> <li>*Site response studies for deep basins</li> <li>*Multichannel Analysis of Surface Waves (MASW) and Ground Penetration Radar (GPR)</li> <li>*Subsoil Investigations and Geotechnical Engineering</li> <li>*Soil Dynamics</li> <li>*Dynamic testing's on Piles</li> </ul>

				*Ground Improvement, Reinforced earth structures *Deep Excavations
25	Kumar, Bimlesh	Indian Institute of Science, Bangalore	Professor	*Small scale studies of mixing tanks *Experimental Studies of Aeration Systems *Sediment Transport analysis *Pipeline analysis *CFD simulation *Surge analysis
26	Mahanta, Chandan (Head)	Jawaharlal Nehru University, New Delhi	Professor	*Water Quality *Sediment Dynamics in Fluvial Systems *Environmental Impact, Risk Assessment and Management *Environmental Geo-informatics *Engineering Geology
27	Mallikarjuna, Chunchu	Indian Institute of Technology Delhi	Professor	*Traffic flow theory and Modeling *Traffic data collection and analysis *Travel demand modeling
28	Maurya, Akhilesh K.	Indian Institute of Technology (IIT) Kanpur.	Professor	*Driver behaviour *Traffic flow theory and modeling *Traffic engineering
29	Mishra, Anil Kumar	Kyushu University, Fukuoka, Japan	Associate Professor	*Chemical compatibility studies of soil-bentonite mixtures *Waste (municipal, industrial and hazardous) management and disposal *Unsaturated soil mechanics
30	Nair, Archana M.	IIT Bombay	Assistant Professor	* Remote Sensing for Planetary Exploration * Petrophysical Modelling for Petroleum Exploration * Thermal IR Emission and Reflectance Spectroscopy * Hyperspectral Remote Sensing for Mineral Exploration * Remote Sensing and GIS for Hydrogeological studies

31	Pradhan, Bulu	Indian Institute of Technology Delhi, India	Professor	<ul style="list-style-type: none"> <li>*Durability studies in concrete</li> <li>*Corrosion of steel reinforcement and protection measures</li> <li>*High performance concrete</li> <li>*Mass transport in cementitious materials</li> <li>*Non-destructive testing of concrete structures</li> <li>*Construction management</li> </ul>
32	Rajani, G. Indu Siva	Indian Institute of Technology Madras	Assistant Professor	<ul style="list-style-type: none"> <li>*Light weight concrete (Foam concrete)</li> <li>*Durability related studies on concrete</li> <li>*Shrinkage behaviour and thermal performance of concrete</li> <li>*Sustainable materials in construction</li> <li>*Lean concepts of construction</li> <li>*Construction management</li> </ul>
33	Ryntathiang, Teiborlang. Lyngdoh	Indian Institute of Technology, Kharagpur	Professor	<ul style="list-style-type: none"> <li>*Pavement Materials</li> <li>*Precast Concrete Block Pavement</li> <li>*Cast In-Situ Concrete Block Pavement</li> </ul>
34	Sreeja, Pekkat	Indian Institute of Technology Bombay	Associate Professor	<ul style="list-style-type: none"> <li>*Urban Flood Modeling</li> <li>*Modeling and Control of Open Channel Flows</li> <li>*Infiltration and artificial recharge</li> <li>*Stochastic Hydrology</li> <li>*River Mechanics</li> </ul>
35	Sarma, Arup Kumar	Guwahati University	Professor	<ul style="list-style-type: none"> <li>*Modeling &amp; simulation in Free Surface Flow</li> <li>*Heuristic Method in Reservoir Optimization</li> <li>*GIS based Watershed Modeling</li> </ul>
36	Sharma, Hrishikesh	Zachry Department of Civil Engineering, Texas A&M University,	Assistant Professor	<ul style="list-style-type: none"> <li>*Impact and Blast Resistant Design</li> <li>*Reliability Analysis and Performance Based Engineering</li> <li>*Design and Optimization of Protection Measures</li> </ul>
37	Shelke, Amit Balasaheb.	The University of Arizona	Associate Professor	<ul style="list-style-type: none"> <li>*Ultrasonic wave propagation</li> <li>*Acoustic-Impact</li> </ul>

				detection *Non-destructive testing
38	Singh, Arbind K.	(Isc Bangalore	Professor	*Information Technology in Construction Engineering *Object-Oriented Programming *Constitutive modeling
39	Singh, Baleshwar	Indian Institute of Technology Delhi	Professor	*Marine Geotechnology *Modelling of Onshore & Offshore Foundations *Soil Stabilization & Ground Modification *Pavement Subgrade & Site Characterization
40	Singh, Darunkumar K.	Southampton University	Professor	*Structural Analysis and Design *Finite Element Method *Fracture and Fatigue Mechanics
41	Singh, Laishram Boeing.	Indian Institute of Technology Madras	Professor	*Public Private Partnerships *Risk Management *Construction Management
42	Sitharam T. G. (Director of the Institute)	University of Waterloo, Waterloo, Ontario - Canada.	Professor	<ul style="list-style-type: none"> <li>• Rock mechanics and Rock engineering</li> <li>• Geotechnical Earthquake Engineering</li> <li>• Microzonation and site response studies</li> <li>• Micromechanics of Granular materials</li> <li>• Numerical Methods in Geomechanics</li> <li>• Earth dams and Tailing ponds</li> <li>• Reinforced earth structures</li> <li>• Instrumentation in Geotechnical Engineering</li> <li>• Engineering Education: web based education</li> </ul>
43	Sreedeeep, Sekharan.	IIT Bombay	Professor	*Behavioral studies on unsaturated porous media *Characterization of geo-materials (soils and rocks) *Thermal characteristics of geo-materials *Contaminant transport and retention studies *Waste containment

				studies *Landslides
44	Siddagangaiah, Anjan Kumar	Indian Institute of Technology Madras	Assistant Professor	*Analysis and Design of Pavement Structures *Pavement Material Characterization *Pavement Construction and Recycling *Pavement Management Systems *Pavement Evaluation using NDT *Forensic Investigations of Pavement Failures
45	Talukdar, Sudip	Indian Institute of Technology Kanpur	Professor	*Structural Dynamics *Bridge Engineering *Wind induced vibration & control *Non destructive techniques



### LABORATORY FACILITIES

#### MULTIMEDIA LABORATORY

Our research is mainly focused on Deep Learning approaches to solve different Computer Vision problems like image, video restoration, under water vision, super-resolution, satellite image segmentation, image translation, image steganalysis, zero shot learning, adversarial perturbation etc. Beside computer vision problems, our group also explores different ML based approaches for adaptive video streaming in 5G environment. Currently five research scholars, five master's students and four under graduate students are working in the lab. We have published 23 journal papers and more than 50 conference papers in different premium journals and conferences.

Multimedia Lab is well equipped for state-of-art research in multimedia, image and video processing domain providing IBM X3500 M4 sever, HP: Z420 Xeon E5 workstation, SONY HDR PJ820 camcorder, SONY LED KDL55W950 display facility, high end desktops, laptops and other necessary lab equipments.

#### ROBOTICS AND SPEECH LABORATORY

The Lab. has developed in-house, an open source Multi-Agent emulator, nicknamed Tartarus. The same has been written in SWI-Prolog. Tartarus, facilitates users to create a network of nodes comprising either a single PC/laptop/embedded systems (such as Raspberry Pi) or several such devices connected as a LAN (wired/wireless). It facilitates programming both static and mobile agents. Agents in Tartarus are basically programs written in Prolog. They can be programmed to perform tasks autonomously at select nodes and even made to migrate to others autonomously in the network they inhabit. Such agents can even be programmed to clone (copy and multiply) on-the-fly and then move around the network and execute tasks concurrently, providing a distributed and decentralized processing environment. These agents can also carry programs as payloads. Payloads could be written in either Prolog or Python and executed at desired nodes. One could try out using other languages as well. Agents can communicate amongst each other and also with programs resident at a node. As of now, Tartarus can be run on Windows, Ubuntu and Raspbian operating systems. Tartarus can run on the Raspberry Pi too. It can be used to sense the sensors on-board and also control the actuators (motors, relays, etc.) connected on-board. The research focuses on distributed and decentralised cyber physical systems with an emphasis on Bio-inspired algorithms.

The Lab is equipped with NXT Mindstrom LEGO sets Education Based (v.LEGO 9797) with Resource kit associated with education NXT Softwares,NI WSN Starter kit,NXT sensors and Raspberry Pi 3.New Fire Bird V ATMEGA2560 Robot Research Platform has also been acquired which is a standard AVR microcontroller based Fire Bird V which is fitted with Raspberry-Pi SBC (Single Board Computer) and higher resolution encoders. The lab is also facilitated with CSL workstation, headphones and speakers.

#### OPEN SOURCE INTELLIGENCE GROUP LABORATORY

The objective of OSINT Lab is to mine and discover actionable intelligence for various application from publicly available information such as social media platforms, news feeds, microblogging sites etc. The group actively involves in a wide ranges research problems related of text mining, NLP, social media data mining, social network analysis, information retrieval etc. over social media data.

OSINT Lab is an interdisciplinary Lab with collaborators from the domains of machine learning, information retrieval, information security, computational linguistics, user interface design and visualization. The lab is equipped with state-of-the-art facilities with high-end CPU and GPU computing servers, 100TB of NAS storage, distributed Spark clusters, distributed NoSQL databases. The Lab has executed various sponsored projects. It curates and archives a large volume of social media data at the scale of more than 200 billions microblogs (tweets, news

articles, Facebook posts). It has developed tools for analysing social media data (Vishleshakee), event detection from news feeds, OCR for Manipuri Language, Manipuri Text-to-Speech synthesis system, Sentiment analysis system for public opinion. Some of the products developed in the Lab are used by the companies like Lamzing Technologies Pvt. Ltd. It also involves in various outreach activities – development of POS and NER for Dzongkha, 100+ interns to students from different Engineering institutions in North East.

### **COMPUTER NETWORKS & SECURITY LABORATORY**

The CNS research group at IIT Guwahati works on projects that cover a diverse range of experimental and theoretical research, including Wireless Mesh, Ad Hoc and Sensors Networks, High Speed Networks, Network Architecture and Design, Computer and Network Security, Secure Multimedia Communications and Intrusion Detection Systems.

The researches aim at developing low cost and effective solutions for communication and media technology with a focus of blooming technologies for Indian context, specifically the North East Region. At the same time, our theoretical research targets the global developments of networking and security technologies, standards and policies while addresses the design of future network architecture.

### **USER-CENTRIC COMPUTING AND NETWORKING LABORATORY**

The lab focuses on the design and development of applications for computing devices that caters to heterogeneous user groups. The user-centric computing paradigm (otherwise known as the human-computer interaction) is applied in the design of applications used in large-scale content delivery, to ensure good quality of experience to the consumers on heterogeneous devices and networks. The challenges that arise in the development of user-centric networked applications are addressed both from theoretical as well as practical perspectives.

This lab is equipped with Oculus Rift Virtual Reality Head Mounted Display, Epson Moverio BT35E smartglass, Data gloves, Microsoft kinect sensor, 360 degree Camera, Tobii eye tracker (model: X2-60) and associated software for usability studies, Mobile Devices (Android, iOS, Windows), Laptops, Tablets, Smart Phones, SDK Tools for Android, iOS, Windows Application Development, Desktop PCs, High performance computing servers, Wireless and Wired Gigabit Routers, Reconfigurable routers (built using 1Gbps Digilent NetBest viewed in Internet Explorer 9.0 & above or Mozilla Firefox Ver 3 & above with a resolution of 1024 X 76800.FPGA Cards).

### **COMPUTER ARCHITECTURE & EMBEDDED SYSTEMS LABORATORY**

The lab focuses on cutting edge research and technology innovation in the area of VLSI design, testing, verification, real time systems and scheduling, NOC design, multicore architecture and scheduling and cache design for multicore.

Embedded System Development Software, Chip Scope-Pro Software, Virtex-II Pro based Protoboard with FPGA, Virtex-5 Development Board with device XC5VLX50 and VIDEO ADC–DAC Add On Card, Universal Multi-vendor Kit with on board device XC3S400 PQ208C, Simics-4.0.61, Xilinx- ISE Design Suite, Embedded System Development Software (UEFi\_EDK) & Chip Scope-Pro Software(UEF-CSP-PRO), ISE Design Suit,Basys3 FPGA BOARD etc. Under the VLSI laboratory in our department to inculcate student interest in VLSI design, test and verification and facilitating students to build prototype designs and test them.

### **HARDWARE LABOTATORY**

The Department hardware laboratory is equipped with educational tools to promote better understanding of computer hardware and peripherals among the students. 8085/86 Microprocessor Trainer kits and 8031 Microcontroller kits are used to provide hands on experience to students about basic hardware. This Lab also provide space for various research cum major/minor project to be carried out.

New PIC based microcontrollers and FPGA boards have also been acquired. These are supported by Colour Logic Analyzer and Pattern Generator, Function/Arbitrary wave generator, digital oscilloscopes, Wireless Transmitter/Receiver pairs, Data acquisition/ Switch units, TDM pulse code modulator/transmitter and demodulator/receiver, various Software tools like Xilinx evaluation kits, various Architectural Tools and Simulators, Development kits with DE1-SOCMLT2 etc

### **SAMSUNG INOVATION LABORATORY**

This Lab facility was set-up under MOU with SIEL - Samsung India Electronics Private Limited. This facility emphasis on academic collaboration by way of special industry oriented courses, jointly by IITG & SIEL, technical talks & industry expert lectures/demonstrations, minor/major student projects & student technical contests, Research activity mainly engrossed with IoT & Networking.

The Lab is equipped with RASP-PI-3 Motherboard , Wifi Router, High end GPU Servers, Quad Store QS\_URPI Ultra Kit for Raspberry Pi 3, 2, LoraWan Gateway, Lora modules Arduino Shields , Sensing module kit for measuring Temp, Humidity, etc., Smart Display etc.

### **MARS RESEARCH LABORATORY**

This Lab designated with research in the area of Multicore Architecture and Systems like Optimising Network On Chip Architecture, Cache Optimisation in Tiled Chip Multi-Processors (TCMP), Machine Learning based accelerators for NoCs, enhancing Non-Volatile Memory (NVM) Technology, Secure System on Chip Design Techniques, Disaggregated Memory Management in Data Center Architectures, Performance Enhancement in Wireless Network On Chips, etc.

This Lab Facilitated with Server, Workstations, High-end Desktops, Xilinx evaluation kits, various Architectural Tools and Simulators, Development kits with DE1-SOCMLT2, etc.

### **3 NOS. UG SOFT LABORATORY, 2 NOS. PG SOFT LABORATORY, 3 NOS. RESEARCH SCHOLAR LABORATORY**

These Labs are designated computing Facility for B.Tech , M. Tech Students & Research Scholars. These are 24x7 Lab facilities; one workspace allocated to each student. Major activates of these Labs are Soft Project, Tutorials, BTP & MTP, Individual research works by Ph. D. Students etc.

All workspace are equipped with N/W cum Wi-Fi facility, High-end Desktop cum other computing Facility, IBM Rational Rose software development suite, Oracle RDBMS with Oracle products and Oracle Academic Initiative, Java compiler and applet viewer, C++ compilers and Lisp interpreters, Rational rhapsody developer, Matlab, Solaris both SPARC and X86 versions, etc.

### **SUSMA LAB**

This Lab is designated with research in the area of computer architecture like improving performance and lifetime of the emerging non-volatile memories, NoC architecture optimization, accelerator design for machine learning applications.

This Lab is facilitatated with server, workstations, architectural tools and simulators etc.

### **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

- Omen X 15-dg0018TX laptop by HP (Intel® Core™ i7-9750H, 16 GB DDR4-2666 SDRAM (2 x 8 GB), 512 GB PCIe® NVMe™ M.2 SSD)

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT

- Theoretical Computer Science
- Computer Architecture and Embedded Systems
- Man-Machine Interfaces
- Computer Systems
- Artificial Intelligence, Machine Learning and Data Mining

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

### FastSim: A simulator for High-level Synthesis

We have developed a fast, cycle accurate simulator for RTLs generated by High-level Synthesis tool. The tools are on average 300 times faster than all existing commercial RTL simulators like ModelSim and Xilinx RTL simulator.

## CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Name of Faculty/Students	Name of Conf./Workshop	Place	Date	International/National
Chandan Karfa	Chandan Karfa, T. M. Abdul Khader, Yom Nigam, Ramanuj Chouksey and Ramesh Karri, "HOST: HLS Obfuscations against SMT Attack", DATE 2021 March	Virtual Event	March,2021	International
Pradip Kr. Das	Parabattina Bhagath, Phool Chandra, Vanshali Sharma and Pradip K. Das, "Voice-controlled Robot navigation system using Android-based hand-held devices", WiSPNET 2021 March	Virtual Event	March,2021	International
Pradip Kr. Das	Anurag Ramteke, Parabattina Bhagath and Pradip K. Das, "A Neural Network based Technique for Staircase Detection using Smart Phone Images", WiSPNET 2021 March	Virtual Event	March,2021	International
Ashish Anand	Aakansha Mishra, Ashish Anand, Prithwijit Guha, "Multistage Attention based Visual Question Answering", International Conference on Pattern Recognition (ICPR), January 2021	Italy (Virtual Event)	Jan., 2021	International
Ashish Anand	Madhusudan Paul and Ashish Anand , "A New Family of Similarity Measures for Scoring Confidence of Protein Interactions using Gene Ontology", Asia Pacific Bioinformatics Conference (APBC) January	Taiwan (Virtual Event)	Jan., 2021	International
Ashish Anand	Vatsal Goel, Mohit Chandak, Ashish Anand, Prithwijit Guha, "IQ-VQA: Intelligent Visual Question Answering", International Conference on Pattern Recognition Workshop January	Italy (Virtual Event)	Jan., 2021	International

Shivashankar B. Nair	Suraj Kr. Pandey, Sonia, Tushar Semwal, Shivashankar B. Nair, "Smart Patch: An IoT Based anti Child Trafficking Solution", IEEE International Conference on Internet of Things & Intelligence System, (IoTIS) January	Bali, Indonesia (Virtual)	Jan., 2021	International
Moumita Patra, T. Venkatesh	Moustafa Najm, Moumita Patra, T. Venkatesh, "An Adaptive and Dynamic Allocation of Delay-sensitive Vehicular Services in Federated Cloud", 13th International Conference on Communication Systems and Networks (COMSNETS) January	Bangalore, India	Jan., 2021	International
Sukumar Nandi	Bikramjit Choudhury, Amitava Nag, Sukumar Nandi, "DTLS based secure group communication scheme for Internet of Things", the 17th IEEE International Conference on Mobile Ad-Hoc and Smart Systems (MASS), 10-13 December		Dec., 2020	
Sukumar Nandi	Dipojwal Ray, Pradeepkumar Bhale, Santosh Biswas, Sukumar Nandi, Pinaki Mitra, "ArsPAN : Attacker Revelation Scheme using Discrete Event System in 6LoWPAN based BufferReservation Attack", IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS 2020), 14-17 December		Dec., 2020	
Sukumar Nandi	Puneet Bakshi, Sukumar Nandi, "26th annual International Conference on Advanced Computing and Communications (ADCOM 2020), 16-19 December		Dec., 2020	
Sukumar Nandi	Vishal Deka, Manojit Ghose, Sukumar Nandi, "Energy-aware Application Scheduling on DVFS-enabled Edge Computing with Mobile-Edge-Cloud Cooperation", 26th annual International Conference on Advanced Computing and Communications (ADCOM 2020), 16-19 December		Dec., 2020	
Chandan Karfa	Melbin John, Aadil Hoda, Ramanuj Chouksey and Chandan Karfa, "SAT Based Partial Attack on Compound Logic Locking", IEEE Asian Hardware Oriented Security and Trust Symposium (AsianHOST) December		Dec., 2020	

Rashmi Dutta Baruah	A.M. Tripathi, R.D. Baruah, "Multivariate Time Series Classification With An Attention-Based Multivariate Convolutional Neural Network", IEEE World Congress on Computational Intelligence (WCCI 2020)(IJCNN) December		Dec., 2020	
Rashmi Dutta Baruah	Deepankar Nankani, Rashmi Dutta Baruah, "Investigating Deep Convolution Conditional GANs for Electrocardiogram Generation", IEEE World Congress on Computational Intelligence (WCCI 2020)(IJCNN) December		Dec., 2020	
Sukumar Nandi	Madhurima Buragohain, Chinmoy Jyoti Kathar, Chinmoy Kachari, Sunit Kumar Nandi, Sukumar Nandi, "SCAN: Smart Collaborative Attack in Named Data Networking", the 45th IEEE Conference on Local Computer Networks (LCN), 16-19 November		Nov., 2020	
Jatindra Kumar Deka	Mousum Handique, Jatindra Kumar Deka, Santosh Biswas, "A Fault Detection Scheme for Reversible Circuits Using -Ve Control K-CNOT Based Circuit", IEEE REGION TEN CONFERENCE (TENCON - 2020), 16 - 19 November		Nov., 2020	
Jatindra Kumar Deka	Sisir Kumar Jena, Santosh Biswas, Jatindra Kumar Deka, "Maximizing Yield through Retesting of Rejected Circuits Using Approximation Technique", IEEE REGION TEN CONFERENCE (TENCON 2020), 16 - 19 November		Nov., 2020	
Sanasam Ranbir Singh	Loitongbam Gyanendro Singh, Anasua Mitra, Sanasam Ranbir Singh, "Sentiment Analysis of Tweets using Heterogeneous Multi-layer Network Representation and Embedding", The 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP2020) November		Nov., 2020	
Jatindra Kumar Deka	Biswajit Bhowmik, Jatindra Kumar Deka, Santosh Biswas, "Reliability Monitoring in a Smart NoC Component", ICECS 2020 - The 27th IEEE International Conference on Electronics		Nov., 2020	

	Circuits and Systems, 23 - 25 November			
Ashish Anand	Sayantana Basu, Sinchani Chakraborty, Atif Hassan, Sana Siddique, Ashish Anand, "ERLKG: Entity Representation Learning and Knowledge Graph based association analysis of COVID-19 through mining of unstructured biomedical corpora", EMNLP Workshop on Scholarly Document Processing November	Virtual Event	Nov., 2020	International
Sanasam Ranbir Singh	Debashis Naskar, Eva Onaindia, Miguel Rebollo, Sanasam Ranbir Singh, "Predicting emotion dynamics sequence on Twitter via deep learning approach", MoMM 20: Proceedings of the 18th International Conference on Advances in Mobile Computing & Multimedia, 20-24 November		Nov., 2020	
Pradip Kr. Das	Chiranjeevi Sadu, Pradip K. Das, "Swapping Face Images Based on Augmented Facial Landmarks and Its Detection", TENCON Conference (TENCON 2020) November	Virtual Event	Nov., 2020	International
Sukumar Nandi	Himadri Mukherjee, Ankita Dhar, Md Obaidullah Sk, Santanu Phadikar, Kaushik Roy, Sukumar Nandi, "An artificial intelligence-based approach towards segregation of folk songs", International symposium on Frontiers of Research in Speech and Music, 8-9 October		Oct., 2020	
Jatindra Kumar Deka	Biswajit Bhowmik, Santosh Biswas, Jatindra Kumar Deka, "Test Methodology for Analysis of Coexistent Logic-Level Faults in NoC Channels", 2020 IEEE International Conference on System, Man and Cybernetics, Toronto, Canada, 11 - 14 October		Oct., 2020	
Shivashankar B. Nair	Akul Agrawal, Divya D. Kulkarni, Shivashankar B. Nair, "On Decentralizing Federated Learning", IEEE SMC International Conference on Systems, Man and Cybernetics, SMC October	Toronto, Canada (Virtual)	Oct., 2020	International

John Jose	Abhijit Das, Abhishek Kumar, John Jose , "Reducing Off-Chip Miss Penalty by Exploiting Underutilised On-Chip Router Buffers", 38th IEEE International Conference on Computer Design, Connecticut, USA October	Virtual Event	Oct., 2020	International
John Jose	Joe Augustine, Kanakagiri Raghavendra, John Jose, Madhu Mutyam:, "Router Buffer Caching for Managing Shared Cache Blocks in Tiled Multi-Core Processors.", 38th IEEE International Conference on Computer Design, Connecticut, USA, October	Virtual Event	Oct., 2020	International
John Jose	Manju R, Abhijit Das, John Jose, Prabhat Mishra, "SECTAR: Secure NoC using Trojan Aware Routing ", 14th IEEE/ACM International Symposium on Networks-on-Chip (NOCS2020) (Virtual Event) September	Virtual Event	Sept., 2020	International
Rashmi Dutta Baruah	Deepankar Nankani, Pallabi Saikia, Rashmi Dutta Baruah, "Automatic Concurrent Arrhythmia Classification using Deep Residual Neural Networks", Computing in Cardiology (CinC), 13 September		Sept., 2020	
Jatindra Kumar Deka	Biswajit Bhowmik, Jatindra Kumar Deka, Santosh Biswas, "Improving Reliability in Spidergon Network on Chip-Microprocessors", 63rd IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2020), 09 - 12 August		Aug., 2020	
Chandan Karfa	Pankaj Kalita, Ramanuj Chouksey and Chandan Karfa, "Automatic Inverse Operation Detection and its Impact in High-level Synthesis", 24th International Symposium on VLSI Design and Test (VDATE 2020) August		Aug., 2020	
Hemangee K. Kapoor	K. Rani, S. Agarwal, H. K. Kapoor , "DidaSel: Dirty data based Selection of VC for effective utilization of NVM Buffers in On-Chip Interconnects, The International Symposium on Low Power Electronics and Design (ISLPED)	Virtual Event	Aug., 2020	International



Hemangee K. Kapoor	A. Nath, H. K. Kapoor, "WELCOMF : Wear Leveling Assisted Compression using Frequent Words in Non-Volatile Main Memories", The International Symposium on Low Power Electronics and Design (ISLPED)	Virtual Event	Aug., 2020	International
Ashish Anand	Aakansha Mishra, Ashish Anand, Prithwijit Guha, "CQ-VQA: Visual Question Answering on Categorized Questions", IEEE International Joint Conference on Neural Networks (IJCNN), July 2020	Scotland, UK (Virtual Event)	July, 2020	International
Sukumar Nandi	Puneet Bakshi, Sukumar Nandi, "Privacy Enhanced DigiLocker using Ciphertext based Attribute based Encryption", 17th International Conference on Security and Cryptography (SECRYPT 2020) July		July, 2020	
Jatindra Kumar Deka	Biswajit Bhowmik, Santosh Biswas, Jatindra Kumar Deka, Bhargab B. Bhattacharya, "Locating Open-Channels in Octagon Networks on Chip-Microporocessors", IEEE Computer Society Annual Symposium on VLSI (ISVLSI 2020), 6 -8 July		July, 2020	
John Jose	Abhijit Das, Abhishek Kumar, John Jose, Maurizio Palesi, "Exploiting On-Chip Routers to Store Dirty Cache Blocks in Tiled Chip Multi-Processors ", IEEE Computer Society Annual Symposium on VLSI (ISVLSI2020) (Virtual Event) July	Virtual Event	July, 2020	International
Jatindra Kumar Deka	Sirir Kumar Jena, Santosh Biswas, Jatindra Kumar Deka, "Approximate Testing of Digital VLSI Circuits using Error Significance based Fault Analysis", 24th International Symposium on VLSI Design and Test (VDAT 2020), 23 - 25 July		July, 2020	
Sukumar Nandi	Ritesh Ratti, Sanasam Ranbir Singh, Sukumar Nandi, "Towards Implementing Fast And Scalable Network Intrusion Detection System Using Entropy Based Discretization Technique", 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 1-3 July		July, 2020	

Rashmi Dutta Baruah	Achyut Mani Tripathi and Rashmi Dutta Baruah, "Acoustic Event Detection Using Fuzzy Integral Ensemble and Oriented Fuzzy Local Binary Pattern Encoded CNN", Fuzz-IEEE 2020 under WCCI, 1-8, 19 July		July, 2020	
Rashmi Dutta Baruah	Deepankar Nankani and Rashmi Dutta Baruah, "Effective Removal of Baseline Wander from ECG Signals: A Comparative Study", International Conference on Machine Learning, Image, Processing, Network Security and Data sciences (MIND), 310-324, 30 July		July, 2020	
Hemangee K. Kapoor	K. Rani, H. K. Kapoor, "ZENC0: Zero-bytes based ENCOding for Non-Volatile Buffers in On-Chip Interconnects", The 57th Design Automation Conference (DAC) July	Virtual Event	July, 2020	International
Sanasam Ranbir Singh, Sukumar Nandi	Ritesh Ratti, Sanasam Ranbir Singh, Sukumar Nandi, "Towards implementing fast and scalable network intrusion detection system using entropy based discretization technique", The 11th International conference on computing, communication and networking technologies (ICCCNT) 2020 July		July, 2020	
Sukumar Nandi	Subhrendu Chattopadhyay, Sukumar Nandi, Sandip Chakraborty, Abhinandan Sridhara Rao Prasad, "Amalgam: Distributed Network Control With Scalable Service Chaining", 19th International Federation for Information Processing (IFIP) Networking 2020 Conference (NETWORKING 2020) June		June, 2020	
V. Vijaya Saradhi, Samit Bhattacharya	Vidyapu, S., Vijaya Saradhi, V., Burch, M & Bhattacharya, S., "Attention-based Cross-Modal Unification of Visualized Text and Image Features: Understanding the influence of interface and user idiosyncrasies on unification for free-viewing.", 12th ACM Symposium on Eye Tracking Research & Applications (ETRA 20 adjunct), 29, 1-9, 2 June		June, 2020	

Rashmi Dutta Baruah	A.M. Tripathi, R.D. Baruah, "Contextual Anomaly Detection in Time Series Using Dynamic Bayesian Network", Asian Conference on Intelligent Information and Database Systems (ACIIDS 2020) June		June, 2020	
Hemangee K. Kapoor	S. Suman, H. K. Kapoor , "Reinforcement Learning Based Refresh Optimized Volatile STT-RAM Cache", The IEEE Computer Society Annual Symposium on VLSI (ISVLSI) June	Virtual Event	June, 2020	International
John Jose	Giuseppe Ascia, Vincenzo Catania, John Jose, Salvatore Monteleone, Maurizio Palesi, Davide Patti, "Improving Inference Latency and Energy of Network-on-Chip based Convolutional Neural Networks through Weights Compression.", IEEE International Parallel and Distributed Processing Symposium Workshops, IPDPSW 2020, New Orleans, LA, USA, May		May, 2020	International
Sukumar Nandi	Puneet Bakshi, Sukumar Nandi, "Privacy Enhanced Token based eSign using Attribute based Signature", 6th International conference on Advanced Computing (ADCOM-2020) April		April, 2020	
V. Vijaya Saradhi	Swarup Ranjan Behera, Vijaya V Saradhi, "Mining Temporal Changes in Strengths and Weaknesses of Cricket Players Using Tensor Decomposition", 28th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning April		April, 2020	
Pinaki Mitra	Manoj Kumar, Pinaki Mitra, "Solving Quadratic Assignment Problem using Crow Search Algorithm in Accelerated System", International Conference on Machine Learning, Image Processing, Network Security and Data Sciences(MIND),285-295		July, 2020	
AryabarttaSahu, PinakiMitra	ManojKumar, AryabarttaSahu, PinakiMitra, "A comparison of different metaheuristics for the quadratic assignment problem in accelerated systems", Applied soft computing Journal		March,2021	

Pinaki Mitra	Panthadeep Bhattacharjee, Pinaki Mitra, "A Survey of Density Based Clustering Algorithms", Frontiers of Computer Science (FCS) (SCI-e), Springer/Higher Education Press.		Sept., 2020	
Pinaki Mitra	Panthadeep Bhattacharjee, Pinaki Mitra, "iM ass: An Approximate Adaptive Clustering Algorithm for Dynamic Data Using Probability Based Dissimilarity", Frontiers of Computer Science (FCS) (SCI-e), Springer/Higher Education Press.		Oct., 2020	
Pinaki Mitra	Behrouz Zolfaghari, Khodakhast Bibak, Takeshi Koshiba, Hamid R. Nemati, Pinaki Mitra, "Statistical Trend Analysis of Physically Unclonable Functions : An Approach vis Text Mining", CRC Press		March,2021	
Arijit Sur, Pinaki Mitra	Brijesh Singh, Arijit Sur, Pinaki Mitra "Steganalysis in Digital Images using Fractal Network". IEEE Transactions on Computational Social Systems. (2021)		Jan.,2021	
Arijit Sur, Pinaki Mitra	Brijesh Singh, Mohit Chhajed, Arijit Sur, Pinaki Mitra, "Steganalysis using Learned Denoising Kernels",Multimedia Tools and Applications (Springer) pp.1-15.		Oct., 2020	
V. Vijaya Saradhi	S. R. Behera and V. S. Vedula, Stats Aren't Everything; Learning Strengths and Weaknesses of Cricket Players, In proceedings of the 7th Workshop on Machine Learning and Data Mining for Sports Analytics (MSLA20), ECML/PKDD Workshop, Ghent, Belgium, 2020.	Ghent, Belgium	Sept., 2020	International
V. Vijaya Saradhi	S. R. Behera and V. S. Vedula, Batsman's Kryptonite: Learning Weakness and Strength Rules of Cricket Players using Association Rule Mining, Carnegie Mellon Sports Analytics Conference (CMSAC), Pittsburgh, United States, 2020.	Pittsburgh, USA	Oct., 2020	International
V. Vijaya Saradhi	S. R. Behera and V. S. Vedula, Video Data Do More, Tracking Data Do Much, Text Commentary Data Do Much More, Carnegie Mellon Sports Analytics	Pittsburgh, USA	Oct., 2020	International

	Conference (CMSAC), Pittsburgh, United States, 2020.			
V. Vijaya Saradhi	S. R. Behera and V. S. Vedula, Performance Analysis of Batsman against Spin Bowling and Fast Bowling in Cricket, Ohio State Sports Analytics Association Conference (OSUSAAC), Columbus, United States, 2020. (Best Research Award)	Columbus, USA	Nov., 2020	International
Sukumar Nandi, Pinaki Mitra	Dipojjwal Ray, Pradeepkumar Bhale, Santosh Biswas, Sukumar Nandi, Pinaki Mitra, ArsPAN: Attacker Revelation Scheme using Discrete Event System in 6LoWPAN based Buffer Reservation Attack, IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) 2020, India	Virtual Event	Dec., 2020	
Moumita Patra	Meenu Rani Dey, Moumita Patra, Prabhat Mishra, Real-Time Detection and Localization of Denial-of-Service Attacks in Heterogeneous Vehicular Networks, Design, Automation and Test in Europe Conference (DATE 2021)	Virtual Mode	01/02/2021 - 05/02/2021	International
Moumita Patra	Moumita Patra, Kapil Goyal, Distributed channel Assignment in Cognitive-Radio Enabled Internet of Vehicles, International Conference on Machine Learning, Internet of Things and Big Data (ICMIB 2020)	Virtual Mode	19/09/2020 - 20/09/2020	International
Shivashankar B. Nair	Divya D. Kulkarni, Shivashankar B. Nair, Mutational Puisseance Assisted Neuroevolution, Neuroevolutional at Work Workshop, Genetic and Evolutionary Computation Conference (GECCO) 2020	Cancun, Mexico (Virtual)	July, 2020	International

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1	Dr. Samit Bhattacharya	Introduction to Human-Computer Interaction	G H Rasoni College of Engineering	Nagpur	July & Aug., 2020 (delivered online)
2	Dr. Samit Bhattacharya	3D Transformations and Graphics Projection	G H Rasoni College of Engineering	Nagpur	Aug., 2020 (deliver)

					ed online)
3	Dr. Samit Bhattacharya	An Introduction to Human-Computer Interaction, AICTE sponsored Short Term Training Programme (STTP) on Academic Innovations in Industry 4.0	Vishwakarma Institute of Technology	Pune	Nov., 2020 (delivered online)
4	Dr. Samit Bhattacharya	Channelizing Curiosity to Novelty: Learning to do Research", AICTE sponsored Short Term Training Program (STTP) on "Developing Pedagogy for Effective Implementation of Outcome based Education in Engineering Institutes	Pune Institute of Computer Technology (PICT)	Pune	Dec., 2020 (delivered online)
5	Dr. Samit Bhattacharya	Channelizing Curiosity to Novelty - Learning to do Empirical Research, AICTE sponsored Short Term Training Program (STTP) on Outcome Based Pedagogical Methods for Effective Teaching-learning and Accreditation	Institute of Pharmaceutical Education & Research (IPER)	Wardha	Dec., 2020 (delivered online)
6	Dr. Chanda Karfa	Webinar on "C Based VLSI Design"	Mizoram University,	Aizawl	19/10/2020
7	Dr. Chandan Karfa	Code Optimizations	Chandubhai S. Patel Institute of Technology	CHARUSAT	21/10/2020
8	Dr. Chandan Karfa	Security of RTL Locking	CADforAssurance tool training by IEEE CEDA	USA	12/03/2021
9	Dr. Manas Khatua	Cloud - A Ubiquitous Asset of IoT Ecosystem	Rajiv Gandhi National Institute of Youth Development (RGNIYD), Tamil Nadu, and National Institute of Technology Jalandhar	Tamilnadu	19/11/2020
10	Dr. Manas Khatua	SCADA Security: Use Cases & Capabilities	NASSCOM-DSCI AISS		15/12/2020

11	Dr. Manas Khatua	IoT with Automation	R&D Section, IIT Guwahati	Guwahati, Assam	21/01/2021
12	Dr. Manas Khatua	Research Challenges in IoT	National Institute of Technology Meghalaya	Shillong	10/03/2021
13	Dr. John Jose	Future Trends and Importance of Computer Architecture in Computer Science	PES University	Bengaluru	24/04/2020
14	Dr. John Jose	How to approach learning in the changing COVID scenario	St Francis de Sales School	Narengi, Guwahati	28/05/2020
15	Dr. John Jose	Teaching as a Profession: Challenges and Opportunities	MSRIT	Bengaluru	22/06/2020
16	Dr. John Jose	How to reorganize your career preparations during the pandemic time	Saintgits College of Engineering	Kottayam, Kerala	25/07/2020
17	Dr. John Jose	Teaching as a Profession: Challenges and Opportunities, Pedagogy for 21st Century Teaching and Research 2020	Assam Don Bosco University	Guwahati, Assam	10/08/2020
18	Dr. John Jose	How can you be infectiously inspiring teacher?	PSG College of Technology	Coimbatore	25/08/2020
19	Dr. John Jose	Autonomous Vehicles – Challenges & Opportunities, Future generation computing and applications	Jadavpur University	Kolkata	19/09/2020
20	Dr. John Jose	Teaching as a Profession: Challenges and Opportunities, UGC-HRDC Faculty Induction Program	Gauhati University	Guwahati, Assam	30/09/2020
21	Dr. John Jose	Scope of Artificial Intelligence in Autonomous Vehicles - Challenges & Opportunities	Kerala Technological University	Kerala	20/10/2020
22	Dr. John Jose	Classroom Pedagogy in the New Normal	NIT Warangal	Warangal	06/11/2020
23	Dr. John Jose	How to Teach? How to Excel as a Teacher?	SR Engineering College	Warangal	28/11/2020

24	Dr. John Jose	Future of Exa-Scale Computing : Computer Architecture Perspective	LBSITW	Trivandrum, Kerala	13/02/2021
25	Dr. John Jose	Knowledge Generation, Dissemination and Practice: Roles of an Ideal Teacher	College of Engineering	Trivandrum, Kerala	04/03/2021
26	Dr. John Jose	Role of Tiled Chip Multicore Processors in Future Exa-Scale Computing	SSN College of Engineering	Chennai	05/03/2021
27	Dr. John Jose	Doctoral Research-Essentials and Desirables	University of Stirling, RAK Campus	UAE	18/03/2021
28	Dr. Sanasam Ranbir Singh	Word Representation Learning, Recent Advances of NLP using Deep Learning (NLP-DL-2021)	NIT Silchar	Silchar, Assam	08/03/2021 - 13/03/2021
29	Dr. Sanasam Ranbir Singh	Word embedding and its importance in NLP, Leveraging Natural Language Processing through Machines	NIT Raikela	Rourkela, Odisha	15/10/2020
30	Dr. Sanasam Ranbir Singh	Social Media Data analysis, Big Data Analytics	MAKAUT	West Bengal	13/09/2020 - 17/09/2020
31	Dr. Sanasam Ranbir Singh	Learning Network Representation Learning, ICMC 2020	Sikkim University	Gangtok, Sikkim	25/09/2020
32	Dr. Sanasam Ranbir Singh	Word Representation learning, NLP using DL	IIIT Bangalore	Bengaluru	02/11/2020 - 06/11/2020
33	Dr. Sanasam Ranbir Singh	Sequence-to-sequence Neural models, NLP using DL	IIIT Bangalore	Bengaluru	02/11/2020 06/11/2020
34	Dr. Sanasam Ranbir Singh	Social Media data Analytics, International Seminar on Data Analytics and Deployment of Machine Learning Models	SUIIT	Burla, Odisha	15/03/2021 - 17/03/2021



35	Dr. Sanasam Ranbir Singh	Machine Learning, Machine Learning Technologies for Social Media Analytics	IITG & ISEAPMU	Guwahati, Assam	19/08/2020 - 23/08/2020
36	Dr. Sanasam Ranbir Singh	Social Media data Analysis, Machine Learning Technologies for Social Media Analytics	IITG & ISEAPMU	Guwahati, Assam	19/08/2020 - 23/08/2020
37	Dr. Sanasam Ranbir Singh	One Day Online National Workshop On Writing Research Paper	South East Manipur College	Komlathabi, Manipur	27/05/2020
38	Dr. Sanasam Ranbir Singh	AIML, Data Sciences and Computational Sciences for Vaibhav Summit 2020 (as Panelist)	IITG	Guwahati, Assam	03/10/2020
39	Prof. Hemangee K. Kapoor	Pedagogy and Assessment: Computer Architecture	Central University of Rajasthan	Rajasthan	14/07/2020
40	Prof. Hemangee K. Kapoor	Women, Success and Research	College of Engineering, Pune	Pune, Maharashtra	08/03/2021
41	Prof. Hemangee K. Kapoor	Hardwork and Perseverance => Success	Persistent Foundation Kiran Scholars batch of 2021		02/04/2021
42	Prof. Shivashankar B. Nair	Nature Inspired Artificial Intelligence at the AICTE Sponsored STP on Applications of Artificial Intelligence Technique in Overcoming the Challenges of Health Care Industry	Knowledge Institute of Technology	Salem, Tamil Nadu, India	18/11/2020 08/12/2020 06/01/2021
43	Prof. Shivashankar B. Nair	Nature Inspired Learning Mechanisms, Online FDP on "Cyber Security using ML-Practical Applications	Dr. M.G.R. Educational and Research Institute	Chennai, Tamil Nadu, India	07/01/2021
44	Prof. Shivashankar B. Nair	Lecture on Nature Inspired AI, Online FDP on Robotics and Automation/Mechatronics	MLVTEC	Bhilwara, Rajasthan, India	
45	Prof. Shivashankar B. Nair	Nature inspired Intelligence, International Workshop on Robotics - Recent Advancement in Robotics (RAR-2021)	Maharashtra Institute of Technology	Pune, Maharashtra, India	

46	Prof. Pradip K. Das	Webinar on Data Analytics & Deployment of Machine Learning Models	SUIT, Sambalpur University	Odisha	15/03/2021 - 17/03/2021
47	Prof. Pradip K. Das	Invited speaker: SGBIT International e-Conference on Applications of Intelligent Computing (ICAIC-2020)	S.G. Balekundri Institute of Technology	Belagavi, Karnataka	27/11/2020 - 28/11/2020
48	Prof. Pradip K. Das	Invited speaker: Faculty Development Programme (FDP) on Data Science with Machine Learning and Python	NIT Agartala (under ATAL Academy)	Agartala	01/02/2021 - 05/02/2021
49	Prof. Pradip K. Das	Invited speaker: Online one week International Faculty Development Programme on Machine Learning and Computer Vision: Applications and Research Challenges (MLCV 2020) under TEQIP-III	NIT Silchar	Silchar, Assam	24/08/2020 - 28/08/2020
50	Dr. Rashmi Dutta Baruah	AICTE ATAL FDP on Artificial Intelligence and Applications (AIA-2021)	Manipal University Jaipur	Rajasthan, India	08/02/2021 - 12/02/2021.
51	Dr.Moumita Patra	Problem Based Learning" and "Outcome Based Learning"	Department of Computer Science and Engineering, College of Engineering Trivandrum	Kerala, India	01/03/2021 - 09/03/2021

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
1	Dr. Samit Bhattacharya	TEQIP Phase - III : Faculty Training on Virtual Reality	Center For Educational Technology, IITG	01/12/2020 - 10/12/2020	National	35
2	Dr. John Jose (Organising Chair)	ISEA International Conference on Security and Privacy	ISEA Project Phase-2, MeitY	27/02/2020 - 01/03/2020	International	109

	Dr. John Jose (Publicity Chair)	13th IEEE/ACM International Workshop on Network-on-Chip Architectures (NoCArc)		18/10/2020	International	
	Dr. John Jose (Program Chair)	ISEA Virtual Presentation Conclave	ISEA Project Phase-2, MeitY	29/01/2021 - 30/01/2021	International	870
3	Dr. Chandan Karfa (Students Research Forum Chair)	34th International Conference on VLSI Design (VLSID 2021)	VLSI Soceity of India (VSI)	20/02/2021 - 22/02.2021	International	5000
4	Dr. Sanasam Ranbir Singh, Prof. Sukumar nandi	ISEA-PMU: e-Faculty Training Program on Machine Learning Technologies for Social Media Analytics (An Information Security Perspective)	ISEA Project Phase-2, MeitY	19/08/2020 - 23/08/2020	National	250

#### AWARDS AND HONOURS

- Dr. John Jose has been awarded the 2021 Qualcomm Faculty Award by Qualcomm
- Prof. Hemangee K. Kapoor has been appointed as the Vice President, ACM India Council
- Prof. Hemangee K. Kapoor has been invited as the Editor of Journal of System Architecture
- Prof. Shivashankar B. Nair has been appointed as Adjunct Professor at IIT Bhubaneswar
- Dr. Rashmi Dutta Baruah has been selected for the Marie Sklodowska Curie Fellowship (Connex Plus) at the University Carlos III of Madrid
- Dr. Chandan Karfa has been invited as a Senior Member of IEEE

#### STUDENTS' ACHIEVEMENTS

- Jayprakash Patidar has been awarded the Intel India research fellowship
- Palash Das has been awarded the Intel India research fellowship
- Khushboo Rani has been selected for Post doc at NUS
- Sukarn Agarwal joined as an Assitant Professor at IIT BHU
- Saptrishi Pyne has been selected for Post Doc at University of Wisconsin-Madison
- Swarup Ranjan Behera received the Best Research Award Ohio State Sports Analytics Conference (OSUSAAC20)
- Nayantara Kotoky has been appointed as Assistant Professor at Pandit Deendayal Petroleum University (PDPU)
- Sandeep Vidyapu has been selected for Postdoctoral Researcher at University of Stuttgart
- Awnish Kumar has been appointed as Assistant Professor at VIT
- Vanshali Sharma was selected as INSPIRE Fellowship by DST
- Mohammed Abderrahman was awarded the 3<sup>rd</sup> Prize in PhD Froum at AsianHost 2020 Conference
- Ramanuj Chouksey joined as Lead Engineer in Cadence Design Systems

## SPECIAL MENTION

- Parabattina Bhagath joined as an Associate Professor at Lakireddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh
- Pallabi Saikia joined Pandit Deendayal Petroleum University as an Assistant Professor
- Ramanuj Chouksey joined as Lead Software Engineer in Cadence DesignSystems
- Best Paper nomination for the paper "SAT Based Partial Attack on Compound Logic Locking" by Melbin John, Aadil Hoda, Ramanuj Chouksey and Chandan Karfa, in AsianHost 2020

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1	Ashish Anand	Nanyang Technological University, Singapore	Associate Professor	NLP, Clinical Text Mining, Machine Learning and its application in computational biology, Deep Learning
2	Amit Awekar		Assistant Professor	Data Mining, Machine Learning
3	Rashmi Dutta Baruah	Lancaster University, United Kingdom	Assistant Professor	Evolving Intelligent Systems, Computational Intelligence, Online Machine Learning, Learning from Data streams
4	Purandar Bhaduri	Washington State University, Pullman	Professor	Formal Verification and Analysis of Embedded and Cyber-Physical Systems, Controller Synthesis, Compositional Verification, Interface and Contract Theories for Component-based Design
5	Sukanta Bhattacharjee	ISI Kolkata	Assistant Professor	Design Automation Algorithms, Microfluidics, Security
6	Samit Bhattacharya	IIT Kharagpur	Associate Professor	Human Computer Interaction, User Modeling, Model Based Evaluation of Interactive Systems, Rehabilitation Engineering
7	Pradip Kr. Das	University of Delhi, New Delhi	Professor	Speech Processing, Man-Machine Intelligence Systems, Algorithms, Software Engineering, Smart Devices, Mobile Robotics
8	Jatindra Kumar Deka	IIT Kharagpur	Professor and Head	Formal Modelling and Verification, CAD for VLSI and Embedded Systems

				(Design, Testing and Verification), Data Mining
9	Diganta Goswami	IIT Kharagpur	Professor	Distributed Systems, Software Engineering
10	R. Inkulu		Associate Professor	Algorithms
11	John Jose	IIT Madras	Assistant Professor	Computer Architecture, Network on Chips (NoC), Memory system design for multicore processors, Machine Learning based accelerators for NoCs Non-Volatile Memory (NVM) Technology, Secure System on Chip Design Techniques, Disaggregated Memory Management in Data Center Architectures
12	Benny George K		Assistant Professor	Word combinatorics, algorithms and combinatorics
13	Hemangee K. Kapoor	London South Bank University, UK	Professor	Multiprocessor Computer Architecture, Formal Methods, Network-on-Chip design, Asynchronous systems
14	Chandan Karfa	IIT Kharagpur	Assistant Professor	Formal Verification, Electronic Design Automation with special interest in High-level Synthesis, Embedded System Verification, Verification of Compiler Optimizations, Hardware Security
15	Sushanta Karmakar	IIT Kharagpur	Associate Professor	Distributed algorithms, fault-tolerance, distributed algorithms for ad hoc and sensor networks
16	Deepanjan Kesh	IIT Kanpur	Assistant Professor	Commutative Algebra, Data Streaming
17	Manas Khatua	Indian Institute of Technology Kharagpur	Assistant Professor	Wireless Networks, Sensor Networks, Internet of Things, Network Security, Smart Grid, Mobile Cloud Computing
18	Pinaki Mitra	Simon Fraser University, Canada	Associate Professor	Computational Geometry, Parallel Algorithms, Randomized Algorithms, Optimization

19	Shivashankar B. Nair	Amravati University, Maharashtra, India	Professor	Artificial Intelligence, Intelligent and Nature-Inspired & Emotional Robots, Mobile Agent based systems, Artificial Immune Systems, Intelligent Internet of Things, Cyber-Physical Systems, Natural Language Processing, Genetic Algorithms, Fuzzy Systems & Neural Networks
20	Sukumar Nandi		Professor	Networks (Specially: QoS, Wireless Networks), Computer and Network Security, VLSI, Computational Intelligence
21	Moumita Patra	IIT Madras	Assistant Professor	Ad hoc wireless networks, Internet of vehicles, IoT, Network performance analysis
22	S. V. Rao		Professor	Wireless Networks, Software Defined Networking, Algorithms
23	Aryabartta Sahu	IIT Delhi	Associate Professor	Multicore (Architecture, Scheduling and Programming) and Computational Social Systems
24	G. Sajith	IIT Kanpur	Professor	External Memory Algorithms, Algorithmic Game Theory, Parallel and Distributed Algorithms, Complexity Theory
25	V. Vijaya Saradhi		Associate Professor	Machine Learning, Kernel Methods, Data Mining and their applications
26	Sanasam Ranbir Singh		Associate Professor	Open Source Intelligence (Social Media/Social Network Analysis), Information Retrieval, NLP
27	Arijit Sur		Associate Professor	Computer Vision, Image and Video Processing, Media Forensics: Image and Video Watermarking, Steganography, Steganalysis, Multimedia Streaming
28	T. Venkatesh	IIT Madras	Associate Professor	Computer Networks

## LABORATORY FACILITIES

### **Ergonomics Laboratory:**

Ergonomics laboratory at Department of Design, IIT Guwahati was set-up in 1999 under leadership Prof. Debkumar Chakrabarti. This is a well-equipped laboratory with various basic and applied research facilities for both physical and cognitive ergonomics. Apart from equipment for traditional ergonomics evaluation, modern sophisticated equipment are available for virtual ergonomics evaluation and cognitive workload study. Four (03) faculty members (Prof. D. Chakrabarti, Dr. S. Karmakar, and Dr. U.R. Salve) and 18 PhD students are currently associated with this laboratory. Facilities available in the laboratory include (a) Anthropometric measurement kit, (b) Equipment/ tools for biomechanical analysis, (c) Kit for environmental variable measurement, (d) Tools/equipment for cognitive workload analysis, (e) Digital human modeling software for virtual ergonomics evaluation, (f) Eye-tracker for visual attention analysis, and (g) Equipment for physiological variable analysis (ECG, EMG, EEG etc.).

### **Photographic Lab**

### **Computer Lab**

### **Workshop/Design lab**

### **Media Lab**

### **Material lab**

### **Embedded Interaction lab**

### **E-Kalpa lab**

### **Usability Engineering and HCI Lab**

### **Product Design & Development Studio**

### **Animation research lab**

### **Visualization lab**

### **Sustainability and Social Innovation (SSI) Lab**

Design for Sustainability (DfS) is an emerging and significant domain. It is also one of the prime needs of the hour considering the burden of human consumption and production. In order to create sustainable human consumption and production, a complete revamp of the consumption structure is needed. Through the SSI Lab, the Department of Design at IIT Guwahati, aims to foray into this domain.

Vision - To promote and contextualize sustainability through R&D along the three pillars of sustainability: social, economic and environmental.

The objective of the lab are:

- To provide infrastructure and guidance to student projects related to DfS.
- Conduct training sessions for interested local institutions and bodies in the application of DfS.
- Research into DfS, Sustainable Frugal Design & developing case studies in DfS through execution of projects.

- Development of course material related to DfS.
- Developing tools & methodologies for the implementation of DfS in the emerging, marginalized & industrialized contexts.

### **Visual Communication studio**

#### **nirmān Lab**

The Sanskrit word 'nirmān' stands for both; *creating*, constructing or making, i.e., the process; as well as for *creation*, the outcome of the process. It exemplifies the spirit of DoD, where design and design research go hand in hand. The lab exudes a culturally diverse, multi-disciplinary, inclusive approach and is involved in several collaborative projects nationally and internationally.

The lab is actively engaged in the areas of; (i) Design Thinking, Design Methodology, Problem-based Learning and pedagogy; (ii) Creativity, cognition and Innovation studies; and (iii) Design for Environment, Sustainability, Smart cities and built-environment.

Lab Convenor : Dr. Shakuntala Acharya

#### **3 D Printing Lab**

#### **Master Craftsman Lab**

#### **Fine Mechanics and Product Development Lab**

### **MAJOR AREAS OF RESEARCH AND DEVELOPMENT**

- Design and development of two different innovative equipment/ devices for cutting and extracting the liquid out of defectively manufactured liquid-filled (oil, shampoo, detergent, etc.) pouches/ sachets. The devices would reduce drudgery and safety concerns among FMCG shop-floor's re-work activity.
- Design and development of a collaborative IPR platform for budding designers, researchers, and entrepreneurs.
  - Physical and Cognitive ergonomics aspect of product design evaluation, Product Service System Design for Sustainability, Product Design in Agricultural Machinery, Comic studies, Game design, Design for Users with varying Tech Readiness, Multimodal and Assistive User Interface Design, Speech Based Interfaces. Human Computer Interaction, Virtual Reality, Information Communication Technology for Development (ICTD), Input Interactions for Flexible and Deformable Devices
  - We are involved in various socio-economic developmental projects with relevance to strategic design intervention. Such initiatives include diagnostic studies, design management strategies, impact assessment studies, cluster management and development, design interventions in livelihood generation, design entrepreneurship, social research, marketing research etc.

### **MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT**

Studies on occupational safety and health (OSH) issues in Installation and Maintenance of Floating Solar Photovoltaic Projects in India and coming up with ergonomic design interventions.

Successfully completed the 'Diagnostic Study on Weaver's need in respect of Eri and Muga Silk' under the World Bank financed Assam Agribusiness and Rural Transformation Project (APART). The project primarily focuses on the study the existing Design Value Chain of Eri and Muga Silk in Assam; starting from weaving ( supply side – value creation) to marketing (demand side – value delivery). We have formulated alignment strategy for demand and supply side of the Design Value Chain of Eri and Muga Silk. We have proposed five alignment strategies with



detail plan viz. (i) Skill development & Skill-up gradation strategy, (ii) Design Studio and Digital Design Bank (iii) System Design Solution for integrated Supply Chain Management (iv) Frame Loom and Semi-Automatic Loom to improve productivity and quality (v) Attracting weavers for Eri-Muga weaving. For the first time in Assam such an in-depth study has been conducted with extensive scientific field research for Eri and Muga Silk. The research could gather and demonstrate very insightful interpretations on the basis of huge amount of field level data. Final report has been accepted by the World Bank consultants.

PI: Pratul C Kalita, CO-PI: Prof. Amarendra Kr. Das

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
01	Dr.Sougata Karmakar	Indo-US workshop on 'Human-machine teaming'	DRDO, Delhi	04/03/2021 09/03/2021 11/03/2021	International
02	Dr.Sougata Karmakar	18th Annual International conference on Humanizing Work and Work Environment (HWWE 2020)	Theem college of engineering, Boisar, Maharashtra	10/12/2020	International
03	Dr.Sougata Karmakar	8th International Conference on Research in Design (ICoRD 2021)	IDC School of Design, IIT Bombay	07/01/2021	International
04	Prof. Ravi Mokashi Punekar	ICORD'21	IDC School of Design, IIT Bombay	7/01/2021 - 10/01/ 2021	International
05	Prof. Ravi Mokashi Punekar	Design for Children	IDC School of Design, IIT Bombay	28/01/2021 - 30/01/2021	International
06	Prof. Ravi Mokashi Punekar	ISHANYA 20 Annual Design Meet	DoD, IIT Guwahati	20/09/2020 - 27/09/2020	National
07	Dr. Pratul C Kalita	India HCI conference (IndiaHCI'20) (Outreach Chair of the conference)	IIT Indore	05/11/2020 - 08/11/2020	International
08	Dr. Pratul C Kalita	NordDesign 2020 Conference	Technical University of Denmark, Kongens Lyngby, Denmark	12/08/2020 - 14/08/2020	International
09	Dr. Pratul C Kalita	International Conference on Research into Design ( ICoRD 2021) (Session Chair)	IDC School of Design, IIT Bombay	07/01/2021 - 07/01/2021	International

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Dr. Urmi R. Salve	Occupational Ergonomics	MVP Samaj's College of Architecture and Centre for Design, Nashik	Online mode	24/11/2020
02	Dr. Urmi R. Salve	Ergonomics in Stress Management: Special Emphasis on Sedentary Job	Department of Physiology, Berhampore Girls' College	Online mode	27/09/2020
03	Dr. Sharmistha Banerjee	Sustainability	SPA Bhopal	Bhopal	02/03/2021
04	Dr. Sharmistha Banerjee	Life Cycle Assessment of Building Materials	Mepco Schlenk Engineering Colleg	Sivakashi	04/02/2021
05	Dr. Sharmistha Banerjee	Life Cycle Assessment of Building Materials	Mepco Schlenk Engineering Colleg	Sivakashi	07/01/2021
06	Dr. Sharmistha Banerjee	Design thinking for sustainable product design	Oriental Institute of Science and Technology	Bhopal	09/09/2020
07	Dr. Sougata Karmakar	Ergonomics in Manufacturing Sectors (TEQIP-III sponsored Faculty Development Programme)	Department of Mechanical Engineering, Rajiv Gandhi Institute of Technology (RIT),	Kottayam, Kerala, India	26/03/2021
08	Dr. Sougata Karmakar	Ergonomics considerations in the Product Design Process (TEQIP – III Sponsored 3 - Days National Webinar on Ergonomics Applications For Higher Productivity)	Industrial & Production Engineering Department, P.D.A. College of Engineering	Gulbarga, Karnataka, India	25/03/2021
09	Dr. Sougata Karmakar	CAD and DHM for Product and Facility Design	Department of Mechanical & Industrial Engineering, Indian Institute of Technology (IIT) Roorkee	Roorkee, U.P., India	17/03/2021
10	Dr. Sougata Karmakar	Ergonomics: The Science of Productivity Enhancement	Godrej Consumer Products Limited, Brahmaputra Industrial Park	North Guwahati, Assam, India	16/03/2021
11	Dr. Sougata Karmakar	Ergonomics in Product Design & Development	UPES School of Design	Dehradun, Uttarakhand, India	28/11/2020
12	Dr. Sougata Karmakar	Human centered design considerations for successful implementation of appropriate technology in rural-set up	NERIST UBA Cell, North Eastern Regional Institute of Science and Technology (NERIST)	Nirjuli, Arunachal Pradesh, India	18/07/2020
13	Dr. Sougata Karmakar	Ergonomic/ Human Factors in Industrial Design	VIT School of Design, Vellore Institute of Technology (VIT)	VIT University, Vellore,	17/12/2020

		One Week FDP at Vellore Institute of Technology (VIT-ASC): 15-19 December 2020 Transforming Paradigms of Design Education and Practices		Tamil Nadu, INDIA.	
14	Pratul C Kalita	Design Methods and Practices, Design Management	MNIT- Allahabad (ATAL QIP Programme)	MNIT- Allahabad	07/12/2020 - 11/12/2020
15	Pratul C Kalita	Design Management, Design Strategy, Design Audit, Design Methods and Practices	IIM Shillong	IIM Shillong	27/02/2020 - 06/03/2020
16	Pratul C Kalita	Design Management in Indian Context – Development, Entrepreneurship and Governance	NIT Jamshedpur	NIT Jamshedpur	21/07/2020
17	Dr. Shakuntala Acharya	International Digital Twin Awareness Day	Bentley Institute	Ireland (online)	22/09/2020
18	Dr. Shakuntala Acharya	International Conference on Research into Design (ICoRD'21) (Author & Session Chair)	IDC School of Design, IIT Bombay	India (online)	07/01/2021 - 10/01/2021
19	Dr. Shakuntala Acharya	International Symposium on Intelligent Design (ISID'21)	JAIST, Japan	Japan (online)	07/03/2021

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Dr. Urmi R. Salve along with Dr. Sougata Karmakar	Ergonomics in the Era of Industry 4.0	TEQIP III	14/12/2020 - 18/12/2020	National	58
02	Dr. Uday Kumar	ISHANYA 20 Annual Design Meet	DoD, IIT Guwahati	20/09/2020 - 27/09/2020	National	400 registered participants

#### PATENTS

No. of Patents Applied: 09

No. of Patents Granted: 07

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
01	Gurdeep Singh, Sougata Karmakar, Abhishek Singh, Amandeep Verma, Sangeeta Bhanja Chaudhuri	Indian Patent - Design of safety-enriched sitting-position oriented handheld apparatus for damaged pouch and sachet cutting for re-work in FMCG industries.	Applied on 17/03/2020	202011011370	Utility Patent [Granted]

02	Indresh Kumar Verma, Gurdeep Singh, Sougata Karmakar	Design of steering wheel-hub mounted self-balancing universal mobile phone holder for reducing biomechanical effort for display-navigation by vehicle drivers.	Date of Filing: 16/07/2020	2020310302 98	Utility Patent
03	Indresh Kumar Verma, Gurdeep Singh, Sougata Karmakar	Self-balancing mobile holder for steering wheels	Date of Filing: 08/06/2020	329864-001	Design Registration
04	Gurdeep Singh, Sougata Karmakar, Mr. Amandeep Verma, Mr. Abhishek Singh	Ergonomic sachet cutting apparatus for FMCG re-work. Class: 08-03	Date of Filing: 12/05/2020	329290-001	Design Registration [Granted]
05	Gurdeep Singh, Sougata Karmakar, Amandeep Verma, Abhishek Singh	Mechanized pouch cutter for FMCG re-work. Class: 08-03	Date of Filing: 12/05/2020	329288-001	Design Registration [Granted]
06	Bighna Kalyan Nayak, Gurdeep Singh, <b>Sougata Karmakar</b>	Ergonomic Water Bucket. Class: 07-07	Date of Filing: 19/01/2021	337675-001	Design Registration <b>[Granted]</b>
07	Dr. Pratul C Kalita, Abhishek Singh, Gurdeep Singh, Raksha Singh	Design and working of a tricycle based vending cart consisting of a convertible refrigeration unit	Applied: 19/02/2020 Granted: 06/1/2021	Appl No: 202031007118 Indian Patent No. 355352	Granted
08	Dr. Pratul C Kalita, Abhishek Singh, Gurdeep Singh, Raksha Singh	A vending cart with digitization to make the working and controlling of billing facility automatic	Applied: 19/02/2020 Granted: 3/11/2020	Appl No: 202031007121 Indian Patent No. 350737	Granted
09	Dr. Pratul C Kalita, Abhishek Singh, Gurdeep Singh, Raksha Singh	Non-powered portable compact cold storage unit	Applied; 09/07/2020 Granted: 06/08/2020	Indian Design No. 330928-001	Granted Design Registration

#### AWARDS AND HONOURS

- Mr. Pankaj Upadhyay and Prof. Ravi Mokashi Puneekar: Received the Distinguished Paper Award at the 8th International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay
- Dr. Shakuntala Acharya: Received the Distinguished Paper Award at the 8th International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay

#### STUDENTS' ACHIEVEMENTS

Mr. Amare Wibneh received the Distinguished Paper Award at 8th International Conference on Research in Design (ICoRD 2021), IDC School of Design, IIT Bombay

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Or g PhD degree received from	Designation	Areas of Interest
01	Shakuntala Acharya	IISC Bangalore	Assistant Professor	Environmental Design, Sustainability, Creativity & Innovation, Design Pedagogy, Smart Cities
02	Sharmistha Banarjee	IIT Guwahati	Assistant Professor	Design for sustainability,Boi-inspired design ,Medical product Design
03	Utpal Barua	IIT Guwahati	Professor	Graphic Design,Design drawing and Visualisation,Visual design Principles and applications,Indian Symbology
04	Debkumar Chakrabarti	University Colleges of Science, Calcutta	Professor	Ergonomics Research, Human Compatibility Factor,Design ergonomics,product Environment Interface Design,Occupational Health
05	Amarendra Kumar Das	IIT Guwahati	Professor	Industrial Design,Rapid Prototyping and tooling,space Design,Environment Graphics,Design for Disabled
06	Supradip Das	--	Assistant Professor	Origami Inspired Product Development,Toy for tomorrow,Paper Craft,Transformable furniture,Structural packaging design.
07	Debayan Dhar	IIT Guwahati	Assistant Professor	Human Computer Interaction (HCI) Design, Instructional Design, User Experience Design, Psychological Studies in Design, Usability Engineering
08	D.Udaya Kumar	IIT Bombay	Associate Professor	Topography,Type Design,Information Graphics,Motion Graphics,design Researce,Exhibition Design,architecture
09	Sheetal M.Gokhale	--	Assistant Professor	Film & Video, Animation Graphic Design
10	Shareka Iqbal	--	Assistant Professor	Adaptive Resue ,Solar Passive Architecture
11	Pratul Chandra Kalita	IIT Guwahati	Associate Professor	Design Management, Design Strategy, Design Methods, Systems Approach to Design, Design for Development, Experience Design
12	Sougata Karmakar	Bharathiar University	Associate Professor	Virtual Simulation (CAD and Digital Human Modeling), Physical and Cognitive Ergonomics, Design and work environment, Design and Occupational Health
13	Mriganka Madhukailya	--	Assistant Professor	Short Film,New Media theory,Video Art,Documentary Film,Participatory Theory
14	Manoj Majhi	IIT Guwahati	Associate Professor	Animation,,Special Effects,Cartooning
15	Ravi Mokashi Punekar	IIT Guwahati	Professor	Industrial Design,Space Design,Facility Design,Environmental Graphics,Design for disabled

16	Urmi Ravindra Salve	University of Calcutta	Assistant Professor	Human factor engineering,occupational Ergonomics,Research Methology
17	Abhishek Srivastava	IIT Bombay	Assistant Professor	Interection Design,Design for Development,New Media,graphic Design & cartooning.
18	Abhishek Singh	--	Assistant Professor	Automative design,Product Design, Graphic Design,Design Researce.
19	Keyur Sorathia	IIT Guwahati	Associate Professor	Interection Design,Gesture controlled User Interfaces,Design for development
20	Pankaj Upadhyay	--	Assistant Professor	Product design,Industrial Design,Design for Manufacture, Consumer product Design,Industrial Equipment design.
21	Pradeep Yammiyavar	Indian Institute of Science ,Bangalore	Professor	Human Computer interaction Design

### Laboratory Facilities

The Department of EEE has 33 laboratories which are equipped with state-of-the-art equipment and software. These laboratories are used for both instructional purposes and carrying out R&D activities in the various areas of interest. The list of laboratories presently functioning in the Department is as follows:

#### **Advance Photonics Simulation Laboratory (Instructional)**

The Advance Photonics Simulation Laboratory is well-equipped with several experimental setups and several software packages for experiments. The facilities include loss measurement; LED Characterization etc. The major software available in this laboratory are: OptiSystem, OptiSPICE, OptiGrating, OptiFDTD, OptiFiber, Silvaco TCAD 3D

#### **Undergraduate Project Lab**

The lab has started functioning from August 2016. This lab is specially designated for B.Tech students to perform experiments related to their bachelors' projects

**Communication and Networking Lab (R&D)/ Advance Photonics Laboratory** (Dark room for characterization and experimental facilities for Optoelectronics and Photonics systems/devices)

#### **Communication Lab-I (R&D)**

#### **Communication Lab-II (R&D)**

#### **Communication Lab-III (R&D)**

Research Scholars working in different areas related to communication engineering use these labs.

#### **Control & Instrumentation Lab-I (R&D)**

The Control and Instrumentation Laboratory I focuses on the research and development activities related to Control Theory and Applications, Stochastic Systems, Robotics, Ultrasonic Instrumentation, Underwater Acoustics etc. Some of the current areas of interest include Robust and Adaptive Control theory, Relay Control Theory and Applications, Mobile Robotics and Multi-Agent Systems, MEMS and SAW Devices, Fractional Order Systems. Discrete Event Systems. Laboratory infrastructure includes personal computers for research scholars and a number of experimental set-ups, namely, Mobile Robot Platforms, Multi DOF manipulator, Twin Rotor MIMO System, Inverted Pendulum Systems, Level Control System

#### **Control & Instrumentation Lab-II (Instructional)**

The Control and Instrumentation Lab II is the instructional laboratory used for lab courses such as control and instrumentation lab (UG), and applied control lab (PG). The laboratory has work benches equipped with advanced test and measuring instruments like 200 MHz DSO, DDS function generator, 5½ digit DMM, multioutput DC power supply, and PC. The lab is equipped with large number of transducers for measurement of physical quantities like temperature, displacement, level, force and strain, in addition to PLC, process calibrator, hot chamber, coupled tank system, motor speed control system and other facilities for instructional laboratory. The students instruction is focused to learn the design and implementation of signal conditioning circuits and controllers like PID

#### **Electrical Machine Lab (Instructional)**

The machine lab is equipped with all kinds of AC and DC motors and generators required for undergraduate lab session and research activities in the field. For the better understanding of control of various motors lab also has braking and drive modules for some motors

### **Electro-Medical & Speech Lab (R&D)**

The Lab was set up in the year 2004. The laboratory focuses on the research and development activities related to biomedical signal and image processing, speech signal processing, coding and technology areas. Some of the current topics of interest include speech enhancement, speaker recognition, children speech recognition, speech synthesis, stressed speech processing, fundus image processing, ECG signal processing, biometrics and handwriting data processing

### **Electronic Circuit Lab- I (Instructional)**

### **Electronic Circuit Lab-II (Instructional)**

The Electronic Circuits Lab – I & II mainly hold basic electronics lab for first year undergraduate students of all the departments. The labs are equipped with large number of set ups each containing cathode ray oscilloscope, function generator, digital multimeter, and multioutput DC power supply. The labs are well-stocked with electronic components like resistors, capacitors, diodes, transistors, analog and digital ICs. Experiments performed in the lab cover hardware design and implementation of basic circuits which include rectifiers, transistor characteristics, comparators, combinational logic circuits, synchronous and asynchronous counters, latches, and opamp circuits

### **Embedded System Lab (Instructional)**

Microprocessors and Embedded Systems Laboratory provides students with hands-on experience with building, programming, testing, and debugging processor based systems. For example, systems that students build may incorporate audio and various input devices. It is an instructional laboratory. Lab courses like Digital Signal Processors Lab, Digital Circuits and Microprocessors Lab and Embedded Systems Lab are held here

### **EML: e-mobility lab**

This is a new initiative for developing state of the art technologies for electric vehicles (EVs). The major research interests of this lab include:

- Electric motor design
- Power electronics converters of EVs
- Inductive charging systems
- Grid to vehicle interaction (G2V)

Vehicle powertrain control algorithms

### **High Frequency & Communication Lab (Instructional)**

High Frequency & Communication Lab at EEE, IIT Guwahati is an instructional laboratory. Research works are carried out in the area of antennas, analog & digital communication systems and microwave engineering. Lab courses like Microwave Engineering Lab, Communication Design Lab, etc. are held in this Laboratory

### **HPC and FPGA Design Lab (R&D)**

High Performance Computing and FPGA Lab (HPC and FPGA Lab) was established in 2012 at Department of Electronics and Electrical Engineering, IIT Guwahati with initial support from IIT Guwahati and Nvidia. The work at HPC & FPGA Lab is focused towards exploring possibilities of high performance computing and FPGA based system design in various fields related to Electrical Engineering and Scientific Computing in non-electrical engineering disciplines

Our group's mission is to carry out multidisciplinary research in reconfigurable, parallel and distributed computing as a basis for long-term partnership and collaboration amongst industry, academia, and government; focus on research in advanced computer architectures, algorithms, networks and systems, both theoretical and applied; to carry out state-of-the-art research and development with collaborators with maximized synergy and pooled, leveraged resources. Being an educational institute, to enrich the education of high-quality students, has been the first priority. In turn, focus is to contribute knowledge and technologies in this field



### **Image Processing and Computer Vision Lab (R&D)**

The ongoing major activities in the Image Processing and Computer Vision(IPCV) Laboratory include music signal processing, histopathology image processing, denoising, video processing, image super resolution, image forensic, computer vision, image hashing, Gesture Recognition and HCI

### **Post Graduate Project Lab**

The lab has started functioning from August 2016. This lab is specially designated for M.Tech students to perform experiments related to their masters' projects

### **Multimedia Analytics Lab (R&D)**

This Laboratory was set up in July 2013. The lab focuses on the research and development activities related to multi-modal (video, speech and text) analytics and applications of machine learning in vision and robotics

### **Power & Control Lab-I (R&D)**

### **Power & Control Lab-II (R&D)**

Research and Development Activities related to Power & Control areas are conducted in this lab. Research Scholars, MTech/BTech students and Project Engineers working in these areas use this laboratory

### **Smart Energy Conversion Laboratory**

The major research interests of this lab include AC and DC distribution grid, microgrid, power quality improvement, HVDC and FACTS, electric vehicles, etc. The research lab has prototype of various power electronics devices like bi-directional dc-dc converter, three phase grid connected inverters, distribution static compensator (DSTATCOM), dynamic voltage restorer (DVR), unified power quality conditioner (UPQC), dual active bridge (DAB) converter, smart transformer, battery charger, etc. Controllers like Dspace microlab box and eZDSP28335 are being used to control the various converters

### **Power Electronics Lab (Instructional)**

The lab has started functioning from August 2015. It contains the major facilities required to perform undergraduate and postgraduate experiments related to power electronics. In addition, design of power electronic hardware, implementation of prototype and testing can be performed in the lab. DSP and FPGA controllers for power electronics applications also can be tested

### **Power System Lab (Instructional)**

The Power Systems Laboratory is well-equipped with several experimental setups and several software packages for real time experiments. The facilities include overcurrent, under voltage and differential relays. The major equipment in the Power Systems Laboratory include the following

### **Relay Demonstration Setup**

IDMT over current relay, Instantaneous over current relay, IDMT under voltage relay, Current transformer, Negative sequence relay, Differential relay, High Voltage AC/DC/Impulse setup  
List of Software: PSS/E, PSCAD, DigSilent

### **Signal Informatics Lab (R&D)**

Research and Development Activities related to Security & Document Processing areas are conducted here. The Research Scholars and Project Engineers working in these areas use this laboratory. A separate cubicle has been created for housing the EEG signal recording facility

### **Signal Processing Lab (R&D)**

The Lab has started functioning from 2016. Research and Development Activities related to Speech Processing, Image Processing, Biometric Face Recognition, Music Signal Processing,

Machine Learning and Cleft Monitoring System areas are conducted here. The Research Scholars working in these areas use this laboratory

### **System Simulation Lab (Instructional)**

The System Simulation Laboratory is a fully computerized laboratory equipped with highly configured PCs and various computational and simulation software like Matlab 7.3, Borland C++, FPGA Advantage from Mentor Graphics, Xilinx's ISE foundation, Zeland's IE3D EM simulation SW, Altera's Quartuswebpack, Electronics Workbench, MicroSim Design Lab (EDA software), Cadstar PCB Design, Elanix's Systemview, HP-Eesof, Hypersignal and Operating System such as HP Unix, Sun Solaris, Redhat Enterprise Linux, Microsoft windows 2003 and windows 2000/XP

### **VLSI Lab-I (R&D)**

### **VLSI Lab-II (R&D)**

VLSI design lab was setup in the year 2004 as an integral part of the department of Electronics and Electrical Engineering (EEE). Followed by commencement of PG (M.Tech) and Ph.D. programme in the field of VLSI design subsequently

Ever since its inscription the VLSI lab has constantly been upgraded to match with the technologies of the modern era. The VLSI library integrated with the lab helps the students, researchers and all enthusiasts to acquire all the much needed concepts to deal with different practical experiments. The focus of this lab is widely spread towards different pros and cons of the entire upgrading VLSI domain. Development works at different levels like semiconductor device simulation, circuits & system design and research in some recent trends like Biomedical signal processing has extensively been carried out

### **VLSI-ADSP & Communication Lab (R&D)**

The Department has set up a sophisticated DSP & Communication Laboratory with the state-of-the-art equipment from Analog Devices and Texas Instruments, and Real Time DSP Software from Hyperception Inc. The Department has also received a donation from Analog Devices Inc. consisting of hardware kits and Visual DSP software

### **Anechoic Chamber**

For measurement of antenna pattern, EMI-EMC, radar cross-section, a state of the art Anechoic chamber is developed under the IMPRINT-I scheme of MHRD and DST under the grant number of 7802. Major equipment in the lab: VNA Anritsu (8KHz-20 GHz), RF signal generator (R&S), Microwave source (2 KW), RF-Sensor, Automatic positioner system

### **Silicon Photonics Laboratory (R&D)**

For fabrication of Silicon Photonics and Microelectronic Devices equipped with class 1000 clean room, photolithography room, class 100 work benches organic and inorganic, E-beam Evaporator of 4kW, Mask Aligner MJB4 with 800nm critical dimensions, etc

### **Microelectronics Laboratory (Instructional)**

This laboratory is providing hands on experience to the B.Tech. (ECE) students

### **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

- Arduino Uni R3 Beginners Kit: 60 Nos.
- 20 KVA Online Double Conversion UPS: 04 Nos.
- CCTV Set with cameras: 34 Nos.
- Video Conference Camera: 01 No.
- 6517B-Keithley make Electrometer / Hi Resistance Meter: 01 No.
- Lenovo Laptop – Thinkbook 14: 02 No.
- Deep Level Transient Spectroscopy System with complete hardware and software system: 01 Set

- LN2 Cryostat System: 01 Set
- Chemical Resistance Work Table cum Bench (Organic): 01 No.
- Chemical Resistance Work Table cum Bench (Inorganic): 01 No.
- Electron-Beam Source and Electron Beam Power Supply for E-Beam Evaporation System: 01 Set
- Vacuum System for E Beam Evaporation excluding Electron Beam Source and Electron Beam Power Supply: 01 Set
- Workstation Dell Precision 7920 Tower Workstation: 01 No.
- Solar Simulator: 01 No.
- ZUIHO Board: 75" Signage Display Panel: 01 Set
- Nvidia V 100 GPU Card: 01 No.
- Rack Mount Server with 128 GB RAM: 02 Nos.

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT

Image Processing, Computer Vision, Speech Processing, Biomedical Signal and Image Processing, Multimedia Signal Processing; Microwave, Antenna Design, Wireless Communication, Error Control Coding; Analog and Digital Design, MEMS, VLSI CAD, Photonics, Semiconductor Devices; Electrical Converters, Electric Drives, Smart Grids, Wind Energy, Solar Energy, Solar Photovoltaic, Power Electronics and Power Systems; Control Systems, Stochastic Systems, Relay Based Identification and Auto tuning, Control Systems, Control Theory Applications, Electrical machine design, contactless charging system for EVs, Pattern Recognition, Machine Learning, Multimedia Analytics, Silicon Photonics, Microwave wireless power transfer, metamaterial, High Voltage engineering and liquid Dielectrics, Battery management system for EVs, Optoelectronics Devices; Distributed optical fiber sensors for structural health monitoring, National Highways, and Indian Railways

- 1) **Face counter-spoofing algorithms (formulation, design and development)** (Ongoing DOCTORAL THESIS OF BALAJI RAO KATIKA).

The work as reached a final phase in which we are working on the formulation, design and testing of efficient and more precise solutions for detecting a particular type of spoofing called PLANAR PRINT SPOOFING. The solutions are designed to be CLIENT or SUBJECT specific rather than SUBJECT AGNOSTIC.

- 2) **Privacy preserving linear filtering for transparent information processing** (via completed MTech projects of SOMALI MAJUMDER and SUGYANI BASANTIA – graduated May/June 2020) and will be passed on to future MTech students either from the EEE department or from the DATA-SCIENCE stream.

While proof of concept particularly with respect to content transparency in the encrypted domain has been developed and established in-house, we are yet to test the strength of this encryption algorithm. This complexity analysis, will close the circuit with respect to this UMBRELLA connected with LINEAR and TRANSPARENT PRIVACY PRESERVING FILTERING.

- 3) **Depth MAP generation algorithms from SINGLE STILL IMAGES (formulation, design and development)** (Ongoing MTech project of Diljith K. D. expected to graduate in MAY 2021).

Drawing depth cues particularly based on the differential blur produced in natural images using any standard camera is a very difficult task. We presently have designed and developed in-house, a RING-SCAN analysis algorithm for producing depth map ESTIMATES using LOCAL RING SUM STATISTICS. This work is currently being positioned with respect to existing literature via this ongoing M.Tech project of Diljith.

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

- A prototype for contactless charging system for EVs
- Development of a smart urban transportation system

## CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
01	Dr. Sudarshan Mukherjee	IEEE Globecom 2020 (Virtual)	Taipei, Taiwan (attended online)	07/12/2020 - 11/12/2020	International
02	Prof. Rakesh Singh Kshetrimayum	European Conference on Networks and Communications	Dubravnik, Croatia	16/06/2020 - 17/06/2020	International
03	Prof. Rakesh Singh Kshetrimayum	IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting	Montreal, Canada	05/07/2020 - 10/07/2020	International
04	Prof. Rakesh Singh Kshetrimayum	IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications	Suzhou, China	29/07/2020 - 31/07/2020	International
05	Prof. Rakesh Singh Kshetrimayum	IEEE Workshop on Microwave and Antenna Applications in 5G	Bangalore, India	08/12/2020 - 13/12/2020	National
06	Prof. Rakesh Singh Kshetrimayum	International Symposium on Antennas and Propagations	Osaka, Japan	25/01/2021 - 28/01/2021	International
07	Dr. Rishikesh Dilip Kulkarni	OSA Imaging and Applied Optics Congress	Virtual	22/06/2020 - 26/06/2020	International
08	Dr. Debabrata Sikdar	QIP Short Term Course on "Optoelectronics and Nanophotonics"	Online	06/11/2020 - 07/11/2020 and 09/11/2020 - 12/11/2020	National
09	Dr. Debabrata Sikdar	QIP Sponsored Online Short Term Course on Photonics and Photovoltaics: Devices, Circuits, and Metrology	Online	11/12/2020 - 24/12/2020	National

10	Dr. Debabrata Sikdar	AICTE-AQIS sponsored Short Term Training Program (STTP II) on "Recent Advances in Nano-Photonics Technology (RANPT 2020)"	Online	14/12/2020 - 19/12/2020	National
11	Dr. Debabrata Sikdar	TEQIP Sponsored Online Short-Term Course on "Recent Advances in RF and Photonics"	Online	22/02/2021 - 26/02/2021	National
12	Dr. Debabrata Sikdar	AICTE-AQIS sponsored (online) Short Term Training Program (STTP-II) on Recent Advances in Nano-Photonics Technology (RANPT-2021)	Online	15/02/2021 - 20/02/2021	National
13	Dr. Prithwijit Guha	International Conference on Signal Processing and Communications (SPCOM 2020)	IISc Bangalore Attended Online	19/7/2020 - 24/7/2021	International (Located in India)
14	Dr. Prithwijit Guha	The 25 <sup>th</sup> International Conference on Pattern Recognition (ICPR 2021)	Milano, Italy Attended Online	10/01/2021 - 15/01/2021	International
15	Dr. Prithwijit Guha	International Workshop on Video and Image Question Answering (VIQA 2021)	Milano, Italy Attended Online	10/01/2021	International
16	Dr. Prithwijit Guha	International Workshop on Biometric Data Analysis and Forensics (IWBDFAF 2021)	Milano, Italy Attended Online	11/01/2021	International
18	Dr. Chayan Bhawal	European Control Conference (ECC - 2020)	Saint Petersburg, Russia Attended Online	12/05/2020 - 15/05/2020	International
19	Dr. Sonali Chouhan	TEQIP-III STTP on IOT and its different aspects	RGPV Bhopal (Online)	04/06/2020 - 06/06/2020	National
20	Dr. Sonali Chouhan	TEQIP-III STTP on Essentials of IoT	Viktant Institute of Technology, Indore (Online)	13/08/2020 - 14/08/2020	National

21	Dr. Ramesh Kumar Sonkar	IEEE Region 10 Symposium (TENSYP) 2020	Virtual, Dhaka, Bangladesh	05/06/2020 - 07/06/2020	International
22	Dr. Ramesh Kumar Sonkar	14th Pacific Rim Conference on Lasers and Electro-Optics 2020	Virtual, Australia	03/08/2020 - 05/08/2020	International
23	Dr. Ramesh Kumar Sonkar	OSA Frontiers in Optics + Laser Science APS/DLS	Virtual Web Conference, USA	14/09/2020 - 17/09/2020	International

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

Sl. No	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Dr. Sudarshan Mukherjee	Expert Talk for Online Joint FDP on Advanced Communication and Antennas	EICT Academy	Guwahati	15/02/2021-26/02/2021
		Design Challenges of IoT with AI and ML applications	Dept. of Electronics & Comm. Engg., NIT Hamirpur	Hamirpur	30/11/2020-04/12/2020
01	Prof. Rakesh Singh Kshetrimayum	Technical talk cum webinar (key speaker) on Inter-antenna Interference in MIMO Wireless	Institution of Engineers	Nirjuli, Arunachal Pradesh	13/02/2021
02	Prof. Rakesh Singh Kshetrimayum	Tutorial (invited) on MIMO wireless: Inter-antenna Interference	13th International Conference of Antennas Test & Measurement Society	Virtual conference	18/02/2021
03	Dr. Mahima Arrawatia	Role of IoT in Agriculture	IIT Bombay	Mumbai, Webinar	17/08/2020
04	Dr. Mahima Arrawatia	Broadband Antenna for Energy Harvesting Applications	VJTI, Mumbai	Mumbai, Webinar	23/12/2020
05	Dr. Rishikesh Dilip Kulkarni	Recap of Embedded system	Electronics and ICT Academies at- IIT Guwahati and NIT Patna.	Guwahati and Patna	28/07/2020
06	Dr. Rishikesh Dilip Kulkarni	Speckle Metrology	QIP Sponsored Online Short Term Course on Photonics and Photovoltaics at IITG	Guwahati	09/12/2020
07	Dr. Rishikesh Dilip Kulkarni	Digital Holography	QIP Sponsored Online Short Term Course on Photonics and Photovoltaics at IITG	Guwahati	10/12/2020
08	Dr. Rishikesh Dilip Kulkarni	Digital Fringe Projection Profilometry	QIP Sponsored Online Short	Guwahati	11/12/2020

			Term Course on Photonics and Photovoltaics at IITG		
09	Dr. Rishikesh Dilip Kulkarni	Laser Speckle Measurement Techniques and Applications	TEQIP III Sponsored Online Short Term Course on Recent Advances in RF and Photonics	Guwahati	26/02/2021
10	Dr. Sanjib Ganguly	Popular Science Lecture (online) on the "Fundamental of Electric Circuits and the Historical Development"	Nabadwip Vidyasagar College	Nabadwip, West Bengal	09/09/2020
11	Dr. Sanjib Ganguly	TEQIP III Faculty development programme (online) on "Application of Soft Computing Techniques in Engineering Optimization"	University Institute of Technology, Rajiv Gandhi Proudhyogiki Vishwavidyalaya (UIT-RGPV), Bhopal	Bhopal, Madhya Pradesh	16/09/2020-17/09/2020
12	Dr. Sanjib Ganguly	Faculty Development Programme on Innovation and Intelligence (FDPII 2020)	NIT Durgapur	Durgapur, West Bengal	07/10/2020
13	Dr. Sanjib Ganguly	STP programme under the banner of AICTE on Automation and Intelligent control of Electrical Systems	Gudlavalleru Engineering College, Andhra Pradesh	Andhra Pradesh	21/11/2020
14	Dr. Sanjib Ganguly	STP programme on "Application of AI Techniques for Solving Engineering Problems"	University Institute of Technology, Rajiv Gandhi Proudhyogiki Vishwavidyalaya (UIT-RGPV), Bhopal	Bhopal, Madhya Pradesh	21/02/2021
15	Dr. Debabrata Sikdar	Nanophotonics Part I	IIT Guwahati	Guwahati	10/11/2020
16	Dr. Debabrata Sikdar	Nanophotonics Part II	IIT Guwahati	Guwahati	11/11/2020
17	Dr. Debabrata Sikdar	Promises of smart nanoplasmic devices	Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT, M&G), Jaipur	Jaipur	19/12/2020
18	Dr. Debabrata Sikdar	Fundamentals of Nanophotonics	IIT Guwahati	Guwahati	22/12/2020

19	Dr. Debabrata Sikdar	Modelling of Nanophotonic Devices	IIT Guwahati	Guwahati	22/12/2020
20	Dr. Debabrata Sikdar	Overview of Metamaterials	IIT Guwahati	Guwahati	23/12/2020
21	Dr. Debabrata Sikdar	Transformation Optics Overview	IIT Guwahati	Guwahati	23/12/2020
22	Dr. Debabrata Sikdar	Promises of Nanophotonics	IIT Guwahati	Guwahati	24/12/2020
23	Dr. Debabrata Sikdar	Inverse design of photonic devices	IIT Guwahati	Guwahati	25/12/2020
24	Dr. Debabrata Sikdar	Methods for Theoretical Modelling and Simulation of photonic devices involving nanoparticle arrays	Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT, M&G), Jaipur	Jaipur	15/02/2021
25	Dr. Debabrata Sikdar	Promises of nanophotonics with new alternative materials and with deep learning	Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT, M&G), Jaipur	Jaipur	18/02/2021
26	Prof. Roy. P. Paily	"Challenges and Opportunities in the Area of VLSI Design", Orientation for new M Tech program in VLSI & Embedded System	Government Engineering College Thrissur, Kerala	Kerala	17/12/2020
27	Prof. Roy. P. Paily	Nano-Electronic Devices	TE-QIP III Short Term Course on Nanostructured Materials and their Applications in Nanotechnology (NAMAAN-2020)	Guwahati	30/10/2020
28	Prof. Roy. P. Paily	Lithography - Process, Status and Trends	TE-QIP III Short Term Course on Nanostructured Materials and their Applications in Nanotechnology (NAMAAN-2020)	Guwahati	30/10/2020
29	Prof. Roy. P. Paily	Circuits for Brain Machine Interface	ATAL Academy (Online FDP) on	Silchar	16/10/2020



			"Analog/Mixed VLSI Circuits for Brain and Machine Interface". Dept. of ECE, NIT Silchar		
30	Prof. Roy. P. Paily	Developing MEMS Devices for Biological Applications	Five-Days National Workshop on "Recent Trends in Innovative CMOS-MEMS Technologies and applications: Hands on Learning". Dept. of ECE, NIT Silchar	Silchar	16/10/2020
31	Dr. Chayan Bhowal	A brief history of Feedback control	Dept. of ECE, University of Engineering & Management Kolkata	Kolkata	11/09/2020
32	Dr. Chayan Bhowal	Introduction to Optimal Control	TEQIP(III) sponsored Short Term Course on "Advances in Control Systems Engineering and Applications (ACSEA 2020)". Dept. of EE, SVNIT Surat	Surat	24/09/2020
31	Dr Sonali Chouhan	Multi-Access Edge Computing and 5G for Smart Cities	ATAL FDP on Information and Communication Technologies for Smart City Applications (ICT4Smart-2021)	Silchar	12/01/2021
32	Dr Sonali Chouhan	Prominence of Energy Efficiency in 5G	AICTE sponsored (STTP) "Energy Efficient Techniques for 5G Wireless Communications, PICT Pune	Pune	09/12/2020
33	Dr Sonali Chouhan	Essentials of IoT	STTP on Essentials of IoT, Vikrant Institute of Technology, Indore	Indore	13/08/2020

34	Dr Sonali Chouhan	Creating a IoT project and its basic building blocks	STTP on Essentials of IoT, Vikrant Institute of Technology, Indore	Indore	14/08/2020
35	Dr Sonali Chouhan	IoT in a Nutshell	STTP on IOT and its different aspects, RGPV Bhopal	Bhopal	04/06/2020
36	Dr Sonali Chouhan	IoT Basic Building Blocks	STTP on IOT and its different aspects, RGPV Bhopal	Bhopal	05/06/2020
37	Dr Sonali Chouhan	Communication in IoT	STTP on IOT and its different aspects, RGPV Bhopal	Bhopal	06/06/2020
31	Dr. Ramesh Kumar Sonkar	Silicon Photonics for Optical Interconnects	International Symposium on Semiconductor Materials and Devices, ISSMD-2020, Dr. B.R.Ambedkar National Institute of Technology, Jalandhar	Jalandhar	02/12/2020
32	Dr. Ramesh Kumar Sonkar	Optoelectronics Devices and Its Applications	STC on Physical VLSI Design Techniques, NITTTR Chandigarh.	Chandigarh	15/06/2020-19/06/2020
33	Dr. Ramesh Kumar Sonkar	On-chip silicon optical modulators and (de)multiplexers for high-speed photonic integrated circuits	Short Term Course on Integrated Optics, Punjab Engineering College (Deemed to be University)	Chandigarh	18/01/2021-21/01/2021
34	Prof. R. Bhattacharjee	"Online and Digital Education to support NEP 2020".	NITTTR, Kolkata.	Kolkata	25/11/2020
35	Prof. R. Bhattacharjee	Millimetre waves and emerging wireless communication technologies: opportunities and challenges"	NIT Silchar	Silchar	29/08/2020-02/09/2020
36	Prof. R. Bhattacharjee	Computational Electromagnetic Techniques -An Overview	Jadavpur University, IEEE Kolkata Section	Kolkata	27/12/2020-29/12/2020
37	Prof. R. Bhattacharjee	Application of MoM to Planar Microwave Structures	Jadavpur University, IEEE Kolkata Section	Kolkata	27/12/2020-29/12/2020

38	Prof. R. Bhattacharjee	Teachers on Using ICT for Online Teaching Learning Process"	Tripura University	Tripura	05/12/2020
39	Prof. R. Bhattacharjee	Virtual Labs	Tripura University	Tripura	05/12/2020
40	Prof. R. Bhattacharjee	ICT tools for Teaching-Learning & Assessment	Nowgong Polytechnic, Nagaon	Nagaon, Assam	27/02/2021

#### VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
01	Prof Kaushik Sengupta	Princeton University, USA	Multi-port mm-Wave Transceivers and Antenna Interfaces: Towards Programmable mm-Wave Front-ends' Invited lecture organized by IEEE student branch, IIT Guwahati	08/12/2020	Webinar as a part of IEEE SSCS Distinguished lecture

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Dr. Ramesh Kumar Sonkar	Recent Advances in RF and Photonics, Coordinator	TEQIP	22/02/2021 - 26/02/2021	National	49
02	Dr. Ramesh Kumar Sonkar	QIP STC on Photonics and Photovoltaics: Devices, Circuits, and Metrology, Coordinator,	TEQIP	11/12/2020 - 24/12/2020	National	37
03	Dr. Ramesh Kumar Sonkar	QIP STC on Optoelectronics and Nanophotonics	TEQIP	06/11/2020 - 12/11/2021	National	40

## PATENTS

No. of Patents Granted: 01

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1.	Harshal B. Nemade, Ashish Kumar Namdeo and N. Ramakrishnan	Contactless interdigital transducer based on electrostatic principle for surface acoustic wave devices	Granted on 3/03/2021	591/KOL/2010 Patent Grant No.: 363691	Indian patent granted

## AWARDS AND HONOURS

- Dr. Chayan Bhawal: Received the Award for Excellence in Ph.D. Research from IIT Bombay

## STUDENTS' ACHIEVEMENTS

- Jegyasu: Prime Minister's Research Fellows (PMRF) from MoE
- Nupur: Student grant in 12<sup>th</sup> IEEE ECCE Asia 2021 conference organized by National University of Singapore (NUS)
- Darpan Mishra: Best Paper Award Certificate at TENSYP 2020
- Niharika Baruah: Young Presentation Award in 9<sup>th</sup> International Symposium on Electrical Insulating Materials (ISEIM) at Waseda University, Tokyo, Japan

## SPECIAL MENTION

### Dr. Chandan Kumar

- Associate Editor of the IEEE Open Journal of Power Electronics from Jan. 2021
- Associate Editor of the IEEE Open Journal of the Industrial Electronics Society (OJIES) from Dec. 2020
- Moderator for the IEEE TechRxiv from April 2020

### Prof. Rakhesh Singh Kshetrimayum

- Senior Member, International Union of Radio Science, Ghent, Belgium, Feb. 2021

### Dr. Rishikesh Dilip Kulkarni

- Financial sanction of SERB has been accorded to the research project 'Development of Configurable Digital Holographic Microscope for Microfluidics Applications' under the guidance of Dr. Rishikesh Dilip Kulkarni at a total cost of Rs. 5270034/-

### Dr. Sanjib Ganguly

- Dr. Sanjib Ganguly has been featured world's top 2% scientist list in 2019 according to the data-base published in PLOS journal by the experts of the Stanford University, USA

### Dr. Ramesh Kumar Sonkar

- Senior Member, IEEE August 2020

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/ Institute/ Org PhD degree received from	Designation	Areas of Interest
1	Adda Ravindranath	IIT Kanpur	Assistant Professor	Power Electronics, Distributed Generation and Power Quality
2	Ahamed Shaik Rafi	IIT Kharagpur	Professor	Adaptive Signal Processing, Mobile Communications, VLSI Signal Processing, Biomedical Signal Processing
3	Arrawatia Mahima	IIT Bombay	Assistant Professor	Energy Harvesting, RF Circuit Design, Microstrip Antennas
4	Bhattacharjee Ratnajit	Jadavpur University	Professor	Electromagnetics, Microstrip Antennas, Microwave Engineering, Wireless Communication
5	Bhawal Chayan	IIT Bombay	Assistant Professor	Optimal Control, DAE systems, Model Order reduction, Multi-agent systems
6	Bhuyan M. K.	IIT Guwahati	Professor	Image and Video Processing, Computer Vision, Pattern Recognition and Human Computer Interactions (HCI)
7	Bora Prabin Kumar	IISc Bangalore	Professor	Image Processing and Computer Vision
8	Bose Sanjay Kumar	Stony Brook, USA	Professor	Modeling, Simulation and Analysis of Communication Networks
9	Chouhan Sonali	IIT Delhi	Associate Professor	Wireless Sensor Networks, Coding Theory, Wireless Communications
10	Dandapat Samarendra	IIT Kanpur	Professor	Signal Processing, Speech Processing, Biomedical Signal & Image Processing, Biomedical Instrumentation
11	Das Smarajit	IISc Bangalore	Assistant Professor	Information theory, Error correcting codes
12	Dhaka Kalpana	IIT Delhi	Assistant Professor	Channel modeling and resource allocation for wireless relay systems, cooperative communications, multihop relaying, and multicasting in wireless networks.
13	Ganguly Sanjib	IIT Kharagpur	Associate Professor	Power distribution system planning and optimization, Distributed generation, Custom power devices, Evolutionary algorithms, Multi-objective optimization
14	Guha Prithwijit	IIT Kanpur	Assistant Professor	Computer Vision, Machine Learning, Robotics
15	Jacob Tony	IIT Kanpur	Associate Professor	Statistical Signal Processing and Information Theory
16	Kar Indrani	IIT Kanpur	Associate Professor	Control Theory and Applications, Soft Computing Applications, Neural Network Based Adaptive Control, Applications of Fuzzy Logic and Neural Networks in Nonlinear Control,

				Kinematic and Dynamic Control of Robot Manipulators
17	Karthik Kannan	University of Toronto, Canada	Associate Professor	Biometric Counter-spoofing; Privacy Preserving Analysis; Image and Data Forensics; Secure Key management and Exchange in Wireless Networks;
18	Kashyap Salil	IISc, Bangalore	Assistant Professor	Wireless communications and signal processing, Massive MIMO (a leading 5G wireless technology), Algorithm design for wireless systems and its performance analysis, Green communications, Cognitive radio
19	Krishnaswamy Srinivasan	IIT Bombay	Assistant Professor	Control Systems, Cryptography
20	Kshetrimayum Rakesh Singh	NTU Singapore	Professor	Electromagnetic Band Gap, Filters, Metamaterials, Computational Electromagnetics and Periodic Structures
21	Kulkarni Rishikesh Dilip	EPFL, Switzerland	Assistant Professor	Digital Holography, speckle metrology, interferometry, digital signal processing
22	Kumar Chandan	IIT Madras	Assistant Professor	Smart Transformer Application in Power System, Grid Connected Converters and Microgrid, Power Quality Improvement using STATCOM, DVR, UPQC, Predictive Control of Power Converters, Parallel Operation of Voltage Source Converters
23	Kumar Praveen	Delft University of Technology, The Netherlands	Professor	Optimisation of electrical motors and drives, Algorithm development for Multi-objective optimisation and multicriteria decision making in engineering systems, Simulation and design of electrical motors and actuators using Finite Element Methods (FEM), Analytical modeling of electrical motors for rapid simulation, Simulation and Analysis of Hybrid and Electric Vehicles
24	Mahanta Chitralkha	IIT Delhi	Professor	Control System Theory and Applications, Control of Nonlinear Uncertain Systems, Artificial Intelligence based Control, Identification and Control of Nonlinear Systems
25	Majhi Somanath	University of Sussex, Brighton, UK	Professor	Relay Based Identification and Auto tuning, Control Systems, Control Theory Applications
26	Mallajosyula Arun Tej	IIT Kanpur	Assistant Professor	Photovoltaics, Large Area Electronics, Organic and Organic-Inorganic Hybrid Semiconductor Devices and Layered 2D Materials
27	Sudarshan Mukherjee	Indian Institute of	Assistant Professor	Next Generation Wireless Communications, Signal Processing

		Technology Delhi (IIT Delhi)		for large scale antenna systems, Edge computing, Ultra-dense wireless networks
28	Nallam Nagarjuna	IIT Delhi	Assistant Professor	Analog and RF integrated circuits
29	Nath Shabari	University of Minnesota	Assistant Professor	Power Electronics, Application of Power Electronics to Power Systems.
30	Nayak Sisir Kumar	IISc Bangalore	Associate Professor	Nanofluid for transformer, Metamaterial enhanced WPT, PV integration with grid
31	Nemade Harshal B.	IIT Bombay	Professor	Electronic Instrumentation, Systems Design, Ultrasonic Instrumentation, Non-destructive testing, Electronic product design, EMI/EMC issues, Acoustic sensors, Under-water acoustics, Surface acoustic wave devices, MEMS
32	Palathinkal Roy Paily	IIT Madras	Professor	VLSI and MEMS
33	Rajesh Alentallil	IIT Kanpur	Associate Professor	Coding and Modulation Techniques
34	Ribhu	IIT Roorkee	Assistant Professor	Signal Processing for Wireless Communication, MIMO Systems, Adaptive and Statistical Signal Processing
35	Sekhawat Hanumant Singh	University of Twente, The Netherlands	Assistant Professor	System Theory, Applied Mathematics & Signal Processing
36	Sinha Rohit	IIT Kanpur	Professor	Speech and Audio Processing, Speech Recognition, Signal Processing
37	Sikdar Debabrata	Monash University, Australia	Assistant Professor	Plasmonics and metamaterials, Light-matter interaction in nanoscale, Dynamic tuning in plasmonic metamaterials and metadevices, Plasmon-assisted optical switching, directional scattering, wideband absorption, ultrasensitive detection, tunable optical devices etc., Electrovariable nanoplasmonic devices
38	Sonkar Ramesh Kumar	IIT Kanpur	Assistant Professor	Silicon Photonics, Integrated Photonics, Fiber lasers Optoelectronics Device Characterization and Fabrication, Microelectronics and III-V Compound Semiconductors, Photonics Integrated Circuits, Fiber Optics Communication, Non-invasive measurement of physiological parameters of human blood, Structural health monitoring, Antennas, Vacuum Electron Devices
39	Sundaram Suresh	IISc Bangalore	Associate Professor	Pattern Recognition, Image / Video Processing and Computer Vision

40	Tripathy Praveen	IIT Kanpur	Associate Professor	Power system dynamics and stability studies, Wide Area Monitoring and Control of Power System, Optimal power dispatch and state estimation, Security analysis and control, Energy management system and distribution automation
41	Trivedi Gaurav	IIT Bombay	Associate Professor	VLSI, HPC, Embedded Systems, IoT, Computer Architecture, Electronic System Design and Manufacturing (ESDM), Quantum Computing, Hardware Security



### LABORATORY FACILITIES

**Language-Cognition Lab:** The lab is engaged in research in language from a cognitive science perspective. We explore the relationship of human language with cognition, with culture as a possible third angle through studies of language processing in various domains.

**Phonetics and Phonology Lab:** Research on language and speech is an exciting area encompassing research in the fields of language technologies and human-computer interfaces in a way which can be employed to various ends ranging from language learning of intelligent systems to the learning capabilities of humans. To fulfill these ends this lab would like to start a modern academic research lab which is focused on the way speech is produced and comprehended. The lab will be involved with experimental investigations of speech processes and their acquisition. Topics include: articulatory movements, measurements of pressures and airflows in speech production, computer-aided waveform analysis and spectral analysis of speech, perception and discrimination of speech like sounds, speech prosody, models for speech recognition, speech disorders, and language acquisition. This laboratory will also play an important role in recording and archiving the languages of the North-East. Apart from that, the facilities in this laboratory will also promote advanced research on languages of the region.

**The Sleep & Cognition Lab** is a specialized lab where research work in the area of cognition and sleep is being carried out. The present project is funded by the department of science and technology, GOI. This lab has few specialized equipments such as 40 channel Nihon-Khoden polysomnography system, 32 channel active electrode, EEG/ERP system and DC current brain stimulator for designing experiment.

**Psychology Lab:** Psychology laboratory is also used for conducting experiments in the area of social psychology and organizational psychology on regular basis by faculty and research scholars. Psychology lab has already initiated the process of procuring various instruments, which will be used for conducting lab sessions for under-graduate courses in Psychology

### MAJOR EQUIPMENT AND FACILITIES ACQUIRED

- STATA 16: 01 No.
- Desktop: 28 Nos.

### MAJOR AREAS OF RESEARCH AND DEVELOPMENT

The faculties in the HSS department carry out research in several fields of humanities and social sciences. This includes English and Indian literature, Linguistics, Economics, Psychology, Philosophy, Political Science, Archeology, Sociology and History. Faculties and doctoral students pursuing research within these disciplines have been engaged in teaching and research. Major areas of research include Dalit literature, Marathi literature, North-Eastern Archeology and Heritage Management, Common Wealth Literature, Aesthetics, Cultural Studies, Ecocriticism and Translations, Development Economics, Industrial Economics, Labour Economics, Phenomenology and Cognitive Science, Phenomenology and Religion, Ethical Issues related to Science and Technology, Organizational Behaviour, Human Resource Management, Social/Environmental Psychology, I-O Psychology, Literary and Cultural Theory, Microeconomics, Agricultural Economics, Environmental Economics, Econometrics, Philosophy of Technology, Applied Philosophy, Peace Studies, Critical Thinking, Applied Ethics, Philosophy of Education, Phonological theory with special interest in Optimality Theory, vowel harmony, Experimental approaches to Phonology and its acquisition, Social & Environmental History of Assam, Sociology of Science, Historical Sociology, Cognitive linguistics, Endangered and lesser known languages, Language typology, Sociolinguistics, Sleep and Information Processing, Macroeconomics, Applied Game Theory, Sociology of Gender, Sociology of Law, Sociology of Communication, Socio-economic understanding of climate risk and resilience, Urban Living and Sustainable cities, Development Economics, Informal Sector, Issues in Food Security and

Social Security, Economics of Education, Identity issues of ethnic minorities, local governance, development policies, social movements, ethnic violence and conflict prevention, Health and Clinical Psychology, Phonetics, Phonology, Acoustic Phonetics, Tibeto-Burman tones, Psychoacoustics, Perception, Public Economics, Dynamic Economic Theory, Christianity, conversion, ethnic violence, kinship and family, urban issues, Socio-economic history.

### Research Clusters

1. **Development, Governance and Public Policy:** This cluster brings together those who work largely in the fields of development economics, governance, food security, public health, climate, migration, socioeconomic development, agriculture, water security, urbanization, education, conflict, gender, urban geography, constitutionalism, microeconomics, macroeconomics, India's political history, sex trafficking and law & violence and law, ethics and justice.
2. **Language, Literature and Textualities:** This cluster is aggregation of research areas: phonology, phonetics, cognitive and social linguistics, language processing, digital humanities, literary history, Indian languages and literatures, translation, film studies, art history, phenomenology and hermeneutical studies, aesthetics.
3. **Culture, Identity and Social Hierarchy:** This cluster is aggregation of research areas: social inequality: caste, class, race, gender; social anthropology, philosophical reflections on religion, religious history, ethnicity, nationalism, citizenship, language politics, violence, law, literature and culture, archaeology, cultural transformation.
4. **International Studies and Security:** This cluster is aggregation of research areas: inter-State Relations, foreign Policy, diplomacy: politics, economy, business history & cultural relations, security & peace building: international conflict, war and crisis; borders, military and strategic studies; transboundary issues.
5. **Behavioral Sciences:** This cluster is aggregation of research areas: social psychology, organizational behaviour, human resource management, human memory, sleep and information processing, trauma and well-being.
6. **Nature and Culture:** This cluster is aggregation of research areas: ecology, environment, environmental ethics, environmental history and policy, sustainability, cognitive and social dimensions of science and technology.

### MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Start Date	End Date	International/National
01	Mrinal Kanti Dutta	2nd International conference on ECONOMICS AND DEVELOPMENT	The International Institute for Knowledge Management, Hotel Taj Samudra, Colombo	18/06/2020	18/06/2021	International
02	Bodhisattva Sengupta	5th International Conference on South Asian Economic Development	South Asian University, New Delhi	19/02/2021	19/02/2022	International
03	Sambit Mallick	International (Online) Conference on COVID-19: Emergence and Resurgence of	USTM, IITG, DU, ISS, FLAIR and TRIBAC	21/07/2021	22/07/2022	International

		Communicable Diseases fro				
04	Amarjyoti Mahanta	Economics Webinar Series 2021	South Asian University, New Delhi	12/03/2021	12/03/2021	National
05	John Thomas	Nationalism and Internationalism in the Young Ecumenical Movement, 1895-1920s	Humboldt-Universitat Zu Berlin	08/10/2020	10/10/2020	International
06	Debapriya Basu	Two-day Virtual Conference on Online University Education and English Language Teaching: Scope and Challenges (Online)	Vellore Institute of Technology	13/11/2020	14/11/2020	International
07	Mithilesh Kumar Jha	2 Days International Webinar	Post Graduate Govt. College, Sec-11, Chandigarh	16/07/2020	17/07/2020	International
08	Ranu Roychoudhuri	Documenting Industry: Photography, Modernity, and the Nation in India and China (Online)	Department of the History of Art, Johns Hopkins University	19/02/2021		International
09	Debapriya Basu	Current Research Trends in Humanities and Social Sciences (Online)	Vellore Institute of Technology	03/10/2020	03/10/2020	National
10	Mithilesh Kumar Jha	COVID 19 and N E India: Challenges and Way Forward	Department of Political Science, Bodoland University, Assam	23/05/2020	23/05/2020	National

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Start Date	End Date
01	Sambit Mallick	Faculty Development Programme on Cyberspace and Cybersecurity	Sathyabama Institute of Science and Technology, Chennai	Online	20/07/2020	20/07/2020
02	Sambit Mallick	Faculty Development Programme on The Gendered Contours of the Pandemic: Reinventing Public Policy an	Rama Devi Womens University, Bhubaneswar and Miranda House, University of Delhi	Online	01/09/2020	01/09/2020
03	Sambit Mallick	Faculty Development Programme on Advanced Techniques for Designing MOOCs	Kalinga Institute of Industrial Technology, Bhubaneswar	Online	05/09/2020	05/09/2020
04	Sambit Mallick	Workshop on Leadership Development Programme	Dr. Harisingh Gour Vishwavidyalaya, Sagar	Online	18/09/2020	18/09/2020

05	Rajshree Bedamatta	80th Annual Conference of the Indian Society of Agricultural Economics	Centre for Agriculture and Rural Development, Tamil Nadu Agricultural University	Coimbatore	09/02/2021	09/02/2021
06	John Thomas	Critique and Construction: Contemporary Writings on Histories of Keralam	Sree Sankaracharya University of Sanskrit, Kalady	Kalady, Kerala	01/03/2021	
07	Sambit Mallick	Sociological Theory since 1945	Krishna Kanta Handiqui State Open University, Guwahati	Online	09/12/2020	09/12/2020
08	Sambit Mallick	Faculty Induction Programme	Jawaharlal Nehru University, New Delhi	Online	16/02/2021	16/02/2021
09	Sambit Mallick	International Conference on Roadmap for Humanities and Social Sciences in STEM Higher Education	Indian Institute of Technology Jammu	Online	19/03/2021	19/03/2021
10	Sambit Mallick	Workshop on Research Methodology in Social Sciences: Integrating Quantitative and Qualitative Methods	Central University of Punjab	Online	22/03/2021	26/03/2021
11	Debapriya Basu	"Literature and Technology"	Tinsukia Commerce College	Online	21/08/2020	21/08/2020
12	Debapriya Basu	Panel discussion titled "Isabella Whitney, Mary Shelley and 'Sorojini Debi': Negotiating Female Agency in Times of Crises"	Department of English in collaboration with IQAC, Women's College, Calcutta	Online	12/09/2020	13/09/2020
13	Debarshi Das	Digitalized rural India: A dream or a reality	Royal Global University, Guwahati		26/06/2020	26/06/2020
14	Debarshi Das	How the COVID pandemic is affecting the economy and what can be done about it	Don Bosco University, Guwahati		05/07/2020	
15	Mithilesh Kumar Jha	(It is invited lecture. Shift it in Next column) Online, Topic: Political Thought & Ideology	Faculty of Law, Marwadi University, Rajkot, Gujarat	Online	18/04/2020	18/04/2020

#### VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
01	Mr. Jaideep Saikia	Jaideep Saikia is a Terrorism and Conflict Expert and author or editor of several books, including Mind Over Matter	Mapping the North East and the strategic encirclement (Online)	08/04/2021
02	Dr. Kena Wani	Postdoctoral fellow at the ICAS:MP programme instituted under the University of Göttingen and CSDS in New Delhi	Broadcasting (rural) Development: Big Science, Televisual Pedagogy and Techno Managerialism in Western India, 1960s-1970s	31/03/2021

03	Dr. Alex Waterman	Alex Waterman is a Teaching Fellow in Conflict Studies at the University of Leeds and a 2020-2021 non-resident Fellow at the Modern War Institute, US Military Academy West Point	Conflict, Development and Armed Ordering in the Indo-Myanmar borderlands	12/04/2021
04	Prof. T. Sundararaman	Prof T Sundararaman, Global Coordinator of the People's Health Movement (PHM)	Lessons from India's Covid-19 Pandemic Response - What we got right and what we need to do better	09/04/2021
05	Prof. Praveen Jha	Praveen Jha is a Professor of Economics based at JNU, New Delhi	India's Employment Challenges and Contemporary Macroeconomic Regime: A political economy perspective	26/03/2021
06	Prof. Mary John	Mary E John is currently Professor and Acting Director at the Centre for Women's Development Studies, New Delhi	Debating Women's Labour: What does Marxist-Feminism have to do with it?	19/03/2021
07	Prof. Aditya Nigam	Aditya Nigam is currently Professor at the Centre for the Study of Developing Societies in New Delhi	Why Must We Decolonise Theory? Questions from the Global South	12/03/2021
08	Dr. Moggallan Bharti	Dr. Moggallan Bharti is Assistant Professor at the School of Development Studies, Ambedkar University Delhi (AUD)	Idea of Nation, Nationality and Nationalism: An Ambedkar's Perspective	26/02/2021
09	Prof. Amitabha Ghosh	Prof. Amitabha Ghosh is currently an Honorary Scientist The National Academy of Sciences, India and Indian National Science Academy, New Delhi	Descriptive Aechaeoastronomy and Ancient Indian Chronology	19/10/2020
10	Prof. Amitabha Ghosh	Prof. Amitabha Ghosh is currently an Honorary Scientist The National Academy of Sciences, India and Indian National Science Academy, New Delhi	The Antiquity and Originality of Indian Astronomy	02/11/2020

11	Dr Madhumita Pandey	Dr Madhumita Pandey is a Lecturer in Criminology at the Helena Kennedy Centre for International Justice (HKC) situated within the Law and Criminology Department of Sheffield Hallam University	Convicted Rapists: Ideal informants of India's Rape Epidemic	
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#### SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Dr. Rajshree Bedamatta and Prof. Sukanya Sharma	An Industry-Academia Interaction (Online)	IIT Guwahati	27/02/2021	National	100
02	Dr. Sambit Mallick	COVID-19: Emergence and Resurgence of Communicable Diseases from Social Sciences Perspectives (Online)	University of Science and Technology, Meghalaya	21/07/2020 - 22/07/2020	International	50
03	Dr. Ranu Roychoudhuri	Annual Conference of the College Arts Association		10/02/2021	International	
04	Dr. Debapriya Basu and Dr. Agnirup Sarkar	A 'Non-Mainstream' History of the Freedom Struggle in Assam: Subalterns, women and other 'streams' (Online)	IIT Guwahati	18/09/2020	National	80
05	Prof. Sukanya Sharma and Dr. Debapriya Basu	Sarvodaya: The Gandhian Ideal	IIT Guwahati	14/09/2020 - 15/09/2020	National	100

#### STUDENTS' ACHIEVEMENTS

- Amita Ram Kulkarni received 1st Position- Research Project Presentation **at** National Human Rights Commission (NHRC)
- Mridutpal Sinharay was awarded Hungarian State scholarship for Language and Culture summer courses in 2020 from Tempus Public Foundation, Hungary

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1	Barua Anamika	University of Leeds, UK	Professor	Climate Change and Water security, Ecological Footprint, Virtual Water flows through trade, Water governance including transboundary water governance
2	Barua Archana		Professor	Phenomenology and Continental Philosophy : Husserl, Heidegger, Sartre, Merleau Ponty, Ricoeur, Levinas and Gadamer included ; Philosophy of Value: Ethics and Aesthetics, Feminist Philosophy, Indian Philosophy, Gandhian Philosophy, Philosophy of Religion. Special expertise in Philosophy of Culture and religions of North East India with special research interest in the Vaishnavism of the Medieval Bhakta Saints and Mahapurush Sankaradeva in particular ; Designed web materials on select areas of Science, Technology and Society from a philosophical perspective.
3	Basu Debapriya	Jadavpur University	Assistant Professor	English and European Renaissance literature, early modern English women's writing, women's literary history, gender and genre, poetics and gender, theatre, textual editing and bibliographical studies, translation, digital humanities theory and practice (text technologies, TEI-XML, hypertextualities, digital archives, the digital early modern)
4	Bedamatta Rajshree	University of Calcutta	Associate Professor	Food security, Nutrition, and Public Health
5	Das Debarshi	Jawaharlal Nehru University	Associate Professor	Development Economics, Political Economy, Macroeconomics
6	Das Liza	NULL	Professor	Cultural Studies
7	Dutta Mrinal Kanti	Gauhati University	Professor & Head	Agricultural Economics, Environmental Economics, Regional Economic Development
8	Dutta Vipul	Kings College London	Assistant Professor	South Asian Diplomatic & Military History ; Indian Business History
9	Hussain Dilwar	IIT Kanpur	Associate Professor	Psychology of Trauma, Psychology of Well-being
10	Jairath Vasundhara	University of Delhi	Assistant Professor	Social Movements, Development and Displacement, Indigenous Politics, Latin America, Decolonisation of Knowledge

11	Jha Mithilesh Kumar	University of Delhi	Assistant Professor	Political theory, Political thought in comparative perspectives particularly Indian and western political thought, Indian politics especially language and related issues of state formation in modern India
12	Kashyap Naveen	IIT Bombay	Associate Professor	Sleep and Information Processing, Human Memory
13	Keshavamurthy Kiran	University of California, Berkeley	Assistant Professor	Modern Indian Literatures
14	Khanolkar Prasad	University of Toronto	Assistant Professor	Politics of Urbanization in South Asia; Urban Housing and Slum Settlements; Social Lives of Infrastructure; Urban Land Markets; Spaces of Finance Capital; Urban Informal Economies; Urban Commons and Emerging Collectivities; Urban Theory and Methods; Cinema and City; Religion and Urban Space; South Asian Studies; Critical Theory; Urban Ethnography.
15	Kipgen Ngamjahao	Indian Institute of Technology Delhi	Associate Professor	Environmental sociology, political sociology, religion and cultural politics
16	Mahanta Amarjyoti	Jawaharlal Nehru University, Centre for Economic S...	Assistant Professor	Game Theory, Auction Theory, Industrial Organization
17	Mahanta Shakuntala	Utrecht University, The Netherlands	Professor	Theoretical Phonology, Acoustic Phonetics and perception, Information Structure, Tone and intonation
18	Mallick Sambit	University of Hyderabad	Associate Professor	Sociology of Science and Technology; Historical Sociology; Philosophy of the Social Sciences
19	Parmar Daksha	Jawaharlal Nehru University, New Delhi	Assistant Professor	Public Health and Development, Health Systems in India, Global Public Health, Women's Health, Health Policy and Politics.
20	Prabhu Venkataraman		Professor	
21	Punekar Rohini Mokashi	Gujarat University	Professor	Translation, Postcolonial Studies, Culture Studies, Indian Writing in English and Modern British Literature.
22	Ranjan Ritwik	Princeton University	Assistant Professor	Philosophy of History, Historiography, History of Ideas
23	Ray Sawmya	University of Hyderabad (Hyderabad Central Univers...	Associate Professor	Gender Violence and Law, Sex Trafficking and Sex Work, Gender and Legal Pluralism, Caste in Urban Spaces.
24	Roychoudhuri Ranu	The University of Chicago	Assistant Professor	History of Photography, History of Art, Visual Culture, Print History, Postcolonial Studies, South Asia, Twentieth-Century India



25	Saikia Arupjyoti	University of Delhi	Professor	Economic, environmental and political history of modern Assam
26	Saikia Pahi	McGill University, Canada	Associate Professor	International Relations; Foreign Policy between India and neighbouring countries; Ethnic identity politics, tribes and indigenous people in Northeast India; Governance & political development in developing areas; Security issues in borderlands Asia; Social movements and conflict prevention.
27	Sarkar Agnirup	Durham University	Assistant Professor	Macroeconomics, Monetary Economics, Finance
28	Sarmah Priyankoo	University of Florida	Associate Professor	Phonetics and phonology of vowels and tones, Tibeto-Burman languages, language technology development, speech perception, speech recognition
29	Saundarjya Borbora	Gauhati University	Professor	Development Economics, Regional Development
30	Sengupta Bodhisattva	McGill University	Associate Professor	Public Economics and Policy, Dynamic Economic Theory
31	Sharma Sukanya	Deccan College PG & Research Institute, Poona	Professor	Archaeology
32	Som Bidisha	Jawaharlal Nehru University, New Delhi	Associate Professor	language processing, culture and cognition, social linguistics.
33	Thomas John	Centre for Historical Studies, Jawaharlal Nehru University	Assistant Professor	Religion and Formation of Cultural and Political Identities; Religion and Politics in North-East India; Social and Intellectual History of 19th Century Travancore; History of Missionary Encounter in South Asia.
34	Tripathi Nachiketa	IIT Kanpur, India	Professor	Organizational Behaviour, HRM and Social Psychology

**LABORATORY FACILITIES:**

**No. of Laboratories with brief introduction:** (Total No.: Four)

Maths E-block Laboratory: Seating capacity:  $74+71 = 145$

Maths E1-block Laboratory: Seating capacity: 138

Two Research Scholars Laboratories: Total capacity: 100 (Located in E and E1 blocks)

All laboratories are equipped with LAN and wireless network connectivity. An LCD projector with motorized screen is available in each laboratory for tutorial and demonstration sessions. Almost all the students who are enrolled in B.Tech., M.Sc. and regular Ph.D. programmes are allotted an individual computer in these laboratories.

In addition to the standard personal computers in the laboratories, the department has several workstations, high-end servers and a storage area network. All laboratories except research scholars laboratories are equipped with CCTV cameras.

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

- Logitech Web Camera (05 nos.) + Logitech USB Speaker (05 nos.) 44,746.00
- Upgradation/buyback of ASUS KX140D laptop to Lenovo L13 Yoga Laptop (03 nos.) 3,21,300.00
- Upgradation/buyback of Lenovo X220 laptop to Lenovo L13 Yoga Laptop (02 nos.) 2,14,200.00
- Upgradation/buyback of ASUS X200LA laptop to HP X360 Laptop (02 nos.) 1,90,300.00
- Logitech PTZ camera with speaker (01 no.) 1,19,994.00
- Konica Minolta KM 64-c226i A3 color laserjet Printer (01) 1,47,618.00

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT**

Algebra, Linear Algebra, Number Theory, Combinatorics, Graph Theory, Functional Analysis, Harmonic Analysis, Complex Dynamics, Low Dimensional Topology, Differential Equations, Numerical Analysis, Fluid Dynamics, Mathematical Biology.

Probability, Stochastic Processes, Random Graphs, Stochastic Control Theory, Queuing Theory, Financial Mathematics, Distribution Models, Life Time Data Analysis.

Algorithms, Theoretical Computer Science, Computer Networks and Security, Distributed Computing, Quantum Computing, Computational Geometry.

**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: NATIONAL/ INTERNATIONAL**

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
01	Dr. Rupam Barman	International webinar on Recent Developments in Number Theory 2020 (Online)	KIIT University, Bhubaneswar	17/08/2020 - 20/08/2020	International
02	Prof. Swaroop N. Bora	International Conference on Advances in Mathematics, Science and Technology (Online)	Rajiv Gandhi University, Rono Hills, Arunachal Pradesh	01/09/2020 - 03/09/2020	International
03	Dr. Rupam Barman	National Workshop on Geometry of Continued Fractions: Ramanujan and his successors (Online)	Central University of Himachal Pradesh	14/09/2020 - 15/09/2020	National

04	Prof. Swaroop N. Bora	International Conference on Advances in Differential Equations and Numerical Analysis (ADENA 2020) (Online)	IIT Guwahati	12/10/2020 - 15/10/2020	International
05	Prof. S. Natesan	International Conference on Advances in Differential Equations and Numerical Analysis (ADENA 2020) (Online)	IIT Guwahati	12/10/2020 - 15/10/2020	International
06	Prof. Swaroop N. Bora	65th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM) - an International Conference (Online)	GITAM, Hyderabad	09/12/2020 - 11/12/2020	International
07	Dr. Rupam Barman	International Conference on Special Functions & Applications (ICSFA-2020) (Online)	Babu Banarasi Das University, Lucknow	20/12/2020 - 22/12/2020	International
08	Prof. Swaroop N. Bora	35th Ramanujan Mathematical Society Annual Conference	Central University of Rajasthan	27/12/2020 - 30/12/2020	National

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Prof. Swaroop N. Bora	Porous Structures as Windmills and Aquafarm: A Mathematical Treatment	Adamas University	Kolkata	14/05/2020
02	Dr. Rupam Barman	Elliptic curves in Number Theory	University of Science and Technology, Meghalaya	Meghalaya	22/06/2020
03	Prof. Swaroop N. Bora	Mathematical Research: Its Direct and Indirect Impact on Society	Assam Down Town University	Guwahati	22-26/06/2020
04	Prof. Shreemayee Bora	Nearest Rank Deficient Matrix Polynomials	Oselot Seminar Series Organizers: Christian Mehl (TU Berlin), Andre Ran (Vrije Universiteit, Amsterdam), Michal Wojtylak (Jagiellonian University, Krakow)	<i>Technische Universität Berlin</i>	09/07/2020
05	Prof. Shreemayee Bora	Nearest Rank Deficient Matrix Polynomials	RESTS-2020 Organized by Dibrugarh University Institute of Engineering and Technology	Dibrugarh	15/07/2020

06	Prof. Swaroop N. Bora	Differential Equations as They Arise in Large Water Bodies and How to Solve Them	Gonit Sora	Assam	19/07/2020
07	Prof. Siddhartha Pratim Chakrabarty	Lecture Series on Financial Mathematics	Lady Shriram College, University of Delhi	Delhi	27-31/07/2020
08	Prof. Swaroop N. Bora	Differential Equations: A Language for Science and Engineering	VIT Vellore	Vellore	26/08/2020
09	Prof. Swaroop N. Bora	Bessel Functions, Legendre Polynomials and Green's Function in Differential Equations	IIT Guwahati	IIT Guwahati	07/09/2020.
10	Prof. Swaroop N. Bora	Differential Equations: Reality, Appreciation and Applications	Tyagbir Hem Baruah College	Jamugurihat	09/09/2020
11	Prof. Swaroop N. Bora	Water Waves: A Glance Through Mathematics	IIT Guwahati	Guwahati	12/09/2020
12	Prof. Swaroop N. Bora	Laying the Foundation - with Special Functions, Green's Function and Integral Equations	IIT Guwahati	Guwahati	14/09/2020
13	Prof. Swaroop N. Bora	Water Wave Mechanics: Basic Theory and Its Importance	IIT Guwahati	Guwahati	15/09/2020
14	Prof. Shreemayee Bora	QR Algorithm for the Matrix Eigenvalue Problem (3 lectures)	Virtual Workshop on Numerical Linear Algebra organized by Assam University, Silchar	Silchar	22-24/09/2020
15	Prof Jiten Chandra Kalita	The World of Fractals	Narengi Anchalik College on the behest of Assam Academy of Mathematics	Guwahati	23/12/2020
16	Dr. Ashok Singh Sairam	Location-Based Privacy Using Differential privacy as resource person for Short Term Training Programme on "Data Security and Privacy"	NIT Surat	Surat	29/10/2020
17	Prof. Swaroop N. Bora	Mathematics - Universal Language for Science and Engineering	Girijananda Institute of Management and Technology	Guwahati	02/11/2020
18	Prof. Swaroop N. Bora	Special Functions, Green's Functions and Application	SRM Institute of Science and Technology	Chennai	12-13/11/2020
19	Prof. Rafikul Alam	Refresher Course in Mathematics (two lectures)	Pandit Ravishankar Shukla University (PRSU)	Raipur	15-16/12/2020

20	Dr. Rupam Barman	p-adic analogues of Ramanujan pi-series	Pondichery University	Pondichery	22/12/2020
21	Prof. Jiten Chandra Kalita	The World of Fractals	Narengi Anchalik College on the behest of Assam Academy of Mathematics	Guwahati	23/12/2020
22	Prof. Swaroop N. Bora	Scattering of Ocean Waves by Porous Structures of Different Configurations	National Institute of Technology	Uttarakhand	26/01/2021
23	Prof. Shreemayee Bora	Solving the ubiquitous eigenvalue problems	National Level Lecture Workshop in Frontiers in Science and Engineering by Women in Science organized by Science Foundation, Deen Dayal Upadhyaya College, New Delhi	New Delhi	11/02/2021
24	Prof. Siddhartha Pratim Chakrabarty	Financial Risk Management: A Commentary in the Paradigm of Basel Regulations	Birla Institute of Technology Mesra	Ranchi	12/02/2021
25	Prof. Jiten Chandra Kalita	Shear Layer Instability: The Backdrop Behind the Simulation.	Mathematics Department, Gauhati University	Guwahati	13/03/2021
26	Prof. Rafikul Alam	R for Research Webinar series (one lecture)	D.G. Ruparel College of Arts, Science and Commerce	Mumbai	18/03/2021
27	Prof. Siddhartha Pratim Chakrabarty	Commentary on Quantitative Modelling of Endemics and Herd Immunity	Indian Institute of Information Technology Bhagalpur	Bhagalpur	19/03/2021
28	Prof. Sukanta Pati	Spectral Theorem, applications Nonnegative matrices	NCM and ATMS	NIT Arunachal Pradesh	13-14/03/2021
29	Prof. Swaroop N. Bora	Orthogonal Polynomials I & II	Calcutta University	Kolkata	19-22/03/2021
30	Prof. Rafikul Alam	Instructional School for Teachers on Linear Algebra (four lectures)	NIT Arunachal Pradesh	Arunachal Pradesh	20-21/03/2021
31	Dr. Gautam K. Das	The Minimum Dominating Set and Maximum Independent Set Problem in Unit Disk Graphs	IIIT Kalyani	West Bengal	21-23/04/2021

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Prof. S. Natesan	QIP-Short-Term Course on Differential Equations: Solution Techniques and Applications	CET, IIT Guwahati	07/09/2020 - 12/09/2020	National	290
02	Prof. Swaroop N Bora	AICTE Training and Learning (ATAL) Faculty Development Programme on Mathematical Modelling of Problems in Coastal and Offshore Engineering	AICTE	14/09/2020 - 18/09/2020	National	105
03	Prof. Swaroop N. Bora and Prof S. Natesan	Advances in Differential Equations and Numerical Analysis	---	12/10/2020 - 15/10/2020	International	700
04	Prof. Anupam Saikia and Dr. Rupam Barman	Workshop on Modular Forms	National Center of Mathematics	14/12/2020 - 19/12/2020	National	60
05	Prof. Shreemayee Bora	Online Alumni Symposium on Mathematics & Computing at IIT Guwahati	---	19/09/2020 - 20/09/2020	National	50
06	Prof. Shreemayee Bora (Member, Scientific Committee)	IWM Regional Workshop on Research and Opportunities at IIT Bhilai	National Board for Higher Mathematics (NBHM)	21/02/2021	National	65

### AWARDS AND HONOURS

- Prof. Siddhartha Pratim Chakrabarty: Awarded the Scholarship Scheme for Faculty Members from Academic Institutions-2020 from the Reserve Bank of India
- Prof. Sukanta Pati: Invited as the Editor of Journal Proceedings Mathematical Sciences, volume 230
- Prof. Sukanta Pati: Invited as the Editor of Journal Linear and Multilinear Algebra, volume 68

### FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/ Org Phddegree received from	Designation	Areas of Interest
01	R. Alam	IIT Bombay	Professor	Numerical Functional Analysis, Numerical Linear Algebra
02	S. Bandopadhyay	ISI Delhi	Assistant Professor	Linear Algebra, Matrices
03	Rupam Barman	IIT Guwahati	Associate Professor	Number Theory

04	B. Bhattacharjya	IIT Kanpur	Associate Professor	Graph Theory
05	S. Bora	IIT Guwahati	Professor	Numerical Linear Algebra
06	S. N. Bora	Dalhousie University, Canada	Professor	Water Wave Mechanics, River Mechanics, Sloshing Dynamics, Flow through Porous Media, Differential Equation, Fractional Differential Equation
07	S. P. Chakrabarty	University of Illinois, Chicago, USA	Professor	Mathematical Biology, Mathematical Finance, Optimal Control Theory
08	A. K. Chakrabarty	IIT Kanpur	Assistant Professor	Functional Analysis
09	Arup Chattopadhyay	JNCASR Bangalore	Assistant Professor	Functional Analysis and Operator Theory
10	D. C. Dalal	IIT Kharagpur	Professor	Computational Fluid Dynamics, Two-phase Flows
11	G. K. Das	ISI Kolkata	Associate Professor	Computational Geometry, Approximation Algorithms, Wireless Networks
12	B. Deka	IIT Guwahati	Associate Professor	Numerical Analysis, Finite Element Method, Interface Problems
13	A. K. Dey	IIT Kanpur	Associate Professor	Distributions models and its applications, Survival Analysis
14	S. Dutta	IIT Kanpur	Assistant Professor	Quantam Computing, Complexity Theory
15	Ayon Ganguly	IIT Kanpur	Assistant Professor	Life Time Data Analysis
16	Palash Ghosh	ISI Kolkata	Assistant Professor	Statistics
17	J. C. Kalita	IIT Guwahati	Professor	Computational and Topological Fluid Dynamics, Numerical methods for Partial Differential Equations, Mathematical Biology
18	S. Kamal	TIFR, Mumbai	Assistant Professor	Probability, Random graphs
19	K. Kapoor	London South Bank University, UK	Professor and <b>Head</b>	Combinatorics, Algorithms
20	K. V. Krishna	IIT Delhi	Professor	General Algebra, Theoretical Computer Science
21	P.A.S. Sree Krishna	SUNY, Buffalo	Assistant Professor	Hyperbolic 3-manifolds, Low-dimensional topology
22	P. Kumar	IIT Kanpur	Assistant Professor	Harmonic Analysis
23	P. S. Mandal	Jadavpur University	Professor	Wireless Sensor Networks, Distributed Computing
24	S. Natesan	Bharathidasan University, Thiruchirappalli	Professor	Numerical solution to Differential Equations, Numerical Homogenization
25	Chandan Pal	IIT Bombay	Assistant Professor	Stochastic Control Theory and Mathematical Finance

26	S. Pati	ISI Delhi	Professor	Matrices & Graphs
27	M. G. P. Prasad	IIT Kanpur	Professor	Complex Dynamics and Fractals
28	H. Ramesh	IIT Madras	Assistant Professor	Formal Languages and Automata Theory, Membrane Computing
29	A. Saikia	University of Cambridge, U.K.	Professor	Number Theory
30	Subhamay Saha	IISc Bangalore	Assistant Professor	Probability and Stochastic Process
31	B. K. Sarma	Delhi University	Professor	Spectral Graph Theory, Combinatorial Matrix Theory
32	N. Selvaraju	IIT Madras	Professor	Queueing Theory, Financial Mathematics, Stochastic Modelling, Operations Research
33	R. K. Sinha	IIT Bombay	Professor	Numerical Analysis
34	Ashok Singh Sairam	IIT Guwahati	Associate Professor	Computer Networks and Network Security
35	K. V. Srikanth	SUNY, Buffalo	Assistant Professor	Low Dimensional Topology
36	R. Srivastava	IIT Kanpur	Assistant Professor	Harmonic Analysis
37	J. Swain	IIT Madras	Associate Professor	Harmonic Analysis
38	Sweta Tiwari	IIT Delhi	Assistant Professor	Differential Equation
39	S. Upadhyay	CMI, Chennai	Assistant Professor	Algebraic Combinatorics
40	V. V. Wagh	University of Pune	Associate Professor	Algebraic Geometry



**LABORATORY FACILITIES**

**Department Labs: Brief Description of each**

- Advanced Manufacturing Laboratory: Equipped with advanced equipments for manufacturing including micro-fabrication facility using CO2 Laser cutting technology.
- Strength of Materials Laboratory: Basically dedicated for doing all kinds of testing including tensile testing, fatigue testing, compressive testing, torsion testing, hardness testing, impact testing etc.
- Materials Science Laboratory: Dedicated for carrying out metallographic studies using highly precise microscope, XRD etc.
- Fluid Mechanics Laboratory: This lab has basic fluid mechanics set-up. The lab is equipped with different flow measuring set-ups such as venturimeter, orifice-plate, pitot tube, rotometer etc., where students can visualize the basic theory of working of the flow meter.
- Thermal Science Laboratory: This lab consists of heat exchangers, equipments for conducting experiments on conduction, convection and radiation, refrigeration systems etc. All these equipments facilitate learning of basic Thermodynamics and Thermal Engineering at undergraduate level.
- Turbo-machinery Laboratory: This lab has different tabletop model of pumps and turbines where students can study the performance characteristics of those machines. Students can strengthen their basic understandings of working and applications of these machines.
- IC Engine Laboratory: This lab is for both undergraduates and graduate students. Some of the experiments which are performed by under-graduate students are performance studies of both C.I. and S.I. engines, etc. Moreover studies on the calorific values, exhaust gas characteristics, extensive studies of bio-diesel with both engines are done by post-graduate students in their respective project works.
- Vibrations and Acoustics Laboratory: This lab demonstrates basic vibrational instruments to students at undergraduate level. Also provides facilities for measurement of frequency signals, rpm etc, and facilities for data-acquisition which are very much beneficial for research activities in the domain of vibrational analysis.
- Instrumentation and Control Laboratory: This lab performs calibration of pressure transducer/ gauge and other mechatronics apparatus, provides strain-gauge measurement facilities etc.
- Theory of Machines Laboratory: This lab consists of all basic equipments for understanding mechanisms, apparatus etc. at undergraduate level such as gyroscope, governor, jib-crane, screw jack, worm-wheel apparatus etc.
- Tribology Laboratory: Provides facilities for carrying out wear test of specimens of different materials under the condition of with lubrication/without lubrication.
- CAD/CAM Laboratory: Specialized in extending computer-assisted software tools needed for design and analysis such as ABAQUS, ANSYS, Master CAM, Pro/E, ADAMS etc.
- 3D Printer Laboratory: Provides facilities for 3D printing.

**Department Research Labs: 19 Research Labs**

- Dynamics and Vibration Lab
- AnuPravaha CFD Lab
- Biomedical Devices and Biomaterials laboratory
- Biomimetics and Artificial Intelligence Laboratory
- CFD Lab

- Composite Structures and Fracture Mechanics Lab: Caters to the development of composite laminates and enables NDT through ultrasonic scanning of the composite structures.
- Computational Mechanics and Optimization Lab
- Electromechanics and Microsystems Lab
- Gas Dynamics Lab
- Materials and Design in Mechanical Systems & Science and Technology in Traditional Systems
- Mechatronics and Robotics Laboratory: The Mechatronics and Robotics lab is equipped with various facilities to educate the students at the undergraduate and postgraduate levels. Most of the robotics activities are facilitated to students by this lab.
- Micro-machining Lab
- Microfluidics and Microscale Transport Processes Laboratory
- Miniature Thermal Systems Research Laboratory
- Precision Manufacturing Lab
- Smart Materials and Structures Lab
- Thermal Hydraulics and Gasification Lab
- Welding Lab
- Wind Tunnel Laboratory: Provides facilities for carrying out wind tunnel related experiments.

#### **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

- High computing workstation with the latest GPU
- AC/DC current probe (100 kHz, 100A AC/DC)
- Permanent Magnet Brake (Hollow bore configuration)
- Analog PWM Servo Drive
- Hydraulic Experimental setup
- Pneumatic and Electro-Pneumatic Experimental setup
- Tracer Portable C Scan Machine
- A 6 axis robotic arm (Make: FANUC)
- Liquid Flow Meter
- Absolute Pressure Transducer

#### **MAJOR AREAS OF RESEARCH AND DEVELOPMENT**

##### Groupwise Research Areas

Fluids and Thermal Engineering	Machine Design Engineering	Manufacturing Engineering
<ul style="list-style-type: none"> <li>• Computational Methods for Incompressible Flows</li> <li>• DNS and LES of Turbulence</li> <li>• Energy management and conservation</li> <li>• High speed aerodynamics</li> <li>• Interfacial heat and mass transport</li> <li>• Metal hydride based thermal machines</li> </ul>	<ul style="list-style-type: none"> <li>• Acoustics</li> <li>• Active Materials</li> <li>• Composites</li> <li>• Dynamics and Vibrations</li> <li>• Finite Element Method and Analysis</li> <li>• Fracture Mechanics and Design</li> <li>• Mechatronics</li> <li>• Robotics and Control</li> <li>• Micromechanics</li> <li>• Nanocomposites</li> </ul>	<ul style="list-style-type: none"> <li>• Bio-MEMS</li> <li>• Casting</li> <li>• CAD/CAM/CIM</li> <li>• Coating</li> <li>• Composites</li> <li>• Computer Application in Metal Forming</li> <li>• Design and Manufacturing</li> <li>• Electromagnetic pulse processing</li> <li>• FEM, Neural Network</li> <li>• Fuzzy Set Application</li> </ul>

- Micro and nano-scale thermal/fluid transport
- Micro-fuel cells
- Thermal aspects of biological systems
- Thermal radiation
- Rolling Element Bearings Design and Analysis
- Smart Structures
- Tribology
- Genetic Algorithms and Fuzzy logic in manufacturing
- Mechatronics
- Metal Forming
- Unconventional machining processes
- Welding of light weight metals
- Welding Process Monitoring and Control

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

1. **Mechanical Ventilator (Developed by Prof. Sajan Kapil, Prof. Nelson Muthu, Prof. Kanagaraj):** Influenza like pandemics severe challenge established health care systems due to the overwhelming need of emergency ventilator support during the acute respiratory failure phase. The ventilator has been designed using readily available locally sourced materials, which can be assembled in a short time, ensuring the minimum required features for short term ventilation needs of a patient during an emergency. The popular crank-rocker mechanism has been used to meet some of the vital design requirements of the device. A working prototype has been made, and it was observed that the Inspiratory: Expiratory time ratio of 1:2 was achieved satisfactorily.

An advanced version of the ventilator is under testing which will provide four controllable features of the breathing cycle such as breathing rate, inhale-exhale time (I:E) ratio, tidal volume and the inhale-exhale pause, each controlled by the mechanical knobs present on the front and side panels of the device. Shown below are prototypes of the device

Outcome (Publications/Patent):

- Tharion J, Kapil S, Muthu N, Tharion JG, Kanagaraj S. Rapid Manufacturable Ventilator for Respiratory Emergencies of COVID-19 Disease [published online ahead of print, 2020 Jun 7]. Transactions of the Indian National Academy of Engineering. 2020;1-6. doi:10.1007/s41403-020-00118-6.
- Sanchit Jhunjhunwala, Sajan Kapil, Joseph Tharion, Nelson Muthu, A Portable Mechanical Ventilator for Respiratory Emergencies, Application Number: 202031045726

- 1) **Low cost intubation boxes and Design and fabrications of masks for Covid-19 Pandemic:** The Indian Institute of Technology (IIT) Guwahati students have designed and developed low-cost intubation boxes. It was developed and designed by a student venture for medical innovation named Mitochondrial. Mitochondrial is mentored by **Dr. S. Kanagaraj and Dr. Sajan Kapil** of the Department of Mechanical Engineering, IIT Guwahati. It is a low-cost alternative to intubation boxes and is easier to manufacture and deliver amid the lockdown. The projected cost per box is Rs. 2000, which is significantly lower than existing alternatives. The team has received assistance from the DRDO for prototyping and testing at the Solid State Physics Laboratory, New Delhi, and is consulting Dr. Johann Christopher of Care Hospitals, Hyderabad, and Dr. Abhijeet Bhatia of NEIGRIHMMS Shillong, to ensure the efficacy of the design. Shown below is the intubator. A Polymer Mask with changeable filter was designed and fabricated by **Dr. Sajan Kapil and Prof. Vimal Katiyar**. It was fabricated by Fused Deposition Method.

News:

- <https://newslivetv.com/iit-guwahati-students-design-develop-low-cost-intubation-boxes/>
- <https://www.campusvarta.com/campus-updates/iit-guwahati-students-design-develop-low-cost-intubation-boxes/>

## **2) Development of Remotely Operated Food Delivery Robot for COVID-19 Isolation Wards: Developed by IIT Guwahati in collaboration with Yantrabot Technologies Pvt. Ltd. (Prof. Robi, Prof. Dwivedy, Prof. Kanagaraj)**

Two prototypes of the COvid Patient Assistant Robot (COPARBOT) shown in Figure 1 and 2, a Remotely Operated Food Delivery robot have been developed by IIT Guwahati in collaboration with Yantrabot Technologies Pvt. Ltd. a startup company in consultation with Guwahati Medical College and Hospital. The first version working prototype (V1) was tested and demonstrated on 8th April 2020 and the 2nd version (V2) of working prototype with camera vision facility has been developed and successfully demonstrated on 2nd May 2020. The commercial version (COPARBOT -V3) of the robot was completed in December 2020 (Figure 3) which was having wider operating area, higher load carrying capacity and modular frame design making it easier for customization as per required area of application.

### Features:

- Remotely controllable via android mobile app.
- Remote operation ranges: 1000 Sq. meter area (Remote control range subjected to minor variation depending on position of Wi-Fi router and room wall thickness. Present version has been tested up to 60-meter x 60 meter area. Best position for the router placement is the center of the working area.).
- Wide angle camera vision enables easy access to multiple rooms.
- Compact & robust design to enable safe movement in Covid-19 isolation wards.
- Payload: Food for 8 persons (8 plates & 8 water bottles).
- Maximum payload: 9 Kg.
- Water resistant body for Easy Cleaning and Disinfection.
- Give way /call attention horn.
- Electronic Bumper for obstacle avoidance and safe parking.
- Two hand sanitizer holders.
- 6 hrs. Operation on one full charge.
- Charging supply line voltage: 250 V , 50 Hz AC.

## **3) Heat Based Sanitizer Trunk (Prof. U.S. Dixit).**

Prof. Dixit and students of his team developed a heat-based sanitizer trunk for disinfecting clothes as well as papers, leather items, belts, currency notes, wallets and other non-washable items. This work has also received media attention (shown in Figure 5 below). Also shown in the table below is a compilation of the new coverage received by Prof. Dixit for his work.

Sr. No.	Headline	Date	Media
1	IIT Guwahati Students Develop Innovative and Low-Cost Products	27 /05/2020	NDTV
2	IIT Guwahati Continues Developing Affordable And Innovative Products To Fight COVID-19	27 /05/2020	BW Education
3	IIT Guwahati Students Develop Low-cost Devices To Disinfect Gloves, Masks Amidst COVID-19	27 /05/2020	Republic World
4	IIT Guwahati continues developing affordable and innovative products to fight COVID-19	28 /05/2020	Navjeevan Express
5	IIT Guwahati continues developing affordable and innovative products to fight COVID-19	27 /05/2020	India Education Diary

6	IIT Guwahati continues developing affordable and innovative products to fight COVID-19	27 /05/2020	Skilloutlook
7	IIT Guwahati researchers develop low-cost products to fight coronavirus	27 /05/2020	Shiksha
8	IIT Guwahati Continues Developing Affordable And Innovative Products To Fight COVID 19	27 /05/2020	Parent Security
9	IIT-Guwahati develops 5 new safety systems for war against coronavirus	28/05/2020	The Times of India

#### 4) **Energy efficient and eco-friendly Porous Radiant Burner based Cook-stoves:**

Research team at Mechanical Engineering headed by Prof. P. Muthukumar has developed energy efficient and eco-friendly Porous Radiant Burner (PRB) based cook-stoves for domestic and commercial applications. Articles supporting the superiority of the developed cook-stoves over their convention counterpart are published in reputed journals and filed several national patents. Also, these developments have appeared in several national level newspapers and twitted by Minister of Higher Education and many more. Soon these cook-stoves will be installed in the kitchens of Indian Army through the industrial partner M/s. Agnisumukh Energy Solution Pvt. Ltd., Bangalore (Industrial partner).

#### 5) **Research Activities on Hydrogen Energy**

The following research developments have been made in Metal Hydride-Hydrogen System Technologies at IIT Guwahati by Prof. Muthukumar and his team:

- Designed and fabricated large scale reactors for hydrogen storage and hydrogen purification, system. Successfully demonstrated the purification of hydrogen from 40 % to 99.99 % using the development metal hydride reactor at IITG.
- Designed and developed MH based compressor driven cooling systems of 5 kW cooling capacity.

#### 6) **Collaborations with other organizations and Institutes**

- **Research Collaboration with SABIC Research and Technology Private Limited (Meeting Date – 21 April 2021):** ME Department, IIT Guwahati initiated a process of collaboration with SABIC Research and Technology Private Limited to open various areas of research in the domains of the ME faculty members. SABIC Research and Technology Private Limited proposed a list of research areas for possible collaboration. These may be categorized into research areas and service. The research areas are: Metal-plastic adhesion, Electrostatic painting on plastic substrate, Ultrasonic moulding for micro-parts, polymer fatigue and nonlinear creep. The service areas are: High Strain Rate Testing above 1000/s, Dk/Df measurement at >90GHZ, Pressure-Volume-Temperature Measurement with Non-Zoller Methods, weathering of polymers – Polymer material testing capability to determine its behavior and property retention as a function of exposure to UV rays over a long duration of time (conforming to ISO/ASTM G155 protocol), with relevant lab certification/accreditation, Fatigue measurement at >10Hz frequency.
- **Collaboration with Department of Mechanical Engineering, M S Ramaiah Institute of Technology, Bengaluru and Mechanical Engg, School of Engg, Coimbatore, Amrita Vishwa Vidyapeetham (Meeting Date – 29<sup>th</sup> March and 31<sup>st</sup> March 2021, respectively):** ME Department, IIT Guwahati initiated a process of collaboration relating to Internships, Master's student guidance, conducting joint workshops and possibility of applying for joint research projects.

#### 7) **Launching Academic Peer Review Journal from Mechanical Engineering Departments of all the IITs:** An online meeting with the HoDs of Mechanical Engineering of all 23 IITs was scheduled on 17th April 2021, with the intent of launching an academic peer

review journal from ME departments of all the IIT's. All the members in the meeting unanimously agreed that the launching a new journal was needed subject to a comprehensive executive plan. A few challenges in this regard were identified and the next meeting was scheduled for July 4<sup>th</sup> 2021.

- 8) **The minor program in Robotics and Artificial Intelligence was started from July 2020 session onwards for the first time.**

**9) In-House Fabrication of different items, including furniture during Covid-19 Pandemic**

Under the instruction of Prof. S. Senthilvelan, Prof. Sukhomay Pal and his team fabricated different items (including furniture) in the Central Workshop for the covid-19 pandemic. These included stools, seaters and dustbins. One 15-day training program for the local youth under Unnat Bharat Abhiyan was conducted. Also, other items to be fabricated included window grill, main gate, folding bed, autoclave and sample collection cabin.

**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED**

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Shubhadeep Mandal	Complex Fluids 2020	IIT Bombay, India	10/12/2020 - 12/12/2020	National
Shubhadeep Mandal	65th Congress of The Indian Society of Theoretical and Applied Mechanics	Indian Society of Theoretical and Applied Mechanics and Gandhi Institute of Technology and Management, India	9/12/2020 - 11/12/2020	National
Shubhadeep Mandal	Soft Matter Young Investigators e-Meet 2020	Indian Institute of Science Bangalore and Indian Institute of Technology Madras, India	3/12/2020 - 5/12/2020	National
Tapan K Mankodi	The 8th International and 47th National Conference on Fluid Mechanics and Fluid Power	IIT Guwahati	9/12/2020 - 11/12/2020	
Sachin Singh Gautam	14th World Congress on Computational Mechanics	Paris (Online mode)	11/01/2021 - 15/01/2021	International
Sachin Singh Gautam	3rd International Conference on Structural integrity	IIT Bombay (India)	11/01/2021 - 15/01/2021 and 11/12/2020 - 20/12/2020	International
Sachin Singh Gautam	NAFED 2020	VSSC, ISRO, Kerala	11/12/2020 - 12/12/2020	International
Pranab Kumar Mondal	The 8th International and 47th National Conference on Fluid Mechanics and Fluid Power	IIT Guwahati	9/12/2020 - 11/12/2020	International
Pranab Kumar Mondal	International Conference on Recent Developments in Mechanical Engineering   ICROME 2020	NIT Silchar	07/02/2020 - 09/02/2020	International
Poonam Kumari	ICCS23 - 23rd International Conference on Composite Structures &	Virtual at Porto	1/9/202020 - 4/9/2020	International

	MECHCOMP6 - 6th International Conference on Mechanics of Composites, 1-4 September, 2020, Porto, Portugal			
P Muthukumar	Innovations in Sustainable Energy and Technology (ISET India 2020)	Bangalore, 3-5th December 2020		
P Muthukumar	Hydrogen Power Theoretical & Engineering Solutions International Symposium (HYPOTHESIS XV), 3-5 June, South Africa	3-5 June, South Africa		
Nelson Muthu	NAFED 2020	VSSC, ISRO, Kerala	2020	
Satyajit Panda	2nd International conference on Advances in Mechanical Engineering and Nanotechnology	Manipal University, Jaipur	28/02/2020	International
Satyajit Panda	1st International Conference on Energy, Materials Sciences, and Mechanical Engineering (1st EMSME-2020)	National Institute of Technology Delhi	30/10/2020	International
Satyajit Panda	23rd International Conference on Composite Structures & 6th International Conference on Mechanics of Composites (Joint Event: ICCS23 & MECHCOMP6)	University of Porto (FEUP), Porto, Portugal	01/09/2020	International
Satyajit Panda	2nd International Conference on Materials Science and Manufacturing Technology (2nd ICMSMT-2020)	Akshaya College of Engineering & Technology, Coimbatore	09/04/2020	International
R GANESH NARAYANAN	Current Trends in Sheet Metal Forming (SMF 2020)	IIT Bombay, India	18/12/2020 - 19/12/2020	International

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

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Shubhadeep Mandal	Microswimmers in complex environments	Department of Mechanical Engineering, Indian Institute of Science Bangalore	India	15/01/2021
Shubhadeep Mandal	Learning Session on COMSOL	Indian Institute of Technology Guwahati, India	India	13/11/2020
Shubhadeep Mandal	Multi-Particle Collision Dynamics: A Particle-Based Mesoscale Simulation Method	Indian Institute of Technology Guwahati, India	India	11/11/2020
Atul K Soti	Virtual Experiments on Fluid Mechanics	Indian Institute of Technology Guwahati, India	India	03/11/2020

Amaresh Dalal	Development of A General Purpose CFD Solver on Unstructured Grid	Indian Institute of Technology Indore	India	30/03/2021
Amaresh Dalal	Solutions of Navier-Stokes Equation in Complex Geometry	National Institute of Technology Silchar	India	16/03/2021
Amaresh Dalal	Development of A General Purpose CFD Solver for Multiphysics Applications	National Institute of Technology Sikkim	India	24/02/2021
Amaresh Dalal	Applications of CFD in Aerospace Technology	Indian Institute of Technology Guwahati	India	18/02/2021
Amaresh Dalal	General CFD Finite Volume Method for convection-diffusion equation	National Institute of Technology Calicut	India	01/02/2021
Amaresh Dalal	Application of CFD in Melting and Solidification	Indian Institute of Technology Guwahati	India	25/12/2020
Amaresh Dalal	Finite Difference Method	Gayatri Vidya Parishad College of Engineering, Madhurawada, Visakhapatnam	India	09/11/2020
Amaresh Dalal	Coalescence Dynamics of Unequal Sized Drops	Indian Institute of Technology Guwahati	India	13/10/2020
Amaresh Dalal	Introduction to Computational Fluid Dynamics	National Institute of Engineers Mysore	India	31/08/2020
Sajan Kapil	Introduction to a CAD Package: Lecture-1: Part Design	NewGen IEDC, IIT Guwahati	India	30/05/2020
Sajan Kapil	Introduction to a CAD Package: Lecture-2: Assembly	NewGen IEDC, IIT Guwahati	India	09/06/2020
Sajan Kapil	Introduction to a CAD Package: Lecture-3: Motion Study	NewGen IEDC, IIT Guwahati	India	28/06/2020
Sajan Kapil	Introduction to a CAD Package: Lecture-4: Drawing	NewGen IEDC, IIT Guwahati	India	02/09/2020
Sajan Kapil	Metal Additive Manufacturing (MAM)	Bharati Vidyapeeth College of Engineering, Pune	India	24/06/2020
Sajan Kapil	Metal Additive Manufacturing (MAM)	G. B. Pant Engineering College, Pauri	India	09/09/2020
Sajan Kapil	Metal Additive Manufacturing (MAM)	Katihar Engineering College, Katihar	India	12/09/2020



Sajan Kapil	Micro-Metal Additive Manufacturing ( $\mu$ -MAM)	S V College of Engineering, Tirupati	India	15/09/2020
Sajan Kapil	Virtual experiments on Kinematics of Machinery	Indian Institute of Technology Guwahati	India	02/11/2020
Sajan Kapil	Hands on Practice session on Kinematics of Machinery Lab	Indian Institute of Technology Guwahati	India	02/11/2020
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	S V College of Engineering, Tirupati	India	04/11/2020
Sajan Kapil	Hands on Practice session on Virtual Experiments in 3D printing		India	04/11/2020
Sajan Kapil	Project Presentation by Participants	Indian Institute of Technology Guwahati	India	06/11/2020
Sajan Kapil	Tools and Techniques for Metal AM	National Institute of Electronics & Information Technology, Calicut	India	16/11/2020
Sajan Kapil	Omni-directionality in Additive Manufacturing Systems	National Institute of Electronics & Information Technology, Calicut	India	16/11/2020
Sajan Kapil	Computer Aided Process Planning for 3-axis Additive Manufacturing Systems	National Institute of Electronics & Information Technology, Calicut	India	17/11/2020
Sajan Kapil	Computer Aided Process Planning for Multi-Axis Hybrid Additive Manufacturing Systems	National Institute of Electronics & Information Technology, Calicut	India	17/11/2020
Sajan Kapil	Guidelines for the Selection of an Appropriate Additive Manufacturing Process	National Institute of Electronics & Information Technology, Calicut	India	17/11/2020
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	NSS College of Engineering, Palakkad	India	23/11/2020
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	IIT Hyderabad	India	28/11/2020

Sajan Kapil	Introduction to Robotics for 3D Printing	IIT Guwahati	India	30/11/2020
Sajan Kapil	Introduction to 3D Printing: Liquid	IIT Guwahati	India	02/12/2020
Sajan Kapil	Introduction to 3D Printing: Wire	IIT Guwahati	India	02/12/2020
Sajan Kapil	Additive Manufacturing	IIT Guwahati	India	03/12/2020
Sajan Kapil	Robotics for 3D printing: Demonstration (HLM, FDM & CAM Package)	IIT Guwahati	India	03/12/2020
Sajan Kapil	Robotic Path Planning for 3D Printing	IIT Guwahati	India	04/12/2020
Sajan Kapil	Research Opportunities in Robotics & 3D Printing	IIT Guwahati	India	04/12/2020
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	Lakireddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh	India	08/12/2020
Sajan Kapil	Introduction to Part Building through Directed Energy Deposition	Wipro 3D, Bengaluru	India	09/12/2020
Sajan Kapil	Introduction to CAD Modeling for CNC machines and Additive Manufacturing	NewGen IEDC IIT Guwahati	India	10/12/2020
Sajan Kapil	CNC Programming of 2D Objects for Cutting, Engraving and 2D/2.5D Printing	NewGen IEDC IIT Guwahati	India	10/12/2020
Sajan Kapil	CNC Toolpath Planning for 3-Axis Machining and 3D Printing	NewGen IEDC IIT Guwahati	India	10/11/2020
Sajan Kapil	Multi-Axis CNC Toolpath Planning for Machining and 3D printing	NewGen IEDC IIT Guwahati	India	11/12/2020
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	IIT Guwahati	India	12/12/2020
Sajan Kapil	Introduction to Wire-Arc Additive Manufacturing	IIT Guwahati	India	12/12/2020
Sajan Kapil	Computer-Aided Process Planning for	IIT Guwahati	India	12/12/2020

	Wire-Arc Additive Manufacturing: Demonstration & hands-on-practice session			
Sajan Kapil	Computer-Aided Process Planning for Additive Manufacturing	Lakireddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh	India	08/12/2020
Sajan Kapil	Metal Additive Manufacturing (MAM)	Dr. B.R. Ambedkar National Institute of Technology	India	17/12/2020
Sajan Kapil	Additive Manufacturing	IIT Guwahati	India	21/12/2020
Sajan Kapil	Introduction to Robotics for 3D Printing	G Pullaiah College of Engineering and Technology and Ravindra College of Engineering for Women	India	28/12/2020
Sajan Kapil	Utilization of open sources for Computer Aided Process Planning of Additive Manufacturing: Hands-on-Demonstration	G Pullaiah College of Engineering and Technology and Ravindra College of Engineering for Women	India	29/12/2020
Sajan Kapil	Computer Aided Process Planning for Multi-Axis Additive Manufacturing: Live Demonstration	G Pullaiah College of Engineering and Technology and Ravindra College of Engineering for Women	India	30/12/2020
Sajan Kapil	Computer Aided Process Planning for Additive Manufacturing	Lakireddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh	India	30/01/2021
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	Lakireddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh	India	30/01/2021
Sajan Kapil	CNC Toolpath Planning for Hybrid Manufacturing Systems	National Institute of Technology Jalandhar	India	02/02/2021
Sajan Kapil	Computer - Aided Process Planning for 3-Axis AM	Ramachandra College of Engineering	India	05/02/2021
Sajan Kapil	Robotics for 3D Printing: Demonstration (HLM,	Ramachandra College of Engineering	India	05/02/2021

	FDM & CAM Package)			
Sajan Kapil	Introduction to 3D Printing	Assam Science and Technology University, Guwahati	India	11/02/2021
Sajan Kapil	Wire Arc Additive Manufacturing Processes	IIT Guwahati	India	23/02/2021
Sajan Kapil	Computer-Aided Process Planning for Wire Arc Additive Manufacturing: Demonstration and Hands-on Practice Session	IIT Guwahati	India	23/02/2021
Sajan Kapil	Introduction to Robotics for 3D Printing	Delhi Technical University	India	12/03/2021
Sajan Kapil	Omnidirectionality in Additive Manufacturing Systems	NSS College of Engineering, Palakkad	India	13/03/2021
Tapan K Mankodi	Virtual Experiments in Heat Transfer Lab	IIT Guwahati	India	05/11/2020
Tapan K Mankodi	Computational Gas Dynamics	IIT Guwahati	India	19/11/2020
Tapan K Mankodi	Combustion Modelling	IIT Guwahati	India	25/11/2020
Poonam Kumari	Mathematical Modelling of Laminated Plate	IIT Guwahati	India	03/03/2021
Poonam Kumari	Three-dimensional modelling of piezoelectric laminated plate with arbitrary boundary conditions using EKM	VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad	India	17/12/2020
Poonam Kumari	Modeling and Analysis using MATLAB and Python for Mechanical Engineering Applications	VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad	India	05/08/2020
Poonam Kumari	Two- and Three-dimensional solutions of composite plates	M.B.M. Engineering College, Jodhpur, September 09-13, 2020	India	11/09/2020
Poonam Kumari	Mathematical Modelling of Composite Structures	J.C. Bose University of Science and Technology, YMCA, Haryana	India	28/7/2020
Poonam Kumari	After Effect of COVID 19 on	JCDM, College of Engineering, Sirsa	India	18/7/2020

	Engineering Education			
Poonam Kumari	Engineering Prospectus after COVID 19	BRCM CET Bahal, Bhiwani	India	11/06/2020
Pranab Kumar Mondal	A Brief Review of I C Engine Combustion	National Institute of Technology, Agartala	India	05/10/2020 - 09/10/2020
Pranab Kumar Mondal	FEM in Fluid Mechanics (Microfluidic Scale)	IIT Guwahati	India	06/11/2020
Pranab Kumar Mondal	Microfluidic Devices: Fabrication and Applications	IIT Guwahati	India	03/11/2020
Pranab Kumar Mondal	Survival of a sessile coughed and sneezed droplet in atmospheric conditions: An analysis from the perspectives of COVID-19 pandemic	IIT Guwahati	India	19/02/2021
Pranab Kumar Mondal	Art of Fluid Mechanics at Microfluidic scale: The Role of CFD	IIT Indore	India	28/03/2021
Pranab Kumar Mondal	Droplet Dynamics	IIT Indore	India	27/03/2021
Swarup Bag	laser additive manufacturing	NERIST Itanagar	India	20/9/2020
	Role of phase transformation on residual stress distribution of steel weldment	IIT Guwahati	India	13/12/2020
	Introduction to 3D Printing: Powder	IIT Guwahati	India	02/12/2020
	Interaction of microstructural morphology with residual stress in laser welding process	THE INDIAN INSTITUTE OF WELDING, JAMSHEDPUR BRANCH	India	08/10/2020
Sachin Singh Gautam	Machine Learning Applications in Contact Problems	IIT Bombay	IIT Bombay, Mumbai, India	11/12/2020 - 13/12/2020 and 18/12/2020 - 20/12/2020
Sachin Singh Gautam	Conservation properties of time finite element method	IIT Guwahati	Guwahati	14/12/2020 - 18/12/2020

Deepak Sharma	Genetic Algorithms: Concept, Algorithm, and Case Studies	NIT Srinagar	Srinagar, J&K, India	25/07/2020
Deepak Sharma	Multi-Objective Optimization: Concept, NSGA-II, and Simulations	NIT Srinagar	Srinagar, J&K, India	26/07/2020
Deepak Sharma	Evolutionary Computation and its Applications in Manufacturing	Gayatri Vidya Parishad College of Engineering	Visakhapatnam, AP, India	07/08/2020
Deepak Sharma	Genetic Algorithm for Real Parameters: RGA	NIT Arunachal Pradesh	Yupia, Arunachal Pradesh, India	17/08/2020
Deepak Sharma	Binary-Coded Genetic Algorithm	NIT Arunachal Pradesh	Yupia, Arunachal Pradesh, India	17/08/2020
Deepak Sharma	Parallel Computing in Finite Element Method	IIT Guwahati	Guwahati, India	05/11/2020
Deepak Sharma	Topology Optimization: An Application of FEA and Optimization	IIT Guwahati	Guwahati, India	05/11/2020
Deepak Sharma	Evolutionary Computation and its Applications in Manufacturing	IIT Guwahati	Guwahati, India	02/12/2020
Deepak Sharma	Genetic Algorithm for Real Parameters: RGA	IIT Guwahati	Guwahati, India	02/12/2020
Deepak Sharma	Real-Coded Genetic Algorithm	5th World Congress on Engineering and Applications (WCEA – 2020), Bangkok, Thailand & 5th International Conference on Business Management, Economics, Social Sciences and Humanities (BMESH – 2020)	Bangkok, Thailand	14/12/2020
Deepak Sharma	Genetic Algorithm: Theory, Simulations and Applications	VEMU Institute of Technology	Chittoor, Andhra Pradesh, India	08/02/2021
Deepak Sharma	Evolutionary Computation and its Applications in Manufacturing	IIT Guwahati	Guwahati, India	23/02/2021
Deepak Sharma	Binary-Coded Genetic Algorithm	IIT Guwahati	Guwahati, India	24/02/2021
Deepak Sharma	Genetic Algorithm for Real Parameters: RGA	IIT Guwahati	Guwahati, India	24/02/2021

Deepak Sharma	Multi-Objective Optimization: Concepts, NSGA-II and Simulations	IIT Guwahati	Guwahati, India	24/02/2021
Deepak Sharma	Binary-Coded Genetic Algorithm	S.R.K.R. Engineering College	Bhimavaram, Andhra Pradesh, India	23/03/2021
Deepak Sharma	Genetic Algorithm for Real Parameters: RGA	S.R.K.R. Engineering College	Bhimavaram, Andhra Pradesh, India	23/03/2021
Deepak Sharma	Binary-Coded Genetic Algorithm	PSG College of Technology	Coimbatore, Tamil Nadu, India	24/03/2021
Deepak Sharma	Genetic Algorithm for Real Parameters: RGA	PSG College of Technology	Coimbatore, Tamil Nadu, India	24/03/2021
Niranjan Sahoo	Thermal Measurement Diagnostics of Internal Combustion Engines and Aero Engines	Indian Institute of Technology Guwahati, India	India	22/02/2021 - 26/02/2021
Niranjan Sahoo	Study of Alternative Fuels Towards Emission Reduction in Internal Combustion Engines	Indian Institute of Technology Guwahati, India	India	22/02/2021 - 26/02/2021
Niranjan Sahoo	Fundamental Aspects of Combustion and Fuels	Indian Institute of Technology Guwahati, India	India	22/02/2021 - 26/02/2021
Niranjan Sahoo	Experimental Facilities and Measurement Diagnostics for Compressible Flow	Indian Institute of Technology Guwahati, India	India	17/02/2021 - 21/02/2021
Niranjan Sahoo	Review of Compressible Flow Theory	Indian Institute of Technology Guwahati, India	India	17/02/2021 - 21/02/2021
Niranjan Sahoo	Compressible Flow – Theory and Experimental Facilities	National Institute of Technology Manipur	India	15/02/2021 - 19/02/2021
Niranjan Sahoo	High Frequency Thermal Sensors for Health Monitoring of Internal Combustion Engines and Aero-Engines	Indira Gandhi Institute of Technology Sarang, Dhenkanal	India	05/10/2020 - 09/10/2020
Niranjan Sahoo	Harnessing Wind Power – A Potential Source of Sustainable Renewable Energy	Parala Maharaja Engineering College, Berhampur	India	07/09/2020 - 09/09/2020
Niranjan Sahoo	Energy technologies for study of biofuels	Einstein Academy of Technology and	India	10/01/2020 -

	in internal combustion engines	Management, Bhubaneswar		11/01/2020
P Muthukumar	Solar driven dessicant cooling system	Nitte Meenakshi Institute of Technology, Yelahanka, Bengaluru - 562 164	India	23/01/2021
P Muthukumar	Energy efficient green combustion technology	NIT Jamshedpur	India	10/11/2020
P Muthukumar	Cooling tower : Operation and Maintenance issues	ISHRAE CHENNAI	India	Dec.,2020
P Muthukumar	Technology transfer and Commercialization of research	NIT Trichy	India	25/01/2021
P Muthukumar	Hydrogen : Future energy carrier	KIOT, Salem	India	15/12/2020 - 18/12/2020
P Muthukumar	Porous Radiant Burner	Indiam Army Head Quaters, Bangalore	India	26/11/2020 - 27/11/2020
S.K. Dwivedy		IIT Guwahati	India	14/12/2020 - 18/12/2020
S. K. Dwivedy	Solution of Nonlinear Mechanics problems through qualitative analysis and perturbation method	IIT Guwahati	India	02/11/2020 - 06/11/2020
S. K. Dwivedy	Application of Magnetorheological Elastomer beams and Plates for Vibration Isolation Purpose	C. V. Raman Global University Bhubaneswar, Odisha	India	08/03/2021
S. K. Dwivedy	Analysis of passive and active Sandwich structures	V.S.S.U. T Burla	India	
S.K. Dwivedy	Kinematic and dynamic analysis of rigid and flexible robotic manipulator	IIT Roorkee	India	17/03/2021
S. K. Dwivedy	KINEMATICS, DYNAMICS AND CONTROL OF RIGID AND FLEXIBLE ROBOTIC MANIPULATORS	CET Bhubaneswar	India	21/09/2020 - 25/09/2020
S. K. Dwivedy	VIBRATION ANALYSIS FOR STRUCTURAL DESIGN IN THE ENVIRONMENT OF INDUSTRY 4.0	University College of Engineering and Technology, Bikaner	India	10/09/2020 - 14/09/2020



S. K. Dwivedy	Vibration of Single DOF, Two DOF and continuous systems (3 Lectures)	IIT Guwahati	India	05/03/2021 - 06/03/2021
S. K. Dwivedy	Dynamic analysis of chatter in turning process	IIT Guwahati	India	22/02/2021 - 26/02/2021
S. K. Dwivedy	Dynamic analysis of Robotic manipulators and Demonstration of Robotic devices developed at IIT Guwahati	IIT Guwahati	India	30/11/2020 - 04/12/2020
N. Muthu	FEM in Fracture Mechanics	IIT Guwahati	India	02/11/2020 - 06/11/2020
N. Muthu	Connecting Doctors, Researchers and Entrepreneurs for Indigenous Medical Device Innovation	NIT Manipur	India	10/11/2020 – 14/11/2020
N. Muthu	Connecting Doctors, Researchers and Entrepreneurs for Indigenous Medical Device Innovation", Karunya Institute of Technology and Science	Karunya University	India	26/11/2020
R. Ganesh Narayanan, V. Satheeshkumar, Pritam K Rana, Avneesh Kumar	Adhesive bonded sheets and sandwich sheets,	IIT Guwahati, India	India	22/02/2021 - 26/02/2021
R. Ganesh Narayanan	Deformation of tailor made sheets	IIT Guwahati, India	India	11/12/2020
R. Ganesh Narayanan	Mechanical joining & Joining by Forming	IIT Guwahati, India	India	10/12/2020
R. Ganesh Narayanan	Mechanical joining & Joining by Forming	NIT NAGALAND	INDIA	08/12/2020
R. Ganesh Narayanan	Some case studies	Organized by NRL Ideation (as IITG-TIC chairperson)	INDIA	11/08/2020
R. Ganesh Narayanan	Incubation and start-up in & for a student eco-system	Organized by Centre for Innovation, Bineswar Brahma Engineering College, Kokrajhar (as IITG-TIC chairperson)	INDIA	10/07/2020
Biranchi Panda	3D Concrete printing	TU delft,	Netherland	
Biranchi Panda	3D Concrete printing	University of British Columbia,	canada	

Biranchi Panda	3D Concrete printing	CRDSP,	Portugal	
Biranchi Panda	3D Concrete printing	ICI, India	India	
Biranchi Panda	3D Concrete printing	National Council for Cement & Building Materials	India	
Biranchi Panda	3D Concrete printing	IIT Guwahati	India	
Biranchi Panda	3D Concrete printing	NIT Rourkela	India	
Biranchi Panda	3D Concrete printing	VSSUT Burla	India	
Biranchi Panda	3D Concrete printing	IIT Indore	India	

### SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/National	No. of participants
1	Amaresh Dalal	Computational Fluid Dynamics for Incompressible Flows	TEQIP	09-13/11/2020	National	30
2	Amaresh Dalal	Biomicrofluidics	TEQIP	19-20/02/2021	National	18
3	Amaresh Dalal, Arnab Kumar De, Dipankar Narayan Basu, Ujjwal K Saha	The 8th International and 47th National Conference on Fluid Mechanics and Fluid Power		09-11/12/2020	International	300
4	Arup Nandy and Atanu Banerjee	Finite Element Method: Variational Methods to Computer Programming	TEQIP III	02-06/11/2020	National	
5	Sajan Kapil	Online Software Skill Development Program on Computer Aided Process Planning for 3D Printing & CNC Machining	NewGen IEDC IITG	10-11/12/2020	National	100
6	Sandeep B Reddy and Sajan Kapil	Robotics For 3D Printing	TEQIP III	30/11/2020 - 04/12/2020	National	40
7	Sajan Kapil	Online Software Skill Development Program on Introduction to a CAD Package	NewGen IEDC IITG	June 2020	National	Youtube
8	Pranab Kumar Mondal	Fabrication and Application of Micro Devices in Thermo-fluidic	TEQIP	24-28/02/ 2020	National	40

9	Swarup Bag	Recent Advances in Manufacturing Science and Technologies	TEQIP III	22-26/02/2021	National	40
10	Niranjan Sahoo, Ujjwal K Saha	Aerospace Technology: Theory and Practice	TEQIP III	17-21/02/2021	National	40
11	Niranjan Sahoo, Pankaj Kalita	Combustion, Emission and Power Technology	TEQIP III	22-26/02/2021	National	40
12	Manas Das	Micromanufacturing Processes	TEQIP III	30/11/2020 - 04/12/2020	National	40
13	Manas Das	Advanced Manufacturing Technology	TEQIP III	21-25/12/2020	National	40
14	Nelson Muthu	Fracture Mechanics and its applications to Laminated Composites	TEQIP III	01-05/03/2021	National	61
15	Satyajit Panda	Active/Passive Damping Composites for Structural Vibration Control	TEQIP III	06-10/01/2020	National	40
16	Satyajit Panda	Structural Vibration Problems: Theoretical and Experimental Analysis Methodologies	TEQIP III	21-23/12/2020	National	70
17	Biranchi Panda, U. S. Dixit	Fundamentals and Applications of Engineering Dynamics	TEQIP III	27-28/02/2021 05-07/03/2021		

#### PATENTS

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.
1	Ambrish Singh, Sajjan Kapil, Manas Das	A gravity-based, Gas-Free and Omnidirectional Laser Powder Cladding Head		202031035876
2	Sanchit Jhunjunwala, Sajjan Kapil, Joseph Tharion, Nelson Muthu	A Portable Mechanical Ventilator for Respiratory Emergencies	20/10/2020	202031045726
3	Muthukumar P, L K Kaushik, Arun Kumar M.	Eco-Friendly and Energy-Efficient LPG Cooking Stove With Naturally-Aspirated Porous Radiant Burner For	15/05/2020	202031009304

		Commercial Kitchens.		
4	Muthukumar Palanisamy, Alok Kumar, Nithin Narmada Raju, Nagarajan Ramachandran, Prakash Satya,	System and Process For Hydrogen Purification,	14/01/2021	202111001818
5	Muthukumar P, L K Kaushik.	Energy Efficient and Eco-Friendly Domestic LPG Cooking Stove with A Two-Layer Porous Radiant Burner,	15/05/2020	202031009356
6	Enni Krishna, K Sreelakshmy, D Sam Dayala Dev, Manas Das	In-situ monitoring of plasma polishing process by using optical emission Spectrometer		202041007062
7	Manjesh Kumar, Manas Das	An arrangement for polishing poppet valve by magnetorheological fluid-based finishing process	26/03/2021	202131013271
8	Sasibhushan Yengala , Nikhil Kumar Singh , M. Muthupalaniappan , Nelson Muthu , Subramani Kanagaraj	A Modular Reciprocating Gait Orthosis For Rehabilitation And Walking Aid For Paraplegicpatients	12/03/2021	202131010431
9	Vaibhav Jaiswal, and Subramani Kanagaraj	Passive Polycentric Knee Joint with Variable Link Length, Knee Rotator and Anterior-posterior Translation Mechanism	22/04/2020	202031017295
10	TINU P SAJU, R GANESH NARAYANAN	METHOD OF PRODUCING A SPOT JOINT	14/11/2017	201741040528

#### AWARDS AND HONOURS

- Dr. Rajiv Tiwari: Invited as the Associate Editor of Journal of Vibration and Control
- Dr. Shubhadeep Mandal: Received the Young Scientist Award from Indian Society of Theoretical and Applied Mechanics
- Dr. Pranab Kumar Mondal: Soft Matter Most Popular 2020
- Dr. P. Muthukumar: Invited as the Guest Editor of Solar Energy (Elsevier)
- Dr. P. Muthukumar: Appeared in the World's Top 2 % Scientist in 2020 at Stanford University, USA 2020
- Dr. P. Muthukumar: Received the BIRAC-Innovation Challenge Award-SoCH 2020-21 from Department of Biotechnology, Govt of India
- Dr. S. Kanagaraj: Invited as Guest Faculty at NIPER Guwahati
- Dr. S. Kanagaraj: Invited as the Expert committee member for formulating a course on M.Tech Medical Device at NIPER Guwahati

- Dr. S. Kanagaraj: Appointed as Chairman, Early Translation Accelerator (ETA) Expert Committee, BIRAC

### STUDENTS' ACHIEVEMENTS

- Sagar Pawar received the CII MILCA GOLD AWARD at Confederation of Indian Industry (CII) - Institute of Quality
- Gireesh Sharma N received the Best Paper Presentation at FLAME 2020, AMITY University, Noida
- Mukesh Kumar received the Best Paper Presentation at 7th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS), March, 2021, Tohoku University, Sendai, Japan
- Sudip Shyam received the Most Popular article in Thematic Collection of Soft Matter
- Shashi Kant Ratnakar received the Best paper presentation award at 2nd International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2020)
- Arnob Dutta received the Prof. S. Rajeshwari Award at the International Conference on Biomedical Materials Innovation (ICBMI)- 2020, Bharathiar University, Coimbatore

### FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1	Bag, Swarup	IIT Bombay	Associate Professor	Fusion welding processes, Finite element method, Laser micro joining, Heat transfer and fluid flow in fusion welding, Residual stress and distortion, Recrystallization in hot metal forming process, Optimization in manufacturing process
2	Bandopadhyaya, Dibakar	IIT Kanpur	Associate Professor	Active materials, Artificial muscle materials, Smart structures, Robotics and mechanism, Composites, MEMS, Bio inspired design
3	Banerjee, Atanu	IIT Kanpur	Associate Professor	Compliant Mechanism, Shape memory alloy, Bio-mimetic devices
4	Basireddy, Sandeep Reddy	IISc Bangalore	Assistant Professor	Nonlinear Dynamics of Mechanical Systems, Robotics and Control, Applied Dynamics
5	Basu, Dipankar Narayan	IIT Kharagpur	Associate Professor	Nuclear Thermalhydraulics, Supercritical Natural Circulation Loops, Domestic Air-conditioning, Computational Fluid Dynamics and Heat Transfer
6	Biswas, Pankaj	IIT Kharagpur	Associate Professor	Manufacturing and Design: Computational weld mechanics, Solid state welding, Soft computing modeling of welding processes, FEM, Line heating

7	Biswas, Gautam	IIT Kharagpur	J C Bose National Fellow and Director of the Institute; Professor	Computational Fluid Dynamics, Convective Heat Transfer, Turbulence, Boiling Heat Transfer, Heat Transfer Augmentation, Turbomachinery
8	Chakraborty, Debabrata	IIT Kharagpur	Professor	FRP, Composites, FEM, Fracture Mechanics and Design
9	Dalal, Amaresh	IIT Kanpur	Associate Professor	Computational Fluid Dynamics, Heat Transfer, Structured Grid Techniques in Curvilinear Coordinates, Finite Volume Methods and Unstructured Grid Techniques, Natural and Mixed Convection Flows, Electrochemical Energy Conversion and Storage
10	Das, Manas	IIT Kanpur	Associate Professor	Advanced Finishing and Nano-finishing Processes, Non-traditional Machining Processes, Machining of Advanced Engineering Materials, Micromanufacturing, Micromachining, Tribology, Laser Welding
11	Dass, Anoop K.	IISc Bangalore	Professor	Computational Fluid Dynamics and Turbomachines
12	De, Arnab Kumar	IIT Kanpur	Associate Professor	Numerical Methods in Fluid Flow and Heat Transfer, Convection, Turbulence
13	Dixit, Uday S.	IIT Kanpur	Professor	Design and Manufacturing : FEM, Neural Network and Fuzzy Set Application; Mechatronics
14	Dwivedy, Santosha K.	IIT Kharagpur	Professor & HOD	Non-linear Dynamics, Design and Robotics, vibrations
15	Gautam, Sachin S.	IIT Kanpur	Assistant Professor	Design and Manufacturing : Nonlinear Finite Element Analysis, Computational Contact Impact Analysis, Adhesion, Rough Surfaces, Time Integration Schemes, Mixed Time Integration Schemes, Plasticity, Ductile Fracture, Continuum Damage Mechanics
16	Hazarika, Shyamanta M.	University of Leeds, England	Professor	Robotics, Cognitive Systems, Knowledge Representation and Reasoning
17	Joshi, Shrikrishna N.	IIT Bombay	Associate Professor	Micro fabrication: Laser micro forming, Micro machining: Micro electric discharge machining (EDM), Web based manufacturing, Process modeling and optimization of advanced manufacturing processes, Application of soft

				computing techniques in manufacturing
18	Kakoty, Sashindra K.	IIT Kharagpur	Professor & Dean, Infrastructure, Planning and Management	Tribology, Duct Acoustics, Mechanical System Design, Rural Technology
19	Kalita, Karuna	University of Nottingham	Associate Professor	Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration
20	Kanagaraj, S.	IIT Kharagpur	Professor	Biomaterials, Carbon nanotubes based nanocomposites, Nanofluids, Materials characterization
21	Kapil, Sajan	IIT Bombay	Assistant Professor	Rapid Manufacturing (3D Printing), Welding/Cladding Processes, CNC, Manufacturing Automation
22	Khanikar, Prasenjit	North Carolina State University	Assistant Professor	Microstructural Materials Modeling, Micro-mechanics, Dislocation Density Based Crystal Plasticity, Deformation and Failure Mechanisms of Metallic Materials, Finite Element Method, Dynamic Behavior of Materials, Fracture Mechanics, Aluminum Alloys, Microstructural Characterization
23	Kulkarni, Vinayak	IISc Bangalore	Associate Professor	High enthalpy flows, scramjet engine, experimental, aerodynamics, measurement science, CFD simulations
24	Kumar, Bhaskar	IIT Kanpur	Assistant Professor	Hydrodynamic Stability, Bluff Body Flows, Computational Fluid Dynamics
25	Kumari, Poonam	IIT Delhi	Associate Professor	Theory of plates and shells, Computational mechanics, Smart structures
26	Madhusudhana, Gavara	IISc Bangalore	Assistant Professor	Computational Fluid Dynamics, Heat Transfer, Cooling of Electronics, Multi-phase flows, Cooling at Micro/Mini scales, Turbulent Fluid Flow and Heat transfer
27	Mahanta, Pinakeswar	IIT Guwahati	Professor	Thermal Radiation with Participating Media, Fluidization, Energy Conservation and Renewable Energy
28	Mandal, Shubhadeep	IIT Kharagpur	Assistant Professor	Microswimmers, Complex Fluids, Droplet Microfluidics, Electrohydrodynamics
29	Mankodi, Tapan Krishnakumar	IIT Bombay	Assistant Professor	Rarefied Gas Dynamics, Computational Gas Dynamics, Hypersonic Aerothermodynamics, Non-

				equilibrium Flows, Galerkin Methods
30	Mondal, Pranab Kumar	IIT Kharagpur	Assistant Professor	Microfluidics, Electrokinetics, Two Phase Transport, Microscale Transport of Heat, Flow Through Porous Media.
31	Murthy, K. S. R. Krishna	IIT Kharagpur	Professor	Finite Element Methods, Error Estimation and Fracture Mechanics
32	Muthu, Nelson	IIT Bombay and Monash University	Assistant Professor	Meshfree Methods, FEM, Fracture Mechanics, Composites, Structural Health Monitoring, Medical Device Innovation
33	Muthukumar, P.	IIT Madras	Professor	Coupled heat and mass transfer analysis; Metal hydride based thermal machines, Conventional and Non-conventional refrigeration systems
34	Nandy, Arup	IISc Bangalore	Assistant Professor	Finite Element Development and Analysis in Structure, Acoustics, Electromagnetics, Structural acoustic interaction, Magnetohydrodynamics, MEMS; Optimization
35	Narayanan, Ganesh R.	IIT Bombay	Associate Professor	Material Forming and Joining
36	Natarajan, Ganesh	IISc Bangalore	Associate Professor	Computational Fluid dynamics, Grid Adaptation, Error Estimation, Immersed Boundary methods, Parallel computing, Biofluid dynamics
37	Pal, Sukhomay	IIT Kharagpur	Associate Professor	Welding Process Monitoring and Control, Tool Condition Monitoring, Non-Conventional Machining Process Application of Artificial Neural Network, Genetic Algorithms and Fuzzy logic in manufacturing
38	Panda, Biranchi	NTU Singapore	Assistant Professor	Advanced manufacturing and design, 3D/4D printing, Modelling and Characterization, Energy and sustainable environmental technologies
39	Panda, Satyajit	IIT Kharagpur	Associate Professor	Composite materials, Nonlinear vibrations, Smart materials and structures, FEM, Functionally Graded materials and structures, Micromechanics.
40	Pandey, Manmohan	IIT Kanpur	Professor	Dynamics and Control of Fluid-Thermal Systems, Nuclear Reactor Thermal-Hydraulics
41	Robi, P. S.	IIT Bombay	Professor	Coating, Fracture Mechanics, Materials Processing, Metal Matrix composite, Metal Casting, P/M Processing



42	Saha, Ujjwal K.	IIT Bombay	Professor	Propulsion, Turbomachinery, Wind Energy Conversion, Internal Combustion Engines
43	Sahasrabudhe, Anil D.	IISc Bangalore	Professor (On deputation as Chairman of the All India Council for Technical Education)	Vibration and Noise, Condition Monitoring, CAD/CAM
44	Sahoo, Niranjana	IISc Bangalore	Professor	Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid
45	Senthilvelan, S.	IIT Madras	Professor	Composites, Fatigue, Wear and Failure Analysis
46	Soti, Atul	Monash University and IIT Bombay	Assistant Professor	Computational Fluid Dynamics and Heat Transfer, Fluid-Structure Interaction, Renewable energy, High Performance Computing, Immersed-Boundary Method, Spectral-element Method
47	Sharma, Deepak	IIT Kanpur	Associate Professor	Optimal Design: Modeling and Computation, Engineering Design and Optimization, Genetic Algorithms, Multi-objective Optimization
48	Tiwari, Rajiv	IIT Kanpur	Professor	Rotor Dynamics, Vibrations, Identification in Mechanical Systems, Rolling Element Bearing Design and Analysis, Application of Active Magnetic Bearings in Rotors, Vibrations based Condition Monitoring of Industrial Rotating Machines

### LABORATORY FACILITIES

#### No. of Laboratories with brief introduction: (Total No: 23)

- a) **Teaching Labs:** (05 teaching laboratories)
- Advanced Physics Lab-01
  - B. Tech 1<sup>st</sup> year Lab-01
  - Electronics Lab-01
  - M. Sc. Lab-01
  - Numerical Lab-01
- b) **Research labs:** (18 research laboratories)
- Advanced Nanomaterials Lab (Involved in cutting edge research on the development of advanced nanomaterials and explore their practical applications in the area of energy conversion and storage).
  - Cold and Ultra-Cold Atomic Physics Lab
  - Computational Lab
  - Computer Generated Holography and Optical Imaging Lab
  - Electro-ceramics Lab
  - Fiber Optics Lab
  - Furnace Lab
  - High Energy Physics Lab
  - Laser and Photonics Lab
  - Low Temperature Physics Lab
  - Magnetism Lab
  - Materials Science Lab
  - Nonlinear Optics Lab
  - Semiconductor Labs (02)
  - Spectroscopy Lab
  - Terahertz Photonics and Plasmonics Lab
  - Thin Film Physics Lab
  - XRD Lab

### MAJOR EQUIPMENT AND FACILITIES ACQUIRED

High Precision Wavelength Meter (~41 Lakhs, Project: xPHYSPNx DST01162xxKP004)

### MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

The major research focus of the department is evenly poised between different branches of theoretical and experimental Physics. The thrust areas are:

- (i) **Condensed Matter Physics (Experiment and Theory)**
- Amorphous and nanocrystalline magnetic materials.
  - Amorphous and nanocrystalline semiconductor thin films for solar cells and other devices. Thin film and Hetero-junction solar cells.
  - Atomistic Modeling of Materials for Energy and Environmental Applications.
  - Biophysics and Biomaterials.
  - Bosonization.
  - Cutting-edge research on the development of advanced nanomaterials and explore their practical application in the area of energy conversion and storage.
  - Development of linear giant magnetoresistance devices for magnetic sensors.
  - Development of triboelectric and piezoelectric and hybrid nanogenerators for energy harvesting.
  - Energy conversion and storage.
  - Hybrid nanomaterials for energy and environmental applications.
  - Magnetic alloys and thin films for spintronics.
  - Microwave and piezoelectric bulk and thin films.
  - Multilayer structured thin films.

- Nanostructured and Nanogranular magnetic materials.
  - Polymer nanocomposites.
  - Solar Photovoltaics.
  - Transition Metal oxide system.
- (ii) Laser and Photonics (Theory and Experiments)**
- Fiber & Integrated Optics, Photonic Crystal Fiber and applications, Localized Surface Plasmon Resonance based Sensors, Fiber Bragg Gratings and based Devices, Fiber Optic Sensor, Bio/Nano-Photonics, Graphene immobilized Optical Fiber Sensors.
  - Laser cooling and trapping of atoms.
  - Laser Physics and Spectroscopy, Laser produced plasmas.
  - Nonlinear optics.
  - Programmable Diffractive Optics, Confocal Microscopy.
  - Quantum Optics.
  - Ultrafast optics, Terahertz Plasmonics and metamaterials.
- (iii) High Energy Physics (Theory and Experiment)**
- Collider Phenomenology: Darkmatter studies, Supersymmetric models, Higgs Physics and Top quark Physics, Higher order QCD corrections, Flavour Physics and CP violation.
  - Cosmology and Astroparticle Physics: Inflationary models, Leptogenesis and Baryogenesis, Darkmatter studies, Supernovae neutrinos.
  - Experimental High Energy Physics: B-Physics, Neutrino Physics, ILC R&D.
  - Low energy QCD, Effective Field Theory.
- (iv) Cosmology and Gravitation**
- Astrophysical flows around compact objects, Ultra high energy cosmic rays, Black hole perturbations, Gravitational waves Cosmology, Ads/CMT.
  - General theory of relativity, Field theory on curved space times, Black holes

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT (1 APRIL 2020 – 31 MARCH 2021):**

- A simple but novel optical fiber relative humidity sensor employing nanoscaled reduced graphene oxide immobilized microstructured glass film onto a de-cladded optical fiber is developed and experimentally investigated. Results established that nanoscaled RGO immobilized microstructured sensor not only responds to the applied RH perturbations linearly over a wide dynamic range but increases sensitivity manifold.
- Developed graphene and graphene analogous MXene based hydrogel hybrid, which was used as electrode of the supercapacitor to store energy. The energy storage with a capacity of 653F/g is the record value reported to date with graphene/MXene based systems.
- Development of Linear GMR Sensor: Considering the rapid response of the giant magnetoresistance (GMR) sensors with a high MR ratio and high sensitivity, they are applied in the automotive industry, non-destructive materials testing, and biomedical sensors. However, the linearity of the sensing is quite poor. With this connection, we, in collaboration with the NIMS, Japan, developed a new artificially structured GMR sensor exhibiting a perfect and tunable MR ratio (10 – 25 %) with the highest sensitivity of 47%/Tesla. It is one of the breakthrough achievements compared to the existing sensors (~ 7%) and other research work using complicated magnetic concepts. We are presently working on turning the sensitivity by suitably optimizing the layer structures and soon transferring such sensors for the automotive industry (electric vehicles) and biomedical applications.
- Energy Harvesting from day-to-day activities and powering low-power electronics: Materials are so ubiquitous and so essential to everyone's day-to-day life. The only challenge is how to use them effectively for the betterment of life. Using the

concept of triboelectric, piezoelectric and hybrid nanogenerators, we try to generate electrical output from daily work activities such as Yoga, Running, Jogging, Walking, etc. The generated output from the fabricated device is utilized for powering various low-power electronics.

- Production of cold Rb atoms: We have prepared cold Rb atoms in the magneto-optical trap (MOT) using the traditional method of cooling at 780nm (D2 line). This is known as IR MOT. The temperature of the cold Rb in the IR MOT is 150-200 $\mu$ K. Further, we have transferred the IR MOT to another MOT at 420 nm (blue MOT). The temperature of the blue MOT is expected to be 40 $\mu$ K which will be 5 times colder than the traditional IR MOT of Rb.

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
1.	Prof. Pratima Agarwal	International Symposium on Renewable Energy Systems	Gifu University, Japan	30/03/2021	International (Online)
2.	Dr. Arunansu Sil	Beyond the Standard Model: from theory to experiment 2021 (BSM 2021)	Online	29/03/2021 - 02/04/2021	International (Online)
3.	Prof. P. K. Giri	Quantum Dot Day 2021	UK	29/03/2021	International (Online)
4.	Prof. Amarendra K. Sarma	Non-Hermitian Physics	International Centre for Theoretical Sciences, Bangalore	22/03/2021 - 26/03/2021	International (Online)
5.	Dr. Santabrata Das	Relativistic Astrophysics, Theory and observational prospectives	Centre for Theoretical Physics of the Polish Academy of Sciences, Warsaw, Poland	16/03/2021 - 19/03/2021	International (Online)
6.	Dr. Uday Narayan Maiti	2 <sup>nd</sup> IIT Guwahati and TokyoTech Joint Workshop on Condensed Matter and High Energy Physics, Cosmology & Astrophysics	Department of Physics, IIT Guwahati, India	15/12/2021 - 18/12/2021	International (Online)
7.	Dr. Santabrata Das	2 <sup>nd</sup> IIT Guwahati and TokyoTech Joint Workshop on Condensed Matter and High Energy Physics, Cosmology & Astrophysics	Department of Physics, IIT Guwahati, India	15/12/2021 - 18/12/2021	International (Online)
8.	Prof. Saurabh Basu	2 <sup>nd</sup> IIT Guwahati and TokyoTech Joint Workshop on Condensed Matter and High Energy Physics, Cosmology & Astrophysics	Department of Physics, IIT Guwahati, India	15/12/2021 - 18/12/2021	International (Online)
9.	Dr. Debaprasad Maity	TEQIP-III Sponsored Workshop on Astroparticle Physics and Cosmology	Department of Physics, National Institute of Technology, Meghalaya	12/03/2021 - 16/03/2021	National (online)

10.	Prof. Perumal Alagarsamy	National Conference on "Advanced Functional Materials"	Department Of Physics, Jntua College Of Engineering And Department Of Physics, University College Of Engineering Technology, Bikaner Technical University, Bikaner, Rajasthan	17/12/2020 - 18/12/2020	National (Online)
11.	Dr. Tapan Mishra	2 <sup>nd</sup> IIT Guwahati and TokyoTech Joint Workshop on "Condensed Matter, High Energy Physics, Cosmology & Astrophysics "	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
12.	Dr. Pankaj K. Mishra	2 <sup>nd</sup> IIT Guwahati and TokyoTech Joint Workshop on "Condensed Matter, High Energy Physics, Cosmology & Astrophysics "	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
13.	Dr. Debaprasad Maity	2 <sup>nd</sup> IITG-TokyoTech joint workshop on condensed matter and high energy physics Cosmology & Astrophysics	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
14.	Dr. M.C. Kumar	IIT Guwahati and Tokyo Institute of Technology 2 <sup>nd</sup> joint workshop on topics in Condensed Matter Physics, High Energy Physics, Cosmology and Astrophysics	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
15.	Dr. Debasish Borah	2 <sup>nd</sup> IITG-TokyoTech joint workshop on condensed matter and high energy physics Cosmology & Astrophysics	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
16.	Prof. Subhradip Ghosh	IIT Guwahati and Tokyo Institute of Technology 2 <sup>nd</sup> joint workshop on topics in Condensed Matter Physics, High Energy Physics, Cosmology and Astrophysics	IIT Guwahati	15/12/2020 - 18/12/2020	International (Online)
17.	Prof. Bipul Bhuyan	XXIV DAE-BRNS Symposium on High Energy Physics	NISER, India	14/12/2020 - 18/12/2020	National
18.	Prof. Perumal Alagarsamy	Recent Advances in Physics (RAP-2020)	Madurai Kamaraj University	09/12/2020 - 22/12/2020	National (Online)
19.	Dr. Pankaj K. Mishra	8 <sup>th</sup> International and 47 <sup>th</sup> National Conference	IIT Guwahati	09/12/2020 -	International (Online)

		"Fluid Mechanics and Fluid Power"		11/12/2020	
20.	Prof. Perumal Alagarsamy	International Workshop (in online mode) on "Emerging Trends in Research Methodology in Condensed Matter, Materials Science and Nanoscience 2020 [ETRMCMMSN 2020]"	School of Engineering and Applied Sciences, The Neotia University and Dept. of Physics, Sukumar Sengupta Mahavidyalaya	01/12/2020 - 07/12/2020	International (Online)
21.	Dr. Santabrata Das	National webinar in Astrophysics	Department of Physics, MES Kalladi College, Palakkad, Kerala	26/11/2020	National
22.	Dr. Santabrata Das	Challenges and Innovations in Computational Astrophysics-II	International Astronomical Union, Live Zoom meeting	18/11/2020 - 21/11/2020	International
23.	Dr. Debaprasad Maity	ICTS workshop on Less Travelled Path of Dark Matter	ICTS, Bangalore	09/11/2020 - 13/11/2020	International (Online)
24.	Dr. Debasish Borah	Less Travelled Path of Dark Matter: Axions and Primordial Black Holes	ICTS Bangalore	09/11/2020 - 13/11/2020	International (Online)
25.	Dr. Soumitra Nandi	Implications of LHCb measurements and future prospects	CERN, Geneve	28/10/2020 - 30/10/2020	International
26.	Dr. Tapan Mishra	Fundamental Sciences & Quantum Technologies using Atomic Systems	PRL, Ahmedabad	28/09/2020 - 01/10/2020	International (Online)
27.	Dr. Debasish Borah	Anomalies 2020	IIT Hyderabad	11/09/2020 - 13/09/2020	International (Online)
28.	Prof. A. Srinivasan	National e-conference on researches in science & technology	Women's College, Agartala	11/09/2020	National (virtual)
29.	Prof. Girish Setlur	QMAT 2020, Non-chiral Bosonization of a Luttinger Liquid	S.N. Bose National Center for Basic Sciences	07/09/2020 - 11/09/2020	International (online)
30.	Prof. Perumal Alagarsamy	International E-Workshop on Spintronics	Mepco Schlenk Engineering College, Sivakasi	07/09/2020 - 11/09/2020	International (Online)
31.	Dr. Tapan Mishra	QMAT, 2020	SNBNCBS, Kolkata	07/09/2020 - 11/09/2020	International (Online)
32.	Dr. Debaprasad Maity	Physics of the Early Universe	ICTS, Bangalore	31/08/2020 - 03/09/2020	International (Online)
33.	Dr. M.C. Kumar	Workshop on QCD@LHC	CERN, Switzerland	31/08/2020 - 03/09/2020	International
34.	Prof. A. Srinivasan	International Virtual Faculty Development Program on Recent Trends	Easwari Engg. College, Chennai	24/08/2020 - 28/08/2020	International (virtual)

		ib Current Science and Technology			
35.	Dr. Tapan Mishra	RRI Quantum Workshop	RRI, Bangalore	17/08/2020 - 18/08/2020	International (online)
36.	Dr. Bibhas Ranjan Majhi	4 <sup>th</sup> International conference on Holography, String theory and Discrete approach	Hanoi, Vietnam	03/08/2020 - 08/08/2020	International
37.	Dr. Tapan Mishra	India-Japan Webinar on Quantum Technologies	Embassy of India, Tokyo	28/07/2020	International (online)
38.	Prof. Perumal Alagarsamy	Online conference on Exploring the Expectations and Executions in Scientific Research – EESR-2020	Mother Teresa Womens' University, Kodaikanal	16/07/2020 - 17/07/2020	International (Online)
39.	Prof. Perumal Alagarsamy	W2S Seminar; Webinar Series on Spintronics	NISER, Bhubaneswar	16/07/2020	International (Online)
40.	Dr. Uday Narayan Maiti	Emerging Trends in Chemical and Material Science	Department of Chemistry & Physics, Gokhale Memorial Girls' College, Kolkata	28/06/2020 - 29/06/2020	National (online)
41.	Prof. A. Srinivasan	National Webinar on Covid-19's Impact on Science, Society and Education	Sibsagar College, Sivasagar	25/06/2020 - 26/06/2020	National (virtual)
42.	Dr. Uday Narayan Maiti	Recent Trends in Nanomaterials & Nanobiomaterials (RTNN)	Department of Physics, Narajole Raj College, Paschim Medinipur, West Bengal	14/06/2020 - 15/06/2020	International (online)

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Prof. Pratima Agarwal	"C-Si based solar cells: Doped homo and heterojunction structures to dopant free carrier selective contacts based hetero-structures" at International Symposium on Renewable Energy Systems	Gifu University	Japan (Online)	30/03/2021
2.	Prof. Amarendra K. Sarma	Soliton Steering in Parity-Time Symmetric Nonlinear Couplers	International Centre for Theoretical Sciences, Bangalore	Bangalore (Online)	26/03/2021

3.	Dr. Subhash Thota	Field Induced Magnetic Phase Transitions in Coulombites	Eminent Scientists Webinar Series organized by the School of Basic & Applied Sciences.	Jaipur National University (JNU), 302017-Jaipur (Rajasthan), INDIA	24/03/2021
4.	Prof. Bipul Bhuyan	SAND: Indian Activities, Plan and Status	SAND Inner Tracker Review Meeting	INFN, Italy	24/03/2021
5.	Dr. Gagan Kumar	Terahertz Technology: Challenges and Opportunities	Deenbandhu-Chhotu Ram University of Science and Technology	Murthal, Sonapat, India	22/03/2021 - 23/03/2021
6.	Dr. Santabrata Das	Role of pseudo-potentials in studying the accretion flow around black holes	Centre for Theoretical Physics of the Polish Academy of Sciences	Warsaw, Poland	16/03/2021 - 19/03/2021
7.	Dr. Santabrata Das	Probing the effect of strong gravity in black hole X-ray binaries	Department of Physics, IIT Guwahati	IIT Guwahati	15/03/2021 - 18/03/2021
8.	Dr. Debasish Borah	Matter-antimatter asymmetry: connection to neutrino mass and dark matter	TEQIP-III Sponsored Workshop on Astroparticle Physics and Cosmology, NIT Meghalaya	NIT Meghalaya (Online)	15/03/2021
9.	Dr. Gagan Kumar	Terahertz Plasmonics	Department of Physics and Materials & Engineering, JIIT	Noida, India (online, zoom)	13/03/2021
10.	Dr. Debaprasad Maity	Probing the reheating phase of the universe	TEQIP-III Sponsored Workshop on Astroparticle Physics and Cosmology	Department of Physics, National Institute of Technology, Meghalaya (online)	12/03/2021 - 16/03/2021
11.	Prof. Aika Khare	Synthesis of Nano Particles via Pulsed Laser Ablation	Recent trends in Condensed Matter Physics 2021, School of Physical sciences, Indian Association for cultivation of Science Kolkata	Kolkata, India (online mode)	09/03/2021
12.	Dr. Subhash Thota	Magnetic Measurements using Physical Property Measurement System (PPMS) along with Vibration Sample measurement (VSM) technique	National Workshop on "Material Characterization Techniques for UG College Teachers". DST-Faculty Development Programme	Department of Physics and Electronics, Bhavan's Vivekanand a College of Science Humanities and Commerce	04/03/2021



				Secunderabad	
13.	Prof. A. Srinivasan	Sir C.V. Raman, his discoveries and their impact	Jorhat Kendriya Mahavidyalaya	Jorhat	27/02/2021
14.	Prof. A. Srinivasan	Spintronics – A paradigm shift in electronics	Gauhati University	Guwahati	23/02/2021
15.	Dr. Gagan Kumar	Terahertz Photonics	IIT Guwahati	Guwahati, India	22/02/2021 - 26/02/2021
16.	Prof. Alike Khare	Some of the Applications of Laser Induced Breakdown	29 <sup>th</sup> DAE-BRNS National Laser Symposium (NLS-29), Raja Ramanna Centre for Advanced Technology, Indore, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Indore, India (online mode)	12/02/2021 - 15/02/2021
17.	Dr. Subhash Thota	Semiconductor Physics	An Online Short-Term Refresher Course on 'Essential Physics and Mathematics for Engineers'	National Institute of Technical Teachers Training and Research Chandigarh	02/02/2021
18.	Prof. Saurabh Basu	"Quantum teleportation" Training and Learning (ATAL) Academy Online Faculty Development Program	Chaitanya Bharathi Institute of Technology	Hyderabad	20/01/2021
19.	Prof. S. Ravi	UGC Short Term Course on "Nanomaterials Characterization Techniques"	JNTU, Hyderabad	Hyderabad (online)	05/01/2021
20.	Dr. Tapan Mishra	Quantum simulations using quantum walk	NISER	Bhubaneswar, India	30/12/2020
21.	Dr. Subhash Thota	Reentrant Spin Glass state and Field Induced Transitions in Spinels	IIT Guwahati and Tokyo Institute of Technology 2nd joint workshop on topics in Condensed Matter Physics, High Energy Physics, Cosmology & Astrophysics	Guwahati, India	17/12/2020
22.	Prof. Perumal Alagarsamy	Nanomagnetic Materials for the application in Hard Disk Drive	Department of Physics, Jntua College of Engineering and Department of Physics, College of Engineering Technology, Bikaner	Bikaner, Rajasthan (Online)	17/12/2020 - 18/12/2020

			Technical University, Bikaner, Rajasthan		
23.	Dr. Gagan Kumar	Spectroscopy and Characterization of New Generation Materials	IIT Roorkee	Roorkee, India	14/12/2020
24.	Prof. Perumal Alagarsamy	Nanogranular thin films for future hard disk drive	Madurai Kamaraj University	Tamilnadu (Online)	09/12/2020 - 22/12/2020
25.	Dr. Pankaj Kumar Mishra	RANS and Two- equation Turbulence Model	TEQIP Short Term Course on Computational Fluid Dynamics for Incompressible Flows	IIT Guwahati (Online)	09/12/2020 - 13/12/2020
26.	Prof. Perumal Alagarsamy	Probing Nanostructures by Electron Microscopes	School of Engineering and Applied Sciences, The Neotia University and Dept. of Physics, Sukumar Sengupta Mahavidyalaya	West Bengal (Online)	01/12/2020 - 07/12/2020
27.	Dr. Santabrata Das	How to observe black holes?	Department of Physics, MES Kalladi College	Palakkad, Kerala	26/11/2020
28.	Prof. Saurabh Basu	Bose-Einstein Condensation - The story for the last 100 years	Amity University	Kolkata	26/11/2020
29.	Dr. Sayan Kumar Chakrabarti	The story of black holes	Nobel Prize 2020 Lecture Series	Department of Physics, IIT Guwahati	20/11/2020
30.	Dr. Santabrata Das	Properties of two- temperature relativistic accretion flow around rotating black holes	International Astronomical Union	Internationa l Astronomic al Union	18/11/2020 - 21/11/2020
31.	Prof. Girish Setlur	Non-chiral Bosonization and DMRG	IITG-Tokyotech joint workshop	IIT Guwahati	15/11/2020
32.	Prof. Saurabh Basu	Tuning topological phase transition in Chern insulators	IITG-TokyoTech workshop	IIT Guwahati	15/11/2020
33.	Dr. Ashwini Kumar Sharma	Lasers and Amplifiers, QIP Short term course on Optoelectronics and Nanophotonics	Department of Electronics & Electrical Engineering, IIT Guwahati	Guwahati (online)	09/11/2020
34.	Dr. Debasish Borah	A brief history of our Universe	Central University of Tamil Nadu (CUTN)	Tamil Nadu (Online)	05/11/2020
35.	Dr. Gagan Kumar	Terahertz plasmonic waveguides	Guru Jambheshwar University of Science and Technology, Hisar	Hisar, Haryana, India	02/11/2020 - 06/11/2020
36.	Prof. Alike Khare	Applications of Pulsed Laser Ablation	FDP On Recent Advances in Photonics and Communication, Guru Jambheshwar University of Science &	Hisar, Haryana, INDIA (online mode)	02/11/2020 - 06/11/2020

			Technology, Hisar (Haryana), INDIA		
37.	Dr. Subhash Thota	Tunable Magnetic Entropy Change in Superlattices/ Heterostructures for Energy Harvesting	An Online Symposium under the theme 'EMINENT SCIENTISTS' WEBINAR SERIES'	GD Goenka University- Gurgaon - 122 103 (Haryana) INDIA	16/10/2020
38.	Prof. Bosanta R Boruah	Towards optical super resolution in a scanning optical microscope	Rajiv Gandhi University	Arunachal Pradesh (Online Talk)	12/10/2020 - 14/10/2020
39.	Dr. Ashwini Kumar Sharma	Pulsed Laser Ablation and Deposition, Virtual Seminar on Experimental Physics	Department of Physics North-Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh	Arunachal Pradesh (online)	04/10/2020
40.	Dr. Kanhaiya Pandey	Quantum Computation using Ultracold Gases	Faculty development program (FDP) on Quantum Information and Computation	NIT Sikkim	03/10/2020 - 17/10/2020
41.	Dr. Debasish Borah	Neutrinos at the crossroads of particle physics, astrophysics and cosmology	National Webinar on Astrophysics, Science College, Kokrajhar	Kokrajhar (Online)	30/09/2020
42.	Dr. Kanhaiya Pandey	Laser cooling and Trapping of Rb at narrow blue transition	Fundamental Science & Quantum Technologies Using Atomic Systems (Physical research Laboratory)	Ahmedabad	28/09/2020 - 01/10/2020
43.	Dr. Subhash Thota	Magnetism in Nanostructures and Superlattices: Focus on RKKY-Type Interlayer Coupling	International e-Conference on Materials Processing and Characterization (ICMPC-2020)	Department of Physics, CBIT, Hyderabad-500075, Telangana, India	23/09/2020
44.	Prof. A. Srinivasan	Opportunities for pursuit of knowledge during the pandemic	Women's College	Agartala	11/09/2020
45.	Prof. Tarak N Dey	Lecture series on The Orbital angular momentum of light and its application	Refresher Course in Emerging Trends in Science and Technology	The University of Burdwan	08/09/2020 - 21/09/2020
46.	Prof. Poulouse Poulouse	Elementary Particle Dynamics: Shaping the Universe	Online Webinar Series	University of Calicut, Kerala	07/09/2020
47.	Prof. Perumal Alagarsamy	Approaches and development to make fine nanogranular thin films using L10 ordered FePt alloys: Application in Future Hard Disk Drive	Mepco Schlenk Engineering College, Sivakasi	Tamilnadu (Online)	07/09/2020 - 11/09/2020

48.	Dr. Subhaditya Bhattacharya	In search of Dark Matter	Centre for theoretical studies, Jamia Miliya Webinar	New Delhi	02/09/2020
49.	Dr. Subhaditya Bhattacharya	Shedding light on Dark Matter	Surjya Sen Mohavidyalay, Webinar	Siliguri	25/08/2020
50.	Prof. A. Srinivasan	Polymer nanocomposites based sustainable nonvolatile memory	Easwari Engg. College	Chennai (online)	24/08/2020
51.	Prof. Saurabh Basu	Bose-Einstein in Optical Lattices	ICFAI University	Tripura	24/08/2020
52.	Prof. Amarendra K. Sarma	The Amazing World of Quantum: Entanglement to Quantum Computer	J. N. College, Bako, Guwahati, Assam	Guwahati, Assam (Online)	21/08/2020
53.	Dr. Debasish Borah	Discovery of gravitational waves: 100 years after Einstein's predictions	National webinar on basic physics and applications organized by Barnagar College	Barpeta, Assam (Online)	21/08/2020
54.	Dr. Subhash Thota	Quasi I- and II - Dimensional Magnetism	An Online course on MATERIALS SCIENCE (10th - 14th AUGUST 2020 from 2 PM - 3 PM)	Sona College of Technology, Salem - 636005, Tamil Nadu, India	14/08/2020
55.	Dr. Subhash Thota	Two Dimensional Magnetic Nanostructures and their Applications	Eminent Scientists Webinar Series organized by the School of Basic & Applied Sciences.	GD Goenka University- 122 103, Gurugram, India	08/08/2020
56.	Dr. Bibhas Ranjan Majhi	Recent developments in gravitation	IACS, Kolkata	Kolkata, India	04/08/2020
57.	Dr. Debasish Borah	Review of Neutrino mass models and leptogenesis	Workshop on Particle Physics, ADBU, Guwahati	ADBU, Guwahati (Online)	03/08/2020 - 14/08/2020
58.	Dr. Debasish Borah	Origin of matter-antimatter asymmetry and dark matter with nonstandard cosmology	Neem seminar, IUCAA Pune	Pune (Online)	28/07/2020
59.	Prof. Pratima Agarwal	"Tuning the opto-electronic properties in multilayer superlattice thin films structures" at FDP on Recent trends in Physical Sciences	Indian Association of Physics Teachers and, UP-Research council-4 in collaboration with Christ Church College Kanpur, FGIET, Raibarelli and PSIT, Kanpur	Kanpur (Online)	24/07/2020
60.	Dr. Debasish Borah	A brief history of the Universe	Recent trends in Physics and Allied Sciences, Abhayapuri College	Bongaigaon, Assam (Online)	23/07/2020

61.	Prof. Perumal Alagarsamy	Futuristic Hard Disk Drive: Progress and Challenges from Media Development	Mizoram University	Mizoram (Online)	21/07/2020
62.	Prof. Perumal Alagarsamy	Love and Magnetism: Changes and Challenges in daily life	Mother Teresa Women's university, Kodaikanal	Kodaikanal, Tamilnadu (Online)	16/07/2020 - 17/07/2020
63.	Prof. Perumal Alagarsamy	Heusler based Spin-Gapless Semiconductors: Reality versus Issues?	NISER, Bhubaneswar	Bhubaneswar (Online)	16/07/2020
64.	Prof. Poulouse Poulouse	Cosmic Elolution and Particle Dynamics	1 <sup>st</sup> International e-Conference on Recent Advances in Physics & Materials Science 2020	Kursang College & St. Joseph's College, Darjeeling	09/07/2020
65.	Dr. Debasish Borah	Neutrino Physics	1 <sup>st</sup> International e-Conference on Advances in Physics and Materials Science 2020, Darjeeling	Darjeeling (Online)	09/07/2020 - 10/07/2020
66.	Prof. A. Srinivasan	Impact of COVID-19 on higher education: Challenges, opportunities, efforts made and the way forward	Sibsagar College	Sivasagar (online)	25/06/2020
67.	Dr. Subhash Thota	Pulse Laser Deposited Thin-films and their Applications	An Online course on 'Application of nanoscience in modern day research and technology' Under O. Plan No. ICTO-SP-09.	Department of National Institute of Technical Teachers Training and Research, Chandigarh	22/06/2020
68.	Prof. Girish Setlur	Introduction to Conventional and Topological band theory	Recent Advances in Fundamental and Applied physics, USTM	University of Science and Technology Meghalaya	14/06/2020
69.	Dr. Debasish Borah	Neutrinos: the unbearable lightness of being	Online lecture series: recent advances in fundamental and applied physics, USTM Meghalaya	Meghalaya (Online)	13/06/2020
70.	Prof. Poulouse Poulouse	Cosmology and Particle Physics Influencing each other	Online lecture series: recent advances in fundamental and applied physics, USTM Meghalaya	USTM, Meghalaya	12/06/2020
71.	Dr. Gagan Kumar	Terahertz Technology: Challenges and Opportunities	Department of Physics and Chemistry at the Rajiv Gandhi University, Arunachal Pradesh	Arunachal Pradesh, India (via Zoom)	10/06/2020

72.	Dr. Gagan Kumar	Terahertz Plasmonics	Royal Global University, Guwahati via WebEx	Guwahati, India	08/06/2020
73.	Dr. Gagan Kumar	Terahertz Plasmonics	Department of Physics, Kurukshetra University	Kurukshetra University, India	27/05/2020
74.	Dr. Gagan Kumar	Terahertz Plasmonics	CCSU, Meerut, UP, India	Meerut, UP, India (via Zoom)	15/05/2020 - 16/05/2020

#### VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
1.	Prof. Dipankar Bhattacharya	IUCAA, Pune	AstroSat - the first five years	16/03/2021	Online Physics colloquium
2.	Prof. Andrzej J. Buras	Technical University Munich, Germany	Flavour Expedition to the Zeptouniverse	10/03/2021	Online Physics colloquium
3.	Prof. Parongama Sen	Department of Physics, University of Calcutta, India	Quantum walks in one dimension: randomness, memory and a few surprises	19/01/2021	Online mode
4.	Prof. Mahendra K. Verma	Department of Physics, IIT Kanpur, India	Universal Theories and Multiscale Description of Nature	12/01/2021	Online Physics colloquium
5.	Prof. Krishnendu Sengupta	Department of Physics, Indian Association for the Cultivation of Science, Kolkata	Dynamics of Rydberg atoms: Role of quantum scars	02/12/2020	Online Physics colloquium
6.	Dr. Sachin Kumar & Dr. B. Anand	Dept of. BSBE, IIT Guwahati	In house lectures on Nobel prize 2020 in medicine, chemistry and Physics	20/11/2020	Online mode
7.	Prof. Benjamin Grinstein	Department of Physics, University of California, San Diego, USA	The Neutron Decay Anomaly: how it may be a window to new Physics	18/11/2020	Online Physics colloquium
8.	Prof. Shobhana Narasimhan	Theoretical Sciences Unit and School of Advanced Materials, JNCASR, Bangalore	Using Descriptors to Design Novel Nanomaterials	11/11/2020	Online Physics colloquium
9.	Prof. Dipankar Das Sarma	Solid State and Structural Chemistry Unit, IISc Bangalore	Organic-inorganic hybrid pervoskites: A wonder material	04/11/2020	Online Physics colloquium
10.	Prof. Yuval Grossman	Department of Physics, Cornell University, New York, USA	Three questions, one answer: Neutrinos as the key to the universe as we know it	21/10/2020	Online Physics colloquium

11.	Prof. Arindam Ghosh	Indian Institute of Science, Bangalore	Engineering the flow of charge, light and heat with atomic layers	14/10/2020	Online Physics colloquium
12.	Dr. Md Manirul Ali	Former research staff, National center for Theoretical Sciences, Taiwan	Nonequilibrium Thermodynamics of Open Quantum Systems	07/10/2020	Online Physics colloquium
13.	Prof. Arun Paramekanti	University of Toronto, Canada	Skymions -- classical crystals and quantum liquids	30/09/2020	Online Physics colloquium
14.	Prof. Saikat Ghosh	Indian Institute of Technology, Kanpur, India	Quantum Synchronization: A shared quantum rhythm	23/09/2020	Online Physics colloquium
15.	Prof. Ganapathy Baskaran	The Institute of Mathematical Sciences, Chennai (Madras), India	Quantum Matter and P.W. Anderson (1923-2020)	16/09/2020	Online Physics colloquium
16.	Prof. Jayanta K. Bhattacharjee	Indian Association for the Cultivation of Science, Kolkata, India	Dynamical Systems, Turbulence and Active Matter	02/09/2020	Online Physics colloquium
17.	Prof. Sreerup Raychaudhuri	TIFR, Mumbai	Satyendra Nath Bose : a Forgotten Hero	27/08/2020	Online Physics colloquium
18.	Dr. Sachin Kumar	Dept of. BSBE, IIT Guwahati	Understanding the biology of avian paramyxovirus for the development of recombinant vaccine	12/08/2020	Physics Webquium

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
1.	Dr. Arunansu Sil [Convener of neutrino section]	Beyond the Standard Model: from theory to experiment 2021 (BSM 2021)	<i>Letters in High Energy Physics (LHEP) journal</i>	29/03/2021 - 02/04/2021	International	655
2.	Dr. Sayan Kumar Chakrabarti, Dr. Debasish Borah & Prof. Perumal Alagarsamy	National Science Day	Organized in online mode	27/02/2021	National	-
3.	Prof. Subhradip Ghosh	IIT Guwahati and Tokyo Institute of Technology 2 <sup>nd</sup> joint workshop on topics in Condensed Matter Physics, High Energy Physics, Cosmology and Astrophysics	Organized in online mode	15/12/2020 - 18/12/2020	International	50

4.	Dr. Santabrata Das (Convener), Members of the Scientific Organising committee- Dr. Debaprasad Maity, Dr. Sayan Kumar Chakrabarti, Dr. Sovan Chakraborty, Dr. Bibhas Ranjan Majhi & Dr. Debasish Bora	North East Meet of Astronomers 2020 (NEMA-VI)	IUCAA (No fund used as NEMA is organized in online mode)	10/11/2020 - 13/11/2020	National	75
5.	Dr. D. Pamu / Prof. Perumal Alagarsamy	FIRST ONLINE TE-QIP III Short Term Course on Nanostructured Materials and Their Applications in Nanotechnology 2020 (NAMAN-2020)	TE-QIP III, IIT Guwahati	26/10/2020 - 30/10/2020	National	61
6.	Dr. D. Pamu / Prof. Perumal Alagarsamy	FIRST ONLINE QIP Short Term Course on Vacuum Science and Thin-Film Technology 2020 (VSTFT-2020)	QIP-STC, IIT Guwahati	31/08/2020 - 05/09/2020	National	55
7.	Dr. Gagan Kumar	Virtual conference on International Day of Light 2020 May 16, 2020. ( <a href="https://www.iitg.ac.in/clubs/ssphotonics/IDL-2020.html">https://www.iitg.ac.in/clubs/ssphotonics/IDL-2020.html</a> )	IEEE Photonics Society student chapter, IIT Guwahati	16/05/2020	International	1000+

#### PATENTS

**No. of Patents Applied: 03**

**No. of Patents Granted: 02**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.
1.	Nagnedra Kumar, Alike Khare and Bosanta R Boruah	A Wavefront Measuring System And Method With Ameliorated Dynamic Range	Filed in March 2021	Application No.: 202131015140
2.	Biswajit Pathak, Rahul Kesarwani, Alike Khare and Bosanta R Boruah	System, apparatus and method for monitoring of surface profile and thickness measurement in thin films	Granted in February 2021	JP,6838075, B
3.	Pamu Dobbidi, Susmita Rabha and Apuba Das	Synthesis and processing of ST sputtering material to obtain single-phase thin films	Applied dated 01/01/ 2021	202131004326



4.	Pamu Dobbidi and Apuba Das	Hydroxyapatite (HAP) comprising of mixed polymorphs of monoclinic and hexagonal phases obtained by sol-gel process	Applied dated 09/07/2020	202031029208
5.	Santanu Konwar and Bosanta R Boruah	Free space optical communication system, apparatus and a method thereof	Granted in June 2020	US Patent 10,673,525

#### AWARDS AND HONOURS

- Dr. Debasish Borah received the Young Scientist Medal from Indian National Science Academy (INSA) for his significant and innovative contributions in the broad areas of particle physics phenomenology

#### STUDENTS' ACHIEVEMENTS

- Dr. Basabendu Barman: Postdoc Fellowship at Universidad Antonio Nariño Bogotá, Colombia
- Dr. Indu Kalpa Dihingia: Best Thesis Award at IIT Guwahati
- Joydip Ghosh: Nanoscale Advances Oral Presentation Prize from Royal Society of Chemistry
- Jyotirmoi Borah: Best Poster Award at XXIV DAE-BRNS Symposium on High Energy Physics, 2020 organized by NISER, India
- Rajnandan Das: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India
- Samik Mitra: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India
- Sampreet Kalita: Prime Minister's Research Fellowship (PMRF) from MHRD, Govt. of India

#### SPECIAL MENTION

- Book chapter "Optoelectronic Properties of Nanocrystalline Silicon-Based Superlattice Structures" **Pratima Agarwal** and **Asha Yadav**, in Recent Advances in Thin Films, Springer Nature(2020) Ed: Sushil Kumar and D.K. Aswal, <https://doi.org/10.1007/978-981-15-6116-0>.
- **Prof. Pratima Agarwal** is one of the Guest editors for the Materials Today Proceedings 39 (2021), Elsevier.
- **Prof. Pratima Agarwal** attended the "Leadership in Academician Program (LEAP-2020) organized by IIT Kanpur, from Feb 18-March 04, 2021 at Delhi
- **Dr. Sayan Kumar Chakrabarti** was selected by the Indian Association for General Relativity and Gravitation (IAGRG) to judge the V. V. Narlikar best thesis award for the best thesis in the field of General Relativity and Cosmology in the 31<sup>st</sup> IAGRG meeting held at the Indian Institute of Technology Gandhinagar during 19-20 December, 2020 (online).
- **Prof. Tarak N Dey** has been selected as committee member for SERB sponsored schools on Laser, Fiber Optics and Optoelectronics.
- **Prof. P. K. Giri** is listed among the **World's Top 2% Scientists** in Applied Physics (Sub area- Nanosceince & Nanotechnology), database created and published by Stanford University, USA.
- **Prof. Sunil K Khijwania** has been selected as an AICTE nominee to the UGC expert committee for performance appraisal of technical entities of universities.
- The Invited Review article entitled, "Continuous Variable Quantum Entanglement in Optomechanical Systems: A Short Review" by **Prof. Amarendra K. Sarma** with his students **Subhadeep Chakraborty** and **Sampreet Kalita** selected as a feature article in the journal AVS Quantum Science for the month of March 2021.

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/ Institute / Org PhD degree received from	Designation	Areas of Interest
1	Pratima Agarwal	IIT Kanpur	Professor	Thin films and hetero junction solar cells, nanocrystalline Semiconductors, nanomaterials, optoelectronic properties.
2	Saurabh Basu	IIT Kanpur	Professor	Condensed Matter Physics (Theory); High TC superconductors, Optical lattices, Transport in Magnetic semiconductors.
3	Bipul Bhuyan	Delhi University	Professor	High Energy Physics (Experiment); CP violation, Rare K and B meson decays, ILC R & D.
4	Subhaditya Bhattacharya	HRI, Allahabad	Associate Professor	High Energy Physics (Theory), Phenomenology of Standard Model and Beyond, Supersymmetry, Dark Matter, LHC.
5	Bosanta Ranjan Boruah	Imperial College London	Professor	<b>Lasers and Optics (Experiment &amp; Theory);</b> Programmable Diffractive Optics, Confocal Microscopy, Phase Stepping Interferometry, Vectorial Diffraction Theory.
6	Debasish Borah	IIT Bombay	Assistant Professor	Particle Physics Model Building, Astroparticle Physics and Cosmology.
7	Sayan Kumar Chakrabarti	SINP, Kolkata	Assistant Professor	High Energy Physics (Theory), General relativity, Black hole perturbations, Gravitational waves, Cosmology.
8	Sovan Chakraborty	SINP, Kolkata	Assistant Professor	Astroparticle Physics, High Energy Astrophysics, Neutrino Oscillations, Supernovae Neutrinos, Ultra High Energy Neutrinos & Dark Matter.
9	Santabrata Das	SNBNCBS, Kolkata	Associate Professor	Astrophysics (Theory); Astrophysical flows around compact objects, Ultra high energy cosmic rays.
10	Tarak Nath Dey	PRL, Ahmedabad	Professor	Quantum Optics (Theory); Coherent control of pulse propagation, Nonlinear optics, Optical solitons, Negative index media, Bose-Einstein condensates.
11	Subhradip Ghosh	SNBNCBS, Kolkata	Professor	Condensed Matter Physics (Theory); Electronic Structure theory, Ordering and Phase stability of disordered alloys, Vibrational properties of metallic alloys.
12	Pravat Kumar Giri	IIT Kanpur	Professor	Condensed Matter Physics (Experimental); Semiconductor nanostructures, Ion-solid interactions, Optoelectronic materials & devices, Nanotechnology.
13	Charudatt Y. Kadolkar	IIT Bombay	Associate Professor	Condensed Matter Physics (Theory); Magnetism, Defects in Ionic Materials, Group Theoretical approaches to Molecular Problems.
14	Alika Khare	IIT Kanpur	Professor	Laser and Photonics.

15	Sunil K. Khijwania	IIT Delhi	Professor	Fiber Optics (Experiment & Theory); Fiber & Integrated Optics, Photonic Crystal Fiber and Applications, Surface Plasmon Resonance based Sensors, Fiber Bragg Gratings and based Devices, Fiber Optic Sensor, Bio/Nano-Photonics.
16	Gagan Kumar	IIT, Delhi	Associate Professor	Terahertz Plasmonics and metamaterials, Guided Wave Devices, Ultrafast Spectroscopy.
17	Meduri Chakravartula Kumar	Univ. of Hyderabad	Assistant Professor	High Energy Physics (Theory); Particle Physics, Higher order QCD corrections for LHC and Tevatron, Standard Model and beyond.
18	Debaprasad Maiti	IACS, Kolkata	Associate Professor	High Energy (Theory); Cosmology, Ads/CMT.
19	Uday Narayan Maiti	Jadavpur University, Kolkata	Assistant Professor	Energy conversion and storage
20	Bibhas Ranjan Majhi	SNBNCBS, Kolkata	Assistant Professor	High Energy Physics (Theory); General theory of relativity, Field theory on curved spacetimes, Black holes, Cosmology, Thermodynamical aspects of gravity, Fluidgravity correspondence.
21	Pankaj Kumar Mishra	IIT Kanpur	Assistant Professor	Nonlinear Physics (Theory and Simulation): Quantum turbulence, Instabilities and turbulence in thermal convection and MHD, Supercooled liquid and glasses.
22	Tapan Mishra	IIA, Bangalore	Assistant Professor	Condensed Matter Physics (Theory); Quantum Phase Transitions, Many-body physics with strongly correlated quantum gases in optical lattice.
23	Malay Kumar Nandy	IIT Kanpur	Associate Professor	Theoretical Physics, Statistical Physics, Condensed Matter Physics, Turbulence Field Theory, Plasma Physics, Quantum Computation.
24	Soumitra Nandi	Univ. of Calcutta	Associate Professor	High Energy Physics (Theory); Quark and Lepton Flavour Physics, Flavour Symmetries, CP violation, precision calculations in the SM, Special interest in QCD, Heavy Quark Effective Theory and Soft Collinear Effective Theory.
25	Padma Kumar Padmanabhan	IISc, Bangalore	Professor	Condensed matter (Theory); Atomistic Modeling and Simulation of Condensed States of Matter.
26	Dilip Pal	TIFR, Mumbai	Professor	Low Temperature Physics and Material Science (Experimental); Strongly Correlated Electron Systems, Vortex states in superconductors, Superconductivity and Magnetism.
27	Dobbidi Pamu	Univ. of Hyderabad	Associate Professor	Condensed Matter Physics; High-k and low loss materials, Ferroelectrics Ceramics, Oxide thin films Nanomaterials.

28	Kanhaiya Pandey	IISc, Bangalore	Assistant Professor	Atomic, molecular and optical physics (Experiment); Laser cooling and trapping of atoms, BEC, Many body physics, artificial gauge field; Atomic coherence, EIT, magnetometry; Spectroscopy and frequency metrology of optical-atomic transitions.
29	Perumal Alagarsamy <b>(Head of the Department)</b>	IIT Kharagpur	Professor	Condensed Matter Physics (Experimental); Magnetism, Nanostructured Materials, Nanocrystalline Materials, Magnetic Thin Films, Metallic Glasses.
30	Poulose Poulose	PRL, Ahmedabad	Professor	Theoretical Physics; High energy physics phenomenology, CP violation, Mass Generation mechanism, Low energy Gravity.
31	Udit Raha	University of Bonn, Germany	Assistant Professor	Quantum Chromodynamics and Nuclear Effective Field Theories.
32	Seenipandian Ravi	Univ. of Hyderabad	Professor	Condensed Matter Physics (Experimental); Magnetism, Superconductivity, Low temperature Physics.
33	Sitangshu Bikas Santra	Bose Institute, Kolkata	Professor	Condensed Matter Physics (Theory); Condensed Matter Physics, Statistical Physics.
34	Amarendra Kumar Sarma	IIT Delhi	Professor	Nonlinear and Quantum Optics (Theory); Quantum Optomechanics, Optical Force, Cavity QED, Coherent control, Extreme Nonlinear Optics, Solitons, Nonlinear Fiber Optics, Nonlinear Dynamics, Plasmonics and Transformation Optics, Parity-time Symmetric Optics.
35	Ashwini Kumar Sharma	IIT Kanpur	Associate Professor	Pulsed laser ablation and plasma spectroscopy, Deposition and characterization of nanostructures, Plasmonics.
36	Girish Sampath Setlur	Univ. of Illinois	Professor	Theoretical Physics; Optoelectronic properties of graphene, Nonchiral bosonization of fermions in one and higher dimensions.
37	Arunansu Sil	Univ. of Calcutta	Associate Professor	High Energy Physics & Cosmology (Theory); Phenomenology of Physics beyond the Standard Model, Supersymmetry and its breaking, Neutrino Physics, Matter-antimatter asymmetry of the Universe, Inflation.
38	Ananthkrishnan Srinivasan	IISc, Bangalore	Professor	Condensed Matter Physics (Experimental); Glasses and Disordered Materials, Thin Films, Metallic Alloys, Nanophase materials, Shape Memory Alloys.
39	Subhash Thota	IIT Kanpur	Associate Professor	Material Science and Engineering; Magnetic Nanostructures, Oxide Heterostructures, Superlattices,

				Magnetocaloric effects, Semi-magnetic semiconductors, Bandgap Engineering.
40	Paolo Gambino	New York University	Adjunct Professor	Theoretical High Energy Physics.

**LABORATORY FACILITIES**

**Analytical Laboratory:** Centre for Energy houses a proper state of the art analytical set-up for quantitative as well as qualitative analysis of samples like biomass and biofuels. Some of the tests that can be performed here are -Characterization of fuels (calorific value, viscosity, flash point, fire point, cloud & pour point, cetane index), Proximate as well as ultimate analysis, Gas chromatograph analysis etc. The laboratory is equipped with Gas Chromatograph (GC), Thermo-Gravimetric Analyzer (TGA), High Performance Liquid Chromatograph (HPLC), Oxygen bomb calorimeter, Vacuum rotary evaporator, Lyophilizer etc. to name a few.

**Biofuel Laboratory:** The Biofuel Laboratory is primarily focused in developing a sustainable process design for various biofuel productions and its bioconversion to various value added byproducts. The various types of facilities available in this laboratory are: Development of thermo-chemical and biochemical conversion routes to efficiently generate renewable biofuels (Bio-butanol, Bio-ethanol) from various feedstock types – rice straw, glycerol, lignocelluloses, Microalgae and *Jatropha* (Bio-diesel production); Ultra Sound enhanced conversion of sugars to fuels and chemicals; Glycerol bioconversion to various value added product (1, 3-Propanediol, DHA); Biohydrogen production. Development of facilities for studying the conversion of methane to methanol and other value added products are underway.

**Fuel Cells Laboratory:** Study of fuel cells has assumed immense importance because fuel cells have many advantages - clean, high efficiency, silent / vibration-free, reliable, responsive, high quality power, unlimited runtime, independence from traditional infrastructure, use a variety of fuels, high power density, variable operating temperatures, complementary technologies, design flexibility etc. The laboratory is emphasizing on microbial and enzymatic fuel cell as an alternative source of energy and power generation. In this endeavor, researchers in the lab have actively worked in enzymatic fuel cell with alcohol oxidase in bionanode and laccase in biocathode. We are also carrying out work in PMFC i.e. photosynthetic microbial fuel cell using cyanobacteria and other photosynthetic bacteria in anode as a means of self-sustainable power generating profile for a clean, green energy initiative and technology for the future. Some significant achievements of this lab are identification of novel signal forms in biofuel cell for detection of alcohol and Cyanobacteria based microbial fuel cells for dye degradation and power production. Facilities available in this laboratory are: Fabrication and characterization of bioelectrodes for biofuelcell and biosensors applications, Facility for development and characterization of composite proton exchange membranes for fuel cell applications, Table top spin coating unit, Potentiostat for cyclic voltametric study, amperometric study and other electrochemical measurements.

**X-ray Crystallography Laboratory:** This houses the facility for sample preparation for studies on structure of enzymes and their interaction with nanostructured materials for bio-electronic devices such as biofuel cell & other applications.

**Energy Efficiency Laboratory:** Some of the facilities available in this laboratory are Fuel testing equipment (calorific value and viscosity), equipment for proximate analysis, anemometer, pump testing setup, biomass gasification unit, flue gas analyzer, GC for biogas analysis, natural convection grain drier, fibre analysis system, Kjeldahl apparatus for nitrogen estimation, fume hood etc. A portion of the energy efficiency laboratory is located in the technology complex (TC) to house the noisy, rugged and robust facilities like biomass gasifier units, pump testing set-up etc.

**Bio-energy Laboratory:** The Bioenergy laboratory is developing the necessary knowledge and range of technologies to improve biofuel crops with more efficient biofuel and bioenergy. The lab is also involved in development of micropropagation technology for commercial scale production of clonal (genetically identical) plant materials of high yielding biofuel plants. The laboratory is also planning to employ automation (using bioreactor) in micro-propagation to further reduce the cost of clonal plants. The main research activities in the area of bioenergy involves the following -Micropropagation and Genetic Engineering of Bio Fuel plants, Tissue culture of energy and bio-fuel crops, Bioprocess Engineering for yielding value added products, Genetic Engineering, Extraction of oil and other value added products, and Microalgae based biodiesel production.

**Solar Energy Laboratory:** Centre for Energy also houses a solar energy lab for dedicated research towards development and testing of thin films for solar cells. Demonstration unit for efficient use of solar energy; characterization and study of the photovoltaic module; energy spectrum measuring facility; solar simulator; spectral response/ photoconductivity/ quantum; efficiency and other transport measurements in the presence of light of photovoltaic modules, materials and devices. The transport measurements are also possible as a function of temperature in the temperature range 250-450K. A facility for preparation of thin films by physical vapor deposition method is also available. The facility for the fabrication of thin film and hetero junction solar cells based amorphous and microcrystalline silicon is also available in collaboration with Physics department.

**Process Development Laboratory:** This laboratory has been developed at the Technology Complex (TC) to house the noisy, rugged and robust equipment. The major facilities in Process Development Lab are Gasification units (both Downdraft & Fluidized Bed), IC Engines setup, Battery testing facility, 1KW Solar wind hybrid system, Pump testing setup, and Gas to Liquid conversion setup. Some of the equipment available are Gas analyzer, Pelletizer, Gas Chromatograph, Fibre analysis system, etc.

**Biogas Development and Training Centre (BDTC):** This is a continuous project funded by Ministry of New and Renewable Energy (MNRE), New Delhi (now under the New National Biogas and Organic Manure Programme, NNBOAMP, of MNRE), which has been functioning from the Centre for Energy for promotion of biogas technology in the NE states and West Bengal since 2006. It is involved with activities such as providing training programme for turnkey workers, providing construction cum maintenance training, organization of users training and awareness programme, survey of and providing technical support to biogas digesters installed in different states of the NE India and West Bengal by the Project Implementing Agencies (PIAs).

**Internal Combustion Engine Laboratory:** This laboratory is located at Technology Complex and houses facility for testing of various alternative fuels for modifying and developing petrol and diesel engines.

**[Energy Conversion Laboratory:** This laboratory is housed in Technology Complex wherein research facilities for fuel cell testing, energy storage setup (both battery and compressed air energy storage) and indoor solar testing setups are available.

**Printed Electronics and Emerging Technology Laboratory:** The lab focuses on developing functional nanomaterials for energy storage and fabrication of printed electronic devices and IoT enabled sensors. Development of AI and machine learning tools for energy generation and distribution.

## MAJOR EQUIPMENT AND FACILITIES ACQUIRED

Major Equipment: Thermogravimetric Analyzer (Make: Perkin Elmer, Model: TGA4000)  
Facilities developed: (i) Moisture analyzer MA35M-230N, Sartorius, Germany, ii) Equitron autoclave SLEFA. (iii) Flexible Electronics device fabrication and printing facilities. (iv) IoT and AI lab.

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT

Solar Photovoltaics, Biosensor, Biofuel cells, Photovoltaics, Thin films, Semiconductor materials and devices, Biomass(microorganism/ waste/ plant materials) to biofuel/ bio-oil/ biodiesel /biogas/ power through physical/ chemical/ biological means, Clean coal technology, Methane to methanol by Bio-GTL route, Combustion and energy efficiency of systems, Sustainable biofuel, Bio-energy and Green Engineering, Bio-mass gasification, Energy Conservation and Renewable Energy, Solar energy conversion, Microgrid Power Management system, Energy storage and Printed Electronic devices, Wind energy for localized power generation, Biofuel performance in internal combustion engines, Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes, other industrially important microbial enzymes and biofuel production from lignocellulosic agriculture wastes, AI/ML based predictive modeling for Energy generation and distribution.

## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

- Extraction and characterization of xylan from sugarcane tops as a potential commercial substrate.
- Synthesis and development of ZnO<sub>2</sub> based photocatalysis.
- Fabrication of Flexible solar cells
- AI based algorithm for prediction of Renewable Energy Generation
- Development of Printable Flexible Supercapacitor

## INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Dr. Pankaj Kalita	Trends of renewable energy generation in Indian Context for meeting sustainability	International Symposium on Renewable Energy Systems, Gifu Renewable Energy System Research Center, Institute for Advanced Study, Gifu University	Gifu University, Japan	30/03/2021
02		Delivered a lecture on Pyrolysis and gasification of biomass for clean fuel and power generation on 25th August 2020 in the webinar on Biomass and Bioenergy organized by the Jorhat Institute of Science and Technology during 25th to 29th August 2020 under the collaborative research scheme.	Jorhat Institute of Science and Technology	Jorhat, Assam	25/08/2020
03		Delivered a lecture on "Integration of Emerging Technologies For Clean Power Generation on 27th August 2020 in the webinar	Assam Engineering College, Guwahati, Assam	Guwahati, Assam	26/08/2020



Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
		series on "EMERGING TECHNOLOGIES IN BIOFUEL PRODUCTION (ETBP-2020) organized by the Department of Mechanical Engineering, Assam Engineering College, Guwahati, Assam sponsored by the Collaborative Research Scheme of Assam Science and Technology University, Guwahati, Assam under TEQIP III from 26th to 27th August 2020.			
04		Delivered a lecture on "Biogas Technology and Rural Development" in the National Webinar on "Technological Intervention for Rural Development" organised by the Unnat Bharat Abhiyan Cell, North Eastern Regional Institute of Science and Technology (NERIST), Nirjuli (Itanagar), Arunachal Pradesh and Hosted by RCI, IIT Delhi, on 18th July 2020.	North Eastern Regional Institute of Science and Technology (NERIST), Nirjuli (Itanagar), Arunachal Pradesh	Arunachal Pradesh	18/07/2020
05	Prof. Pranab Goswami	Bioelectronics of Bioelectrodes involved in Amperometric and Biofuel cell Biosensors	Tezpur University	Tezpur	27/02/2021
06		Biofuel Cell: An emerging Sensing Device for Advance Healthcare Applications	Maharaja Ranjit Singh Punjab Technical University	Punjab	24/02/2021
07		Biofuel Cell: A Smart Sensing Device for Advance Healthcare Applications	GEMS Arts and Science College, Kerala	Kerala	17/09/2020
08		Biofuel Cell: A smart Sensing Device for Advance Healthcare Applications	Assam Science and Technology University (ASTU)	Guwahati	10/09/2020
09	U. K. Saha	Turbomachinery in Aerospace Vehicles, during Faculty Development Program on Basic Concepts in Turbomachinery and its Applications	National Institute of Engineering	Bangalore	28/08/2020

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
10		Aviation Turbine Fuels, during Webinar on 'Engine Combustion and Emission Diagnostics'	NIT Agartala	Agartala, Tripura	08/10/2020
11		Lift and Drag, during webinar on 'Recent Advancements in Mechanical Engineering'	Govt. Engineering College, Cooch Behar	Cooch Behar, WB	04/11/2020
12		Small-scale Wind Turbines: Concepts and Application, during AICTE – ISTE Refresher Program	Trinity College of Engineering and Research	Pune, Maharashtra	31/03/2021

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Dr. Pankaj Kalita	MOOCS online course on Solar Energy Engineering and Technology in association with Indian Institute of Technology Guwahati and NPTEL via SWAYAM from 20 <sup>th</sup> July to 9 <sup>th</sup> October 2020.	MHRD	20/07/2020	International	4000
02		International Conference on Recent Trends in Developments of Thermo-fluids and renewable energy (TFRE-2020)	TEQIP III	26/11/2020 - 28/11/2020	International	160
03		Short Term course on Advanced Solar Collectors	TEQIP III	14/12/2020 - 18/12/2020	National	78
04	Niranjan Sahoo and Pankaj Kalita	Short Term course on Combustion, Emission and Power Technology	TEQIP III	22/02/2021 - 26/02/2021	National	40
05	Dr Harsh Chaturvedi	Government Science Teachers Training Program.	Government of Pondicherry/ UNISED	21/08/2020	National	150
06	Dr Harsh Chaturvedi	Government Science Teachers Training Program.	Government of Delhi/ UNISED	18/01/2021	National	100

**PATENTS**

**No. of Patents Applied: 08**

**No. of Patents Granted: 01**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
01	Prof PranabGoswami, Priyanki Das, Mallesh Santhosh, PhurpaDemaThungon	Graphite Paste Ink with Silk Sericin for Enhancing the Conductivity and Stability	07/10/2020 (Granted)	201631022633	The patent has been granted to the patentee Prof PranabGoswami For the term of 20 years from the 1st day of July 2016 in accordance with the provisions of the Patents Act, 1970
02	Dr Harsh Chaturvedi	A mobile medical facility for sanitization, sample collection and testing	15/04/2020	Patent application no. 202031016375	-
03	Dr Harsh Chaturvedi	A personal protective respiratory apparatus	15/04/2020	Patent application no. 202031016377	-
04	Dr Harsh Chaturvedi	A self-sanitizing dustbin	20/04/2020	Patent application no. 202031016801	-
05	Dr Harsh Chaturvedi	A handheld sanitizing device	24/04/2020	Patent application no. 202031017548	-
06	Dr Harsh Chaturvedi	An isolation apparatus	28/04/2020	Patent application no. 202031018216	-
07	Dr Harsh Chaturvedi	A respiratory mask	29/04/2020	Patent application no. 202031018420	-
08	Muthukumar Palanisamy, Alok Kumar, Nithin Narmada Raju, Nagarajan Ramachandran, Prakash Satya	System and Process For Hydrogen Purification, Application	14/01/2021	202111001818	This patent was filed from CEE/C/NTPC/PMK004
09	Lepakshi Barbora, Pinakeswar Mahanta, Deep Bora, Arup Dutta, Jon Mani Kalita	Membrane Electrode Assembly Hybridized Anaerobic Digester for Production of Methane Enriched Biogas	30/03/2021	Patent Application number: 202131014785	-

and Saurav Khuttiya Deori				
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## AWARDS AND HONOURS

### ▪ Prof. Pranab Goswami

Edited the book, Advanced Materials and Techniques for Biosensors and Bioanalytical Applications, Editor: PranabGoswami, CRC press Tailor & Francis, Boca Raton, New York, London, Page 1-320(2020), ISBN: 9780367539658(hbk), ISBN: 9780367539672(pbk), ISBN: 9781003083856(ebk)

### ▪ Prof. Arun Goyal

- i. Invited for evaluation of research proposals for GYTI 2021 Awards. Feb 2021
- ii. Invited for evaluation of research proposals for SITARE-GYTI Awards by BIRAC, Department of Biotechnology, Govt. of India, Jan 2021
- iii. Invited to evaluate proposals for BIRAC's (Biotechnology Ignition Grant) Scheme Sep. 2020.
- iv. Invited to evaluate applications for Shastri Indo-Canadian Institute Grants and Fellowships, Sep 2020.

### ▪ Prof P Muthukumar

Edited the following books

- i. Muthukumar P, Dilip Kumar Sarkar, Debasis De, Chanchal Kumar De (2021), Innovations in Sustainable Energy and Technology, 89075290\_Springer Nature 2021
- ii. Muthukumar P, Sendhil Kumar Natarajan, Simon Jayaraj, Murugan S (2021) Innovations in Energy, Power and Thermal Engineering, 89117777, Springer Nature 2020
- iii. Muthukumar P. Velraj R, Murugan S (2021). Lecture Notes in Mechanical Engineering, Theoretical, Computational, and Experimental Solutions to Thermo-Fluid Systems, 89094356, Springer Nature 2020.
- iv. Received BIRAC-Innovation Challenge Award-SoCH 2020-21 from Department of Biotechnology, Govt of India.

## STUDENTS' ACHIEVEMENTS

- Kakali Borah: Prime Minister's Research Fellowship from MHRD, Govt. of India
- Nongmaithem Debeni Devi: Bioenergy-Awards for Cutting Edge Research (B-ACER) from Indo-U.S. Science and Technology Forum (IUSSTF) and Department of Biotechnology (DBT), Govt. of India
- Nongmaithem Debeni Devi: Visiting Research Scholar in University of Minnesota at University of Minnesota, USA
- Sukumar Purohi: Sandwich Program Student at GIFU University/ United Graduate School of Agricultural Science
- Pavitra Singh: Best Paper Award at International Conference on Thermal Engineering and Management Advances (ICTEMA-2020)

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
<b>CORE FACULTY MEMBERS</b>				
1	Chaturvedi H.	University of North Carolina (UNCC) at Charlotte, USA	Assistant Professor	Directed assembly of hybrid functional nanomaterials, lithography fabrication, prototype development of electro optic wearable devices, biosensors, Flexible electronics, solar cells
2	Kalita P.	IIT Guwahati	Assistant Professor	Clean Energy Technologies, Solar Thermal, Energy Storage
<b>ASSOCIATED FACULTY MEMBERS</b>				
1	Agarwal P.	Indian Institute of Technology Kanpur	Professor, Department of Physics	Amorphous and nano-crystalline semiconductor thin films solar cells, perovskite solar cells, heterojunction solar cells and other devices.
2	Das D.	Indian Institute of Technology Bombay	Professor, Department of Biosciences and Bioengineering	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel
3	De Mahuya	-	Professor, Department of Chemical Engineering	Catalysis and reaction engineering, adsorption, hydrocarbon processing
4	Goyal A.	Indian Institute of Technology Kanpur	Professor, Department of Biosciences and Bioengineering	Molecular Biology, Protein Engineering, Bioethanol
5	Goswami P.	Gauhati University	Professor (HAG), Department of Biosciences and Bioengineering	Biosensors and Biofuel cells
6	Goud V. V.	Indian Institute of Technology Kharagpur	Professor, Department of Chemical Engineering	Bio-energy; Biolubricant Heterogeneous Reactions Utilisation of Lignocellulosic Biomass for Production of Fuel/Chemicals. Application of Supercritical Fluids Wastewater Treatment
7	Kalita K.	University of Nottingham, U.K	Professor, Department of Mechanical Engineering	Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration
8	Kulkarni V.	-	Professor, Department of Mechanical Engineering	High enthalpy flows, scramjet engine, experimental, aerodynamics, measurement science, CFD simulations

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
9	Mahanta P.	Indian Institute of Technology Guwahati	Professor (HAG), Department of Mechanical Engineering	Radioactive heat transfer in participating media, circulating fluidized bed boiler, heat transfer enhancement in pipe flow, energy conservation and renewable energy
10	Mohanty K.	Indian Institute of Technology Kharagpur	Head, Centre for Energy & Professor, Department of Chemical Engineering	Biofuels (bio-diesel, bio-ethanol and bio-Hydrogen), Utilisation of Lignocellulosic Biomass for Fuel Production.
11	Moholkar Vijay S	University of Twente, Netherlands	Professor, Department of Chemical Engineering	Bubble dynamics, CFD, Sono-process engineering, Bio-mass gasification
12	Muthukumar P.	Indian Institute of Technology Madras	Professor, Department of Mechanical Engineering	Hydrogen Energy (Storage and Applications), Metal hydride based thermal machines, Porous medium combustion, Heat and mass transfer in porous medium, Sorption heating and cooling systems, Waste heat recovery, Thermal energy storage systems, etc.
13	Nayak S. K.	Indian Institute of Science, Bangalore	Associate Professor, Department of Electronics and Electrical Engineering	Power flow analysis in AC and DC traction power system, Electromagnetics, Lightning interaction with an electrical and mechanical system, High Voltage Engineering
14	Nemade H.B.	Indian Institute of Technology Bombay	Professor, Department of Electronics and Electrical Engineering	Electronic instrumentation, Systems design, Ultrasonic instrumentation, Non-destructive testing, Electronic product design, EMI/EMC issues, Acoustic sensors, Underwater acoustics, Surface acoustic wave devices, MEMS
15	Saha U. K.	Indian Institute of Technology Bombay	Professor, Department of Mechanical Engineering	Turbomachinery, Jet Propulsion, Internal Combustion Engines and Wind Energy
16	Sahoo N.	Indian Institute of Science, Bangalore	Professor, Department of Mechanical Engineering	Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid
17	Sahoo L.	MDU, Rohtak	Professor, Department of Biotechnology	Genetic engineering and functional genomics of plants

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
18	Senthilmurugan S.	Indian Institute of Technology Delhi	Professor, Department of Chemical Engineering	Modeling and Optimization of Novel Processes Process Design and Operation of Membrane Separation Processes Waste and waste water treatment (WWWT) for Process Industries Novel Desalination Technologies Smart Water Grid Waste to Energy
<b>HONORARAY FACULTY MEMBERS</b>				
	Prof. S.C. Sharma	Mysore University	Director, NAAC, Bangalore	Photoluminescence of Nanophosphors, Photoluminescence, Thermoluminescence, Photocatalytic Studies of Radioactive Nanomaterials, Sensors for Phenolic Compounds, Hydroquinone, Melamine, Dopamine, Paracetamol, Folic Acid etc., Display, Dosimetry and Advanced Forensic Applications of Nanomaterials

### LABORATORY FACILITIES

#### No. of Laboratories: 05

- **Research laboratory – I:** (Location: first floor, I block) It is used as workplace by research students to carry out routine laboratory experiments.
- **Research Laboratory – II:** (Location: second floor, I block) It is used as workplace by research students to carry out routine laboratory experiments.
- **Analytical laboratory:** (Location: Research lab-II, second floor, I block) It is equipped with sophisticated equipment essential for environmental research.
- **Computational laboratory-** (Location: Research lab-II, second floor, I block). This facility is accessible to the students for their computer related work. At present 20 computers are available for the users.
- **Institutional Biotech Hub Laboratory** including mammalian cell culture laboratory and silk rearing and culture facility.

### MAJOR EQUIPMENT AND FACILITIES ACQUIRED

- Refrigerated shaking incubator
- Analytical balance
- DELL workstation
- Remi centrifuge
- Multiparameter for water testing
- Magnetic stirrer hot plate
- Ultrasonic water bath
- Desktop PC
- Hot air oven
- Lab water purification system

### MAJOR AREAS OF RESEARCH AND DEVELOPMENT

- Water and Wastewater Treatment
- Solid Waste Management and Recycling
- Environmental Bioremediation/ Environmental Biotechnology
  - Bio-sorption & Bioremediation of heavy metals
  - Bio-filtration for treating Waste Gases and Green Solvents
  - Removal of Toxic and Recalcitrant Compounds
  - Biodegradation/Bio-detoxification of Toxic Wastes
- Environmental Genomics and Proteomics
- Green Chemistry
- Greenhouse gas Capture and Storage.
- Bio-fuels
- Air pollution- Dispersion, Control & Modeling
- Waste Immobilization
- Soil-water-contaminant Interaction
- Contaminant Transport and Retention in Porous Media
- Environmental History
- Environmental Economics
- Green Design
- Global Warming and Climate Modeling
- Seri-biotechnology and Seri-informatics and other related areas
- Metagenomics, enzymatic technology for treatment of recalcitrant pollutants and Biosensors



## MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT

Following are some of the selected research achievements observed during the reporting period of the ongoing research and development of the centre which has appeared in reputed peer reviewed journals and patent databases.

### 1. Separation of ions from rejected stream of industrial Wastewater

Patent Number: 358357

Date of grant: 11/02/2021

#### Researcher: Prof. Mihir Kumar Purkait and Ms. Deepthi Nair

The invention is related to removal of ions from the rejected stream of nanofiltration (NF) as a part of wastewater treatment or membrane rejected stream of industrial wastewater of iron/steel industry. It particularly relates to removal of ions especially chlorides and sulphates from the rejected stream of NF as a part of wastewater treatment or membrane rejected stream of industrial wastewater of iron/steel industry using miscible organic solvents. It specifically relates to removal of ions especially chlorides and sulphates from the rejected stream of NF as a part of wastewater treatment or membrane rejected stream of industrial wastewater of iron/steel industry using miscible organic solvents like isopropylamine, diisopropylamine and ethylamine and further reuse of the recovered solvents. The invented process is the simple method called precipitation. Miscible organic solvent is used as a precipitating agent. An optimum solvent ratio and factors affecting the precipitation is determined. As a result of precipitation, salt is precipitated out from the solution. A 0.2 micron membrane is used to separate the precipitated salt. Now the solution is left out with water and organic solvent. Organic solvent is recovered by simple distillation and condensation unit. The recovered solvent is recycled back to the system and used further.

### 2. Environmentally Benign Synthesis of Sn(II)-based Metal-Organic Framework and its Derivative SnO<sub>2</sub> Nanoparticles for the Decontamination of Water

In summary, the research work has some substantial and promising results in the domain of sustainable environmental chemistry and engineering where environmentally toxic organic compounds or cations/ anions are captured by a series of hydrothermally/ solvothermally synthesized water stable Sn-based metal-organic-framework. Notably, the material synthesis was carried out following facile and greener synthetic route under mild conditions, where the use of toxic solvents was avoided. All the synthesized materials exhibited high thermal as well as aqua stability and were subsequently explored for its water treatment potential. In general, the findings will help understand the relatively underexplored space of Sn(II) as inorganic metal ion for stable composite material synthesis and its potential application in water treatment. Each of the synthesized Sn(II)-MOF unveiled interesting characteristic properties that were exploited in the remediation of toxic environmental pollutants from the aqueous medium.

Reference:

**A. Ghosh** and G. Das, , *J. Environ. Chem. Eng.* 2021, **9**, 105288. (IF= 4.30).

### 3. Biological treatment of refinery wastewater: A bio-refinery approach

Bio-fuels for energy generation are one of the alternatives, which require integration with wastewater treatment to keep the economics of the production process low. The present study was therefore focused on treating raw refinery wastewater by *Rhodococcus opacus* for converting it into bio-oil by hydrothermal liquefaction process. For treating the wastewater different operating modes using a bioreactor were investigated, Furthermore, the residual bacterial biomass from the bioreactor was treated by HTL to produce bio-oil which showed excellent for bio-fuel applications. This study demonstrated the application of *R. opacus* for simultaneous wastewater treatment and production of bio-oil for energy application. It also showed that the lipid rich *R. opacus* biomass grown on cheaply available refinery wastewater is highly suited for potential bio-oil production. Overall, this study demonstrated a sustainable

zero waste strategy along with a closed loop integrated approach for refinery wastewater treatment with provisions for resource recovery.

Reference:

Paul, T., Sinharoy, A., Baskaran, D., Pakshirajan, K., Pugazhenth, G., Lens, P. N. (2020). *Critical Reviews in Environmental Science & Technology*, (<https://doi.org/10.1080/10643389.2020.1820803>)(IF: 8.302)

#### **4. Synthesis of functionalized silk-coated chitosan-gold nanoparticles and microparticles for target-directed delivery of antitumor agents**

We have developed two types of antitumor drug delivery tools using modified biopolymer-derived nanoparticles and microparticles by a green synthesis protocol. Doxorubicin-loaded chitosan stabilized gold nanoparticles and microparticles were synthesized and coated with folate conjugated silk fibroin. Nanoparticles with size  $8\pm 3$  nm and microparticles with size 900-1000  $\mu$ m were formed, which can be used for intravenous and oral drug release, respectively. The coated materials showed retarded drug release compared to the uncoated ones. The cytotoxicity assessed in HeLa cell lines demonstrated a maximum dose-dependent decrease in cell viability for the cells treated with the coated materials which are due to the over-expressed folate receptors on the cancer cells that bind to the folic acid conjugated to silk fibroin. It was further supported by the live-cell imaging of the nanoparticles, which unveiled the increased cellular uptake of the coated materials by seven folds than the uncoated ones. Thus, the synthesized coated nanoparticles and microparticles can be effective drug delivery tools for the targeted and long term release of antitumor agents.

Reference

Horo, H., Bhattacharyya, S., Mandal, B., & Kundu, L. M. (2021). *Carbohydrate Polymers*, 258, 117659. [IF: 7.182]

#### **5. Lignocellulosic biomass to value-added products: Fundamental strategies and technological advancements. Mihir K. Purkait and Dibyajyoti Haldar. (2021) Elsevier, ISBN: 9780128235348. (BOOK)**

The book is focused on the fundamental and advanced topics involved with the technologies for the conversion process of lignocellulosic biomass in a very easy to understand manner. Each and every concept's related to the utilization of biomass in the process of conversion is explained elaborately and importance is given to the minute details. The readers of this book will get to know everything on the field of lignocellulosic conversion from its basics to the current research accomplishments.

#### **6. Production of Polyhydroxyalkanoates (PHA) from aerobic granules of refinery sludge and *Micrococcus aloverae* strain SG002 cultivated in oily wastewater**

Production of polyhydroxyalkanoates (PHA) biopolymers in aerobic granules having mixed sludge and pure strain inoculum was studied while treating oily wastewater in aerobic granular reactors (AGRs). Small sized ( $0.71\pm 0.04$  mm) *Micrococcus aloverae* strain SG002 granules achieved  $81.40\pm 0.2\%$  hydrocarbon removal efficiency accumulating  $0.47\pm 0.01$  mg PHA/mg cell dry weight (CDW). Changing organic loading ( $0.6-1.8$  kg COD/ $m^3$ .day) and high C/N (8-24) stimulated  $0.71\pm 0.04$  mg PHA/mg CDW yield with  $90\pm 1\%$  hydrocarbon removal in the refinery sludge granules. Long and short chain *n*-alkanes ( $C_{16}-C_{36}$ ,  $C_6-C_{10}$ ) were mostly transformed into PHAs. Granule extracted PHA was characterized as copolymer P(3HB-co-3HV) having 3.5-4.5 of butyrates and valerates (PHB:PHV) ratios.

Reference:

Sayanti Ghosh and Saswati Chakraborty (2020), *International Biodeterioration & Biodegradation* 155 : 105091. (IF: 4.074)

## 7. Synthesis of Highly Structured Spherical Ag@Pt Core-shell NPs using Bio-analytes for Electrocatalytic Pb(II) Sensing

We have successfully devised a new bio-inspired method for the synthesis of seed-mediated Ag@PtNPs core-shell NPs using the bio-extract of *Psidium guajava* leaves and microwave irradiation. These NPs were successfully decorated on graphite support electrode for the electrocatalytic Pb(II) sensing. The Pb(II) deposition potential and deposition time on the Ag@PtNPs/graphite electrode for the square wave anodic stripping voltammetry were optimized to  $-1.2$  V vs. Ag/AgCl (3 M KCl) and 300 s. The stripping potential was found to be  $-0.43$  V vs. Ag/AgCl (3 M KCl) in 0.1 M acetate buffer solution (pH 5). The compressive lattice strain developed into Ag@PtNPs caused the enhancement of Pb(II) sensing with a sensitivity of  $115.5 \mu\text{A}\cdot\mu\text{M}^{-1}\text{cm}^{-2}$  ( $5.3$  and  $34.4 \mu\text{A}\cdot\mu\text{M}^{-1}\text{cm}^{-2}$  for AgNPs and PtNPs catalysed sensors, respectively). The limit of detection was obtained as 0.8, 2.2 and 12.4 nM for the nanoparticles, respectively. Ag@PtNPs was highly selective towards different HMs, and it catalysed a distinct peak separation of Pb(II) from Cd(II), Cu(II), and Hg(II) ions ( $0.25$ – $10 \mu\text{M}$ ). Pb(II) present in river water, tap water, and sewage water was effectively determined in the presence of background cations, anions and soluble organics. Therefore, this work provides a platform for developing bio-inspired nanoparticles based electrochemical sensors that can be applied for the detection of HM ions.

### Reference

Dash SR, Bag SS, Golder AK. *Sensors and Actuators B: Chemical*. 2020 Jul 1;314:128062.[I.F. 6.39]

## 8. A Systematic Review of the Efficacy and Safety of Favipiravir (Avigan) for the Treatment of Novel COVID-19 Infections (Invited Tutorial Review)

This review discusses the pathogenicity of the SARS-CoV-2 virus and the possibilities and promising results of

Favipiravir or its activated analog Favipiravir-RTP to treat COVID-19 disease based on its reported mechanism of RdRp inhibition. We have also discussed in detail the possible pharmacokinetic outcomes after being treated with Favipiravir. We have discussed reports and results from various clinical trials of those conducted in the past with influenza and Ebola infected patients and the recent trials with COVID-19 patients. We believe that the information we represent shall be of importance to the scientific community and help conduct experiments and clinical trials. Through this review, we would like to draw attention that Favipiravir is an excellent drug candidate, which can bring a cure to COVID-19 infection. However, medical practitioners have to be careful before administering Favipiravir in combination with other drugs. Finally, we would like to emphasize that worldwide scientists, particularly drug design oriented chemists should contribute more to the development of effective and safe drug for COVID-19 beyond Avigan and Remdesivir

### Reference

Bag SS, Sinha S, Saito I. 2020 Aug 24;8(8). (Invited Tutorial Review)

### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
1.	Prof.SubhenduSekhar Bag	National Webinar on Academic Contribution of Shri ShriAnandamurtiji. Organized by Rajasthan University	Virtual	19/11/2020	National
2.	Prof. SubhenduSekhar Bag	National Webinar on Academic Contribution of Shri ShriAnandamurtiji. Organized by	Virtual	05/11/2020	National

		Renaissance Artists' and Writers' Association, Kolkata.			
3.	Ms. Deepti Nair (Prof. Mihir K. Purkait)	Conference on Advances in Chemical, Biological and Environmental Engineering	Virtual	23/04/2021 - 24/04/2021	International
4.	Ms. Udaratta Bhattacharjee (Prof. Ramagopal VS Uppaluri)	Recent Advances in Translational Research in Food Science and Technology	Virtual	16/10/2020	International
5.	Ms. Tinka Singh (Prof. Ramagopal VS Uppaluri)	Agriculture Research through Knowledge Discovery	Virtual	23/02/2021	National
6.	Ms. Deepti Nair (Prof. Mihir K. Purkait)	Recent Innovations in Chemical Engineering (RICE-2021)	Maulana Azad NIT, Bhopal Virtual	08/02/2021 - 09/02/2021	National
7.	Mr. Prabhat K. Patel (Prof. Ramagopal VS Uppaluri and Dr. Lalit M. Pandey)	Sustainable Energy & Environmental Practices (SEEP 2020)	Virtual NIT Silchar	05/06/2020 - 06/06/2020	National
8.	Mr. Aquib Jawed (Dr. Lalit M. Pandey Dr. King Hang Aaron Lau)	12th Scottish Symposium on Environmental Analytical Chemistry (Online mode)	Organized by Univ of Glasgow, Scotland and Sponsored by Royal Society of Chemistry, Analytical Division, Scottish Region	07/12/2020	International
9.	Mr. Vivek Singh Yadav (Dr. Lalit M. Pandey)	Online workshop on "Generating the Highest Level of Evidence through Systematic Review and Meta-analysis: Best Alternative for Hospital Based Projects During the Current Pandemic Situation"	Virtual (NIPER) Guwahati	28/08/2020 - 29/08/2020	National
10.	Mr. Rahul Verma (Dr. Lalit M. Pandey)	6 <sup>th</sup> Int. Conference on Nanoscience and Nanotechnology	Virtual SRM, Chennai	01/02/2021 - 03/02/2021	International
11.	Ms. Payal Mazumder (Prof. Ajay Kalamdhad)	Trade Waste and Wastewater management		08/05/2020	International
12.	Mr. Ravula Rajasekhar (Prof. Tapas K. Mandal)	Recent Innovations in Chemical Engineering (RICE-2021)	Virtual Maulana Azad NIT, Bhopal	08/02/2021 - 09/02/2021	National
13.	Ms. Poulami Datta (Dr. Lalit M. Pandey and Dr. Pankaj Tiwari)	Chemical Research 2020: Int. Conference on Chemical Engineering and Chemistry	Virtual	08/12/2020 - 09/12/2020	International

14.	Ms. Poulami Datta (Dr. Lalit M. Pandey and Dr. Pankaj Tiwari)	"5th International Conference on Bioenergy, Environmental and Sustainable Technologies	Virtual Arunai Engineering College, Tamil Nadu	29/01/2021 - 30/01/2021	International
15.	Ms.Udaratta Bhattacharjee (Prof. Ramagopal VS Uppaluri)	Innovation Food Processing Technologies. Value addition, Food Safety and Security	Virtual Madhya Pradesh	29/06/2020 - 01/07/2020	International
16.	Ms.Udaratta Bhattacharjee (Prof. Ramagopal VS Uppaluri)	Green Technology in Food Processing	Virtual West Bengal	15/09/2020	National
17.	Ms.Udaratta Bhattacharjee (Prof. Ramagopal VS Uppaluri)	Sustainable Energy & Environmental Practices (SEEP 2020)	Virtual NIT Silchar	05/06/2020 - 06/06/2020	
18.	Ms.Udaratta Bhattacharjee (Prof. Ramagopal VS Uppaluri)	Agriculture Research through Knowledge Discovery	Virtual EBSCO information Sevices, Massachusetts) online	23/02/2021	National

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Prof. Utpal Bora	Career Counselling and orientation program for higher secondary, graduate and scholarship applicants Title of the lecture: "Academics and Career"	SUHRID(MLA-LAD	Office of the MLA, Tamulpur LAC, Assam	06/09/2020
02	Prof. Utpal Bora	Online resource person in Refresher Course on "Disaster Management and Emergency Response (IDC) -05 Title of the Lecture: "Environmental Impact Assessment and Disaster Risk Reduction"	UGC-HRDC, Gauhati University	Gauhati University	10/10/2020
03	Prof. Utpal Bora	"Research Orientation Program" Title of the Lecture: "Research Ethics and Integrity"	Maharishi Markandeshwar Deemed University,Haryan a	Mullana, Haryana	26/10/2020 - 31/10/2020
04	Dr.KrishnaPada Bhabak	Chemistry and Biology of Organochalcogen Compounds	Webinar conducted by NIT Manipur on 'Diversity in Catalytic Approaches'	Manipur (virtual)	27/10/2020 - 31/10/2020
05	Dr. Subhendu Sekhar Bag	Microvitum –In Quest Of An Unified Theory Of Natural Science	National Webinar on Academic	Virtual	19/11/2020

			Contribution of Shri ShriAnandamurtiji. Organized by Rajasthan University		
06	Dr. Subhendu Sekhar Bag	Microvitum –A Possible Holistic Theory To Fill The Gaps In Science!	National Webinar on Academic Contribution of Shri ShriAnandamurtiji. Organized by Renaissance Artists' and Writers' Association, Kolkata.	Virtual	05/11/2020
07	Prof. RamagopalVS Uppaluri	Pedagogy associated to Research Methodology	TEQIP	IIT Guwahati	06/11/2020 - 10/11/2020
08	Prof.Sanjukta Patra	Algae in environmental restoration and biomass valorization: An ecofriendly sustainable process	Indo-Sri Lanka International Webinar (ISW-21)- "Global trends in Algal Research: Environmental Restoration, Biomass Valorization and Sustainability	IIT Delhi virtual	08/03/2021 - 09/03/2021
09	Prof. RanjanTamuli	Environmental Genomics and Genome Editing	IIT Guwahati	Guwahati virtual	23/02/2021 - 27/02/2021
10	Prof. Utpal Bora	International Virtual Conference on "Biotechnology Towards Nutritional Security and Human Health, (ICBNH-2021)" Title of the Lecture:"Technology& Policy in Food Security"	Department of Biotechnology, Rama Devi Women's University, Bhubaneswar	Bhubaneswar (virtual)	04/03/2021 - 06/03/2021
11	Prof. Ajay Kalamdhad	Vermicomposting: hands on training	IIT Guwahati: Regional Coordinating Institute (RCI), Shishugram	Guwahati	09/11/2020

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES**

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
1	Dr. Jayanta Biswa Sarma	National Health Service, UK	Invited speaker "Online TEQIP-III workshop on "Environmental Genomics and Genome Editing"	23/02/2021 - 27/02/2021
2	Dr. Dinesh Kumar Principal Scientist	ICAR-Indian Agricultural Statistics Research Institute, New Delhi	Invited speaker " Online TEQIP-III workshop on "Environmental Genomics and Genome Editing"	23/02/2021 - 27/02/2021
3	Dr. Mir Asif Iquebal Senior Scientist	ICAR-Indian Agricultural Statistics Research Institute, New Delhi	Invited speaker "Online TEQIP-III workshop on "Environmental Genomics and Genome Editing"	23/02/2021 - 27/02/2021

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Prof. Chandan Das	Workshop on "Recent Advances in Food Engineering in NE India"	KIT-TEQIP, CET, IIT Guwahati	17/12/2020 - 19/12/2020	National	25
02	Dr. Deepmoni Deka	60-IIRS Outreach programme on Application of geoinformatics in ecological studies	DOS-GOI (Distance learning programme)	13/07/2020 - 24/07/2020	National	11
03	Dr. Deepmoni Deka	61-IIRS Outreach programme on Satellite Photogrammetry and its applications	DOS-GOI (Distance learning programme)	29/06/2020 - 3/07/2020	National	25
04	Dr. Deepmoni Deka	63-IIRS Outreach programme on Remote Sensing applications in agricultural water management	DOS-GOI (Distance learning programme)	03/08/2020 - 07/08/2020	National	21
05	Dr. Deepmoni Deka	64-IIRS Outreach programme on Basics of remote sensing, geographical information systems and global navigation satellite system	DOS-GOI (Distance learning programme)	17/08/2020 - 20/11/2020	National	11
06	Prof. Utpal Bora	Workshop on "Environmental Genomics and Genome Editing"	KIT-TEQIP, CET, IIT Guwahati	23/02/2021 - 27/02/2021	National	40

## PATENTS

No. of Patents Applied: 01

No. of Patents Granted: 01

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.
01	Prof. Mihir Kumar Purkait and Ms. Deepti Nair	Separation of ion from rejected stream of industrial waste water	Applied 27/11/2018 Published 11/02/2021	201831044754

### Report on the TEQIP sponsored online workshop on “Environmental genomics and genome editing”

TEQIP-III sponsored workshop on “Environmental genomics and genome editing” organised by Centre for the Environment, IIT Guwahati was successfully held from 23 February to 27 February 2021 through online mode. The purpose of the workshop was to introduce faculty members and young researchers from India to the exciting area of genomics and genome editing technologies and their applications in environmental research. This workshop aimed to make the participants learn key concepts and familiarized with the developments in techniques and tools of genomics and genome editing. It was also intended to make the participants aware of the scopes and potential applications of these technologies in ecology and environmental research. The five-day workshop included theoretical lectures on metagenomics and genome editing along with a hand-on-training on metagenomics data analysis with bioinformatics.

There were around 50 participants from different TEQIP III mapped and non-TEQIP institutes across India registered for the workshop. It was attended by 23 faculty members and 25 research scholars. There were six faculty members and one research scholar from non-TEQIP institution who participated in the workshop.

The inauguration ceremony of the workshop was jointly organised with another TEQIP Cell event, short-term course on “Intellectual Property Rights for Academic and Research Institutions” on 23rd February 2021 at 9.15 AM. The inauguration event started with a welcome address by Prof. Utpal Bora, co-ordinator, “Environmental genomics and genome editing” and Head of the Centre for the Environment. The gathering was also addressed by Prof. Karuna Kalita, co-ordinator for “Intellectual Property Rights for Academic and Research Institutions”. The guest of Honour of the event, Prof. Hemant B. Kaushik, Head of Centre for Educational Technology (CET), IIT Guwahati in his speech highlighted the various activities undertaken by CET. The Chief Guest of the inauguration ceremony was Prof. T. G. Sitharam Director, IIT Guwahati. He motivated the participants and wished the organisers a successful workshop and a short-term course in his speech. Prof. S. Senthilvelan, Head of Department of Mechanical Engineering and Prof. G. Krishnamoorthy, Dean of Industrial Interactions and Special Initiatives (IISI) also addressed the participants. Prof. Karuna Kalita delivered the vote of thanks for the event.

The lecture sessions of the workshop started at 10:00AM on 23th February, 2021 and it ended on 27 February at 5:30PM. Four sessions were conducted on each day of the workshop. There were a total number of 20 sessions of one and half hours each which included 6 theoretical lectures on genome editing, 7 theoretical lectures on metagenomics and 6 hand-on-training and practical sessions on metagenomics data analysis. The theory lectures on genome editing and its application in environmental research was delivered by Prof. Utpal Bora. The theory lectures on various aspects of environmental metagenomics were delivered by in-house experts Prof. Ranjan Tamuli from Department of Biosciences and Bioengineering, IIT Guwahati, Dr. Jayanta Biswa Sarma, Honorary faculty of Centre for the Environment, IIT Guwahati and external expert Dr. Dinesh Kumar, Principal Scientist, ICAR- Indian Agricultural Statistics Research Institute, New Delhi. There was also a special lecture session on pedagogy delivery by Prof. Ananthakrishnan Srinivasan, Department of Physics, IIT Guwahati. The practical sessions



on hand-on-training on metagenomics data analysis were conducted by external experts Dr. Dinesh Kumar and Dr. Mir Asif Iquebal from ICAR- Indian Agricultural Statistics Research Institute, New Delhi. They were assisted by Jon Jyoti Kalita, Adhiraj Nath and Biju Bharali PhD students from IIT Guwahati.

The valedictory function of the workshop was held at 5:45PM on 27 February 2021. The guest of honour of the event was Dr. Dinesh Kumar. The chief guest of the event was Prof. Ananthkrishnan Srinivasan. The event was also attended by Dr. Sarika Jaiswal and Dr. Mir Asif Iquebal from ICAR- Indian Agricultural Statistics Research Institute, New Delhi as invited guests. The event started with participants sharing their feedback on the workshop followed by speeches by Dr. Jaiswal, Dr. Iquebal, Dr. Kumar and Prof. Srinivasan. The event came to an end with vote of thanks delivered by Prof. Utpal Bora.

### **Report on the TEQIP sponsored workshop on “Recent Advances in Food Engineering in North-East India”**

TEQIP III sponsored Workshop on “Recent Advances in Food Engineering in North-East India” was organized by Centre for the Environment, IIT Guwahati during 17-19<sup>th</sup> Dec, 2020. At the very onset course coordinator Prof. Chandan Das gave an overview of the objective and technical sessions of the event. The main aim of the course is inter-disciplinary approach to address conventional and frontier research problems in food science and technology with special emphasis upon translational research themes applicable for the North-eastern region of India. The lectures were delivered by eminent experts from IITs, Tezpur University and Guwahati University Institute of Science & Technology.

Lectures on application of supercritical fluid in the food processing, separation of high value bioactives from herbs and plants; fermented dairy products, pine apple juice clarification and *Rebaudioside A* separation by membrane; grain processing giving emphasis on rice are delivered during the sessions.

Research pedagogy was elaborated extensively which will definitely help the researchers, leafy vegetable mix soup formulations was presented nicely. In the application point of view, the operation of single as well as double screw extruder were demonstrated by using video; polymeric hydrogel film using digital micrometre film applicator was demonstrated. The course was designed to benefit faculty members as well as young researchers. The goal was to provide theoretical knowledge as well as hands-on training with special focus on their applications.

### **AWARDS AND HONOURS**

- Dr. Subhendu Sekhar Bag: Elected as Chartered Chemist (CChem) by Royal Society of Chemistry, London, UK
- Dr. Subhendu Sekhar Bag: Received the Global Faculty Award 2020 (GFA20IN0767) from AKSEducation Awards AKS Worldwide Pvt. Ltd.
- Dr. Subhendu Sekhar Bag: Received the Dr. A. P. J. Abdul Kalam Lifetime International Award from IRDP Group of Journal

### **STUDENTS' ACHIEVEMENTS**

- Jinat Aktar: Best Poster in 6<sup>th</sup> Int. Conf on Nanoscience and Nanotechnology (virtual) at SRM Institute of Science and Technology
- Poulami Dutta: Best oral presentation at Arunai Engineering College, Tamil Nadu, India
- Himadree Das: Prime Minister's Research Fellow (Lateral entry, May 2020 scheme) from MHRD, Govt of India
- Aniket Banerjee: Prime Minister's Research Fellow (Lateral entry, May 2020 scheme) from MHRD, Govt of India

- Sayantan Sinha: Member of the Royal Society of Biology (MRSB), London, UK
- Sayantan Sinha: Certificate of Honor for Best Research Paper Presentation from IIT Guwahati in association with Indian International Science Festival, GOI
- Sayantan Sinha: DST-BRICS Young Scientist Fellow from BRICS-YSF & DST, GOI
- Sayantan Sinha: InSc Research Excellence Award from Institute of Scholars

#### SPECIAL MENTION

- Dr. Jayanta B Sarma, Lead Consultant Microbiologist, Mid Yorkshire Hospitals, NHS trust, Wakefield England has been appointed as Honorary faculty in Centre for the Environment, IIT Guwahati from 21/10/2020.
- Prof. Subhendu Sekhar Bag has received the prestigious award CChem designation from the Royal Society of Chemistry for his outstanding academic, professional, research contributions in the field of Chemical Sciences and Chemical Biology. Honorable Minister of Education Dr. Ramesh Pokhriyal Nishank congratulated Prof. Bag for this great achievement. The Ministry of Education also congratulated Prof. Bag for this outstanding achievement.
- Dr. Jyoti Kainthola has been awarded best thesis award from Centre for the Environment in the year 2020. She carried out her research work under the guidance of Prof. Ajay Kalamdhad and Prof. V.V. Goud. She has published 8 research articles (first author) in reputed peer reviewed journals along with one book chapter during her PhD period.
- Prof. Utpal Bora of Department of BSBE, IIT Guwahati has joined as new Head of Centre for the Environment on 01 February, 2021 for a period of 3 years.

#### FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute /Org PhD degree received from	Designation	Areas of Interest
1.	Bag S. Subhendu	IIT Kharagpur	Professor	Chemical Biology, Environmental Nanotechnology, Bionanotechnology, Nanomedicine, Sensor development, Bioorganic Chemistry and Chemistry of Unnatural Nucleic Acid and Peptides
2.	Barua Anamika	University of Leeds, UK	Professor	Socio-economic understanding of climate risk and resilience, urban living and sustainable cities
3.	Bhabak Pada Krishna	Indian Institute of Science, Bangalore, India	Assistant Professor	Design and Synthesis of Potential Bio-active Organic Compounds, Anti-cancer and Antioxidative Properties of Synthetic Organic Compounds, Selective Fluorescent Delivery Agents for Anti-cancer Compounds, Understanding their Behavior at Cellular Environment
4.	Bora Utpal	Institute of Genomics & Integrative Biology, Delhi (degree awarded by GGS Indraprastha University, Delhi).	Professor	Biodiversity, Ecology, Environmental Informatics, Environmental Policy
5.	Chakraborty Saswati	IIT Mumbai	Professor	Water and Wastewater Treatment, Biodegradation of Industrial Wastewater and Removal of Heavy Metals from Wastewater

6.	Chaturvedi Rakhi	University of Delhi, Delhi, India	Professor	Micro and Clonal-propagation of elite medicinally and economically valuable plants for mass multiplication, In vitro Double-haploid and Triploid production, Cytological and Histological studies of in vitro raised cultures to understand their development and origin, Somatic-embryogenesis for synthetic seed production, Protoplast isolation and regeneration for single cell cloning and isolation of mutants, Selection of elite cell lines for high yield of Secondary Metabolites of industrial importance
7.	Das Chandan	IIT Kharagpur	Professor	Membrane based separation technology, Bioremediation using <i>Spirulina Platensis</i> , blue-green microalgae, Supercritical fluid extraction for the production of peonidin, peonidin 3-glucoside and cyanidin 3-glucoside from black rice and 6-gingerol, vitamin C content, essential oil content from ginger of North East India of North East India, Natural products, namely, aloe vera, polyphenol, stevia, lycopene extraction and purification
8.	Das Gopal	IIT Kanpur	Professor	Supramolecular, Bioorganic chemistry and Biomineralization.
9.	Dasu V. Venkata	IIT Madras	Professor	Bioprocess development (upstream to downstream), Metabolic Engineering, Bioenergy.
10.	Dutta M. K.	Gauhati University	Professor	Microeconomics, Agricultural Economics, Environmental Economics, Econometrics
11.	Dutta Subashisa		Professor	Satellite Remote Sensing and GIS for Water resources Management, Computational river hydraulics and its applications, Watershed and Irrigation Management
12.	Ghosh Pranab Kumar	IIT Kharagpur	Professor	Water treatment for domestic and industrial use, Domestic and Industrial wastewater treatment and Sludge treatment by physicochemical and biological process.
13.	Gokhale Sharad	IIT Delhi	Professor	Urban Vehicular Pollution, Industrial Stack Pollution, Indoor Air Pollution, Environmental Impact Assessment, Air Quality Modeling
14.	Golder K. Animes	IIT Kharagpur	Professor	Electro- and bio-remediation of heavy metals, Physicochemical water treatment techniques, Homogeneous and heterogeneous catalytic AOPs, Extraction and separation of value added chemicals from natural sources
15.	Goud Vaibhav V.	IIT Kharagpur	Professor	Heterogeneous Reactions, Bio-energy and Green Engineering, Bio lubricant, Utilization of Lignocellulosic Biomass for Fuel/Chemicals, Supercritical Fluids
16.	Goyal Arun	IIT Kanpur	Professor	Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate

				active enzymes and other industrial microbial enzymes.
17.	Jawed Mohammad	IIT Kanpur	Professor	Biological Processes, Anaerobic Wastewater Treatment, Heavy Metal Removal and Recovery, Water Treatment and Supply, Domestic & Industrial Wastewater Treatment
18.	Kalamdhad Ajay	IIT Roorkee	Professor	Solid waste management, mechanical composting and vermicomposting, analysis of solid wastes, water and waste water Treatment
19.	Kundu Lal Mohan	LMU Munich, Germany	Associate Professor	Nucleic Acid / Peptide Chemistry, DNA / RNA Damage and Repair, DNA Hybrid Materials.
20.	Mahanta Chandan	JNU, New Delhi	Professor	Water Quality, Sediment Dynamics in Fluvial Systems, Environmental Impact, Risk Assessment and Management, Environmental Geo-informatics, Engineering Geology.
21.	Majumder Subrata Kumar	IIT Kharagpur	Professor	Process Intensifications in Chemical Processes, Intensification in environmental process system, Micro-nano bubble science and technology and its applications, Microchannel-based and Jet driven gas-aided extraction, Mineral Beneficiation, Enhanced Oil Recovery by Micro-nanobubble, Multiphase Flow and Reactor Development
22.	Mandal Bishnupada	IIT Kharagpur	Professor	Separations with chemical reaction, Molecular based membrane separation, Modeling and simulation of separation processes, Environmental pollution control.
23.	Mandal Tapas Kumar	IIT Kharagpur	Professor	Multiphase flow & Measurement in multiphase flow, Bio-diesel
24.	Mohanty Kaustubha	IIT Kharagpur	Professor	Bio separation, Biofuels, Biological wastewater treatment, Membrane technology, Ionic liquids
25.	Moholkar S. Vijay	University of Twente, Netherlands	Professor	Bubble dynamics, CFD, Sono-process engineering, Bio-mass gasification
26.	Mukherjee Chandan	Max-Planck Institute for Bioinorganic Chemistry, Muelheim, Germany	Professor	Oxidation Catalysis, Molecular Magnetism, Synthesis of Single-Molecule Magnets (SMMs), MRI Contrast agents, Water Oxidation Chemistry
27.	Pakshirajan Kannan	IIT Madras	Professor	Biological removal and recovery of inorganic compounds from wastewaters; Biological treatment of industrial wastewaters; Biodegradation of xenobiotic, Biofuels and other Biotechnological Products: Production; Process design, kinetics and optimization; Environmental applications
28.	Pandey M. Lalit	IIT Delhi	Associate Professor	Surface and interfacial science particularly in the area of Bio-interfaces and

				Biomaterials ( <i>Design of Biocompatible surfaces</i> )
29.	Patra Sanjukta	Central Food Technological Research Institute, Mysore	Professor	Enzyme and microbial technology, Metagenomics, Biosensors, Environmental Biotechnology
30.	Patel K. Bhisma	IIT Kanpur	Professor	Bio-Organic Chemistry and Newer Methodologies, Green Chemistry, Heterocyclic Chemistry
31.	Pugazhenthii. G	IIT Kanpur	Professor	Membrane Separation Process, Polymer Nanocomposite, Nanomaterials, Adsorption, Wastewater Treatment
32.	Purkait M. K.	IIT Kharagpur	Professor	Membrane Technology , preparation/fabrication of ceramic/ polymeric membranes and their application in RO, NF, UF and MF), Treatment of Industrial Effluent Surfactant mediated separation, Responsive materials for environmental, biological and chemical separation
33.	Ramesh A.	CFTRI, Mysore	Professor	Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors
34.	Ray Manabendra	IIT Kanpur	Professor	Design and synthesis of coordination complexes or assemblies of complexes with chiral ligands to use as chiral host to facilitate binding and separation of chiral molecules.
35.	Saini K. Gurvinder	Andhra University, Vishakapatnam	Professor	Fungal Biotechnology
36.	Sarma Arup Kumar	Gauhati University	Professor	Modeling & simulation in Free Surface Flow, Heuristic Method in Reservoir Optimization, GIS based Watershed Modeling
37.	Sastri V. Chivukula	University of Hyderabad	Professor	Biomimetic Chemistry and Chemical Biology
38.	Senthilmurugan S	IIT Delhi	Associate Professor	Modeling & Optimization of Novel Processes, Process Design & Operation of Membrane Separation Processes, waste water treatment for Process Industries, Novel Desalination Technologies, Smart Water Grid, Waste to Energy
39.	Sivaprakasam K. Senthil	Central Leather Research Institute, Chennai, India.	Associate professor	Biocalorimetry, Bio-Process Analytical Technology (BioPAT) (synthesis of recombinant proteins and value-added bioproducts), Real-time monitoring and control of bioprocess systems (BioPAT) (Biocalorimetry, Dielectric Spectroscopy and Exhaust Gas Analyzer), Mathematical modeling of bioprocess systems, Monitoring and control of environmental bioprocess systems leading to value-added products
40.	Tamal Banerjee	IIT Kanpur	Professor	Phase equilibria of ionic liquids, Molecular simulations, Global optimization, Statistical thermodynamics.
41.	Tamuli Ranjan	Centre for Cellular and Molecular	Professor	Environmental impact on cell signaling, genetics and DNA repair

		Biology, Hyderabad, Degree awarded by JNU, New Delhi.		
42	Tiwari Pankaj	University of Utah, Salt Lake City, USA, 2012	Associate Professor	Conventional and unconventional energies, Reservoir Engineering, Complex organic solids, Biomass conversion, Pyrolysis process, Kinetic analysis.
43	Uppaluri Ramagopal VS	University of Manchester, England	Professor	Electroless Plating, Evolutionary Engineering Optimization, Low Cost Ceramic Membranes, Microfiltration, Bio-systems Engineering, Polymer-natural fiber composites.

## CENTRE FOR NANOTECHNOLOGY

### LABORATORY FACILITIES

The Centre for Nanotechnology has five new labs in new CFN building and a total of 16 numbers of laboratories in the existing facilities, out of which two have been set up in the CIF. The basic instruments/equipment facilities available in each laboratory are listed below:

Sl.No.	Name of the lab	Name of the instruments/equipment	No. of instruments
1.	<b>Electrical Characterization Lab</b>	PECVD	01
		RIE	01
		PLD	01
2.	<b>Materials Characterization Lab</b>	These labs have been set up in the New Building of Centre for Nanotechnology.	
3.	<b>Optical Characterization Lab</b>		
4.	<b>ISO-5 Cleanroom</b>		
5.	<b>ISO-6 Cleanroom</b>		
6.	<b>Material Res. Lab</b>		
		Ultra-low temperature freezer (-80 °C)	01
		UV spectrophotometer	02
		Microwave oven	01
		Agarose gel documentation system, Gel logic	01
		Regulated DC Power Supply	01
		Electromagnet	01
		Digital Gauss meter	01
		Digital Weighing balance	01
		Inverted Microscope	01
		Nanovoltmeter	01
		Source Meter	01
		Refrigerated Centrifuge	01
		Magnetic stirrer	01
7.	<b>XRD Lab</b>	Bruker D8 Advance X-Ray Diffractometer	01
		Ultrasonic Processor	01

		Ultrasonic Bath	02
		Bench Top Incubator cum orbital Shaker	01
		Magnetic stirrer with hot plate digital	04
		Digital pH Meter	01
		Refrigerated Centrifuge	01
		Electrochemical Potentiostat	01
		Analytical Balance	02
8.	<b>TEM Lab</b>	Transmission Electron Microscope (Make: JEOL)	01
9.	<b>Optoelectronic Device Fabrication Lab</b>	This lab has been set up in the CIF and it deals with the fabrication of $\pi$ -conjugated organic molecules (monomers, oligomers and polymers) for various applications like organic light emitting diodes, photovoltaic devices, thin film transistors, memory devices, biomedical devices and sensors.	
10.	<b>Nanobiotech Lab</b>	BD FACS Calibur	01
		UV-Vis Spectrophotometer	01
		Fluorescence spectrophotometer	01
		FluoroLog-3	01
		Water purification system Milli Q / Elix	01
		Dynamic Light Scattering (DLS), Malvern Zetasizer Nano	01
		Micro plate reader	01
		Real Time PCR (Applied Bio system)	01
		Vortex	01
		Deep Freeze (-20 °C)	01
		Shaking Incubator	01
		Rocker	01
		Refrigerator	01
11.	<b>Cell culture Lab</b>	CO <sub>2</sub> incubator	01
		Epi fluorescence microscope (Nikon eclipse)	01
		Water bath	01



		Digital Weighing Balance	01
		Horizontal Laminar hood	01
12.	<b>Synthesis Lab</b>	Horizontal Laminar Air Flow Work Station	01
		Hot air oven	01
		Refrigerated Bath Circulator	01
		Portable autoclave	02
		Digital Weighing Balance	03
		pH meter	03
		Microwave oven	01
		Cooling centrifuge (Sigma)	02
		Agarose gel electrophoresis set up	01
		Rotary Vacuum	01
		UV Transilluminator	01
		Magnetic stirrer	05
		Mini water bath	01
		Dessicator	03
		Spin coater	02
		Bacteriostatic incubator	01
13.	<b>Nano Fabrication Lab</b>	Laboratory developed (assembled) Chemical Vapour Deposition (CVD)	02
		Thermal Evaporation coating system	01
		Electron Beam deposition system	01
		RF Co-Sputtering deposition system	01
		Rapid Thermal Annealing system	01
		Spin coating system	01
		Bath and Tip Sonication	02
		Laboratory developed (assembled) Probe station for I-V and Photo conductivity measurements	01
		Heating woven	01
		KBR pallet maker for FTIR measurement.	01

		Gas Sensor System	01
		PVD Chamber	01
		Autoclave	01
		Dessicator	03
		Depth Coater	01
		Ball Milling System	01
14.	<b>MEMS &amp; NEMS Lab</b>	Analog Digital Scope (ADS) HM507, HAMEG Instruments, 50 MHz 100MS/s.	01
		Digital Oscilloscope (Yokogawa) DL9040 5GS/s 500 MHz.	01
		Function Generator (Agilent) 33120A 15MHz	01
		Universal Counter (Agilent) 53131A 225 MHz	01
		Multifunction Generator (Caddo) 4080 20 MHz	01
		Triple Power Supply (Scientech) ST4071 5V/30V	01
		Multiple Power Supply (Scientech) ST4077	01
		Dessicator	02
		Refrigerator	01
		Signal generator (Agilent), 3GHz N9310A	01
		Hot plate	01
15.	<b>SPM Lab</b>	Scanning Probe Microscope: Veeco (Model)	01
		Gas Chromatograph (Centurian Scientific)	01
		Ultimaker 3FDM 3D printer	01
16.	<b>Thin Film and Micro Fluidics Lab</b>	High end upright microscope	01
		Thermal stage	01
		High speed camera	01
		UV-Ozone cleaning unit	01
		Spin coater	02
		Fume chamber	01

		Clean bench	01
		Ultrasonic cleaning bath	01
		Millipore water supply unit	01
		AC/DC power supply units	03
		Electromagnet with Gaussmeter	01
		Microbalance	01
		High speed centrifuge	01
		Air furnace	01
		High resolution camera	01
		Vacuum furnace	01
		High Speed computational servers loaded with software, which includes Ansys Fluent, Mathematica and Material Studio	01
17.	<b>Lithography Fabrication Lab</b>	FESEM-Electron Beam Lithography	01
		Thermal and E-Beam Evaporator	01
		Carbon Coater	01
		Lase Micro Machining	01
		DC probe Station	01
		RF Sputtering	01
		Electro Spinning Device	01
		Mask writer	01
		Double Sided Mask Aligner	01
		Upright Optical microscope	01
		Plasma cleaner	01
		Controlled Environment Chamber	01
		RF Probe Station	01
		• RF Probe Station	01
		• Vector Network Analyzer	01
		• RF signal generator	01
		• RF frequency counter	01
		AC/DC Probe Station	01
		• DC Probe Station	01

		<ul style="list-style-type: none"> <li>• IV CV Pulse parametric Analyser</li> <li>• Impedance Analyser</li> <li>• Chemical Impedance Analyzer</li> <li>• Digital Storage Oscilloscope</li> <li>• Function Generator</li> <li>• Digital multimeter</li> <li>• DC Power supplies</li> </ul>	<p>01</p> <p>01</p> <p>01</p> <p>02</p> <p>01</p> <p>01</p> <p>01</p>
18.	<b>Micro-Nano Characterization Lab</b>	AFM-TERS	01
		Raman spectroscopy	01
		High End Confocal Microscope	01
		Material Printing System <ul style="list-style-type: none"> <li>• UV IOzone Tip cleaner</li> </ul>	01 01
		Fume Hood	01
		Glove Box <ul style="list-style-type: none"> <li>• Hot plate</li> <li>• Analytical balance</li> <li>• Spin coater</li> <li>• Mini sputter coater</li> <li>• AAA Solar Simulator (in Pamu sir's lab)</li> </ul>	01 01 01 01 01
		UV-Visible Spectrophotometer	01
19.	<b>Micro-Nanoelectronic Characterization Lab</b>	Oxidation Diffusion Furnace	01
		Wire Bonder	01
		Wet Bench	01
		DI water system	01
		Analytical Balance	01
		Ultra-filtration unit	01
		UV Ozone	01
		Hot plate	01
		Sonicator	01
		Refrigerotr	01
20.	<b>Wet Lab</b>	Rotavapor	01
		Lyophilizer	01

		Refrigerated High Speed Centrifuge	01
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## 1. MAJOR EQUIPMENT AND FACILITIES ACQUIRED

### Equipment

- PECVD
- RIE
- PLD
- Direct methanol Fuel Cell Flex-Stack. Product Code: 3101601 Flex Stack Cells
- Sanitation Terminal with Sanitizer 500 ml
- Blue Star INV AC IC318QATU
- Pulse Oximeter
- Logitech Webcam Rally Plug System, LG 55" LCD Display 55UT640S, Floor Mount Stand for 65" display Unit
- LG 65" Interactive display 65TR3BF (with OPS: Intel Core I5 processor 4GB RAM, 256GB SSD, wifi & Bluetooth), Floor Mount Stand for 65" display Unit.
- Cylinder- 47 litre Nitrogen Empty New 47 litre water capacity high pressure carbon steel seamless cylinder valve.
- Kent Prime Plus RO Pre Filter, Stapler Kangaroo HD 45
- Orion KVA (3-1) Online UPS System
- CEC Chamber and Bubbler
- DM Water Plant Capacity- 10 Litre Model No-TN10HITD

### Facilities:

- ISO 5 and 6 Clean Rooms

## MAJOR AREAS OF RESEARCH AND DEVELOPMENT

The Centre is pursuing research in the multi-disciplinary area of Nanotechnology required to meet the future challenges and to augment academic partnerships with industry. One major research project from ICMR (Rs. 20.00 Crore) entitled 'Centre for Excellence in Disruptive Innovations & Product Development for Affordable Rural Healthcare' and another major project one from DBT Bionest entitled "Healthcare Bio-entrepreneurship Ecosystem Encompassing Biomaterials, Industrial Biotechnology and Diagnostics" are sanctioned at the centre during this financial year 2020-2021. In addition, MeitY is about to sanction INUP (Indian Nanoelectronics Users Program) for next 3 years 2021-2024 wherein, IIT Guwahati has to train multiple academic institutions in Nanoelectronics utilizing the established facilities. Another major research project of Rs. 57.75 Crore sanctioned from DeitY is being implemented at the Centre with experts from multi-disciplinary areas of science and engineering for establishing a 'Centre for Excellence in Research and Development of Nanoelectronic Theranostic Devices'.

**Nano-Electronics group** focuses on Micro-Nano fabrication, Optical and Electronic Characterization of Micro-Nano Devices, development of SAW sensors, ECG amplifier and blind assisted walker.

Nanoscale science and technology group is working in the broad areas of nanoscale science and technology involving synthesis, reaction and organization of nanoscale materials and their application in problems related to Chemistry and Biology.

**Nanobiotechnology group** is pursuing interdisciplinary collaborative research at the Centre for Nanotechnology on "nanoparticles and nanocomposites". They are developing new nanoclusters for the potential applications as sensors, antimicrobial and anticancer agents and has demonstrated the signaling events in co-targeting triple negative breast cancer cells, movement of hydrogel in constricted microchannel and drug resistant behavior of EMT cells during deformation. In addition, quercetin loaded luminescent hydroxyapatite nanoparticles have been developed in cancer therapeutics. In device front, our collaborative work on development of FET-based POC devices are being persuaded.

**Nanophysics group** is working on the various aspects on the defects of carbon nanotube and their possible application as sensor, Condensed Matter Physics; High-k and low loss materials, Ferroelectrics Ceramics, Oxide thin films Nanomaterials. They have developed a device for 'Low temperate microwave sintered phase pure AlN ceramics comprising rare earth oxide additives'.

**Micro and Nano Fluidics group** have recently developed device for 'POC detection of oleophilic biomarkers in hydrophilic analytes'; 'POCT Device to Detect Cervical Cancer Specific Biomarker'; 'A Point-of-Care system to Detect Rest Tremors of Human Limb'; 'Portable Modular Colorimetric Device'

**Organometallics and Catalysis group** focuses on Organometallics, Catalysis and Organofluorine Chemistry, Heterogeneous Catalysis and reaction engineering, Biomass conversion to value added chemicals, Bio-oil up-gradation to transportation fuels, Carbon dioxide activation to valuable chemicals, Metal encapsulated zeolites. They have developed a process for 'Upgradation of ethanol or alkylation of alcohols'.

**Tissue Engineering, Biomaterials, Stem Cells and Regenerative Medicine group** have developed devices for 'Antimicrobial coatings and preparation process thereof'; 'Hemostatic silk fibroin composite powder'; 'Silk-Liver ECM composite for bioartificial liver'.

**Bio-inspired Polymer Materials, Drug Delivery, Open Microfluidics, Chemical Sensor group** have developed methods for 'A coating composition and a process of preparation thereof and 'A Method of Preparing Disposable Water Repellent Mask and a Product Thereof'.

A group of faculty members are working on **Organic light emitting diode (OLEDs), Conjugated oligomer and polymer synthesis, Organic Field Effect Transistors (OFETs), Organic Solar Cells (OSCs)**. Besides manpower training and basic research, the centre aim to develop sensors and Transfer of Technology (ToT) to the Start-Up companies. In addition, Centre is also involved in fostering growth of science and education in the north east in the field of nanotechnology by conference, workshops, symposium and seminars.

#### **MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT**

- Patent Granted
  - A device for visual detection of bilirubin.
  - Integrated MEMS-Microfluidic CO<sub>2</sub>-sequestration Device to Produce Essential Organic Products Emulating Photosynthesis.
  - A Microfluidic Electrolyzer for the Continuous Production and Separation of Hydrogen/Oxygen.
  - A Transmittance Based OptoElectroChemical Device for Detecting Biomarkers on Paper Surface Targeting Low-cost Point-of-Care Diagnostic Tools
- Design and Development of
  - COVID-19 testing kits and supplying to the Government of Assam.
  - A microfluidic device for the POC detection of oleophilic biomarkers in hydrophilic analytes.

- Low temperate microwave sintered phase pure AlN ceramics comprising rare earth oxide additives.
- Start ups
  - Establishment of "SPLID Health Care" start-up at the Research Park of IITG
- Media Highlights:
  - <https://www.outlookindia.com/newscroll/iit-guwahati-develops-efficient-catalysts-for-transforming-industrial-waste-into-valuable-chemicals/1976649>
  - <https://economictimes.indiatimes.com/news/politics-and-nation/iit-guwahati-develops-efficient-catalysts-for-transforming-industrial-waste-into-valuable-chemicals/articleshow/79244863.cms>
  - <http://bweducation.businessworld.in/article/IIT-Guwahati-Scientists-Make-Breakthrough-In-Developing-Efficient-Catalytic-Systems-For-Biofuel-And-Lactic-Acid-Production/16-11-2020-343123/>
  - <https://www.edexlive.com/campus/2020/nov/16/iit-guwahatiresearchers-developmethod-to-transform-industrial-wasteinto-valuable-chemicals-15885.html>
  - <https://news.careers360.com/iit-guwahati-develops-efficient-catalysts-for-transforming-industrial-waste-valuable-chemicals>
  - <https://nenow.in/north-east-news/assam/iit-guwahati-scientists-develop-efficient-catalytic-systems-for-biofuel-lactic-acid-production.html>
- Technology Licensed to Industry:
  - Antimicrobial formulation as hand sanitizer: Successfully licensed to Industry i.e. M/S Stanvac Med in 2020.
  - Antimicrobial formulation as disinfectant: Successfully licensed to Industry i.e. M/S Berger Paints India Ltd. in 2020.
  - Silk based gel for wound healing: Successfully licensed to Industry i.e. M/S Stanvac Med in 2020.

#### CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
1.	Dr. Akshai Kumar A S	ACS National Meeting & Exposition ACS Spring 2021	Virtual	05/04/2021 - 30/04/2021	International
2.	Dr. Akshai Kumar A S	"Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17th January, 2021	Virtual	11/01/2021 - 17/01/2021	International
3.	Dr. Akshai Kumar A S	International Webinar "Recent Trends in Chemical Science: Development and Application" organized by Department of Chemistry, Poornaprajna College and Postgraduate Centre, Udupi,	Virtual	09/09/2020	International
4.	Dr. Akshai Kumar A S	EURIDITION-2020 organized by Department of Chemistry and IQAC, Payyanur college, Payyanur, Kerala under the auspices of The Kerala State Higher Education Council	Virtual	06/05/2021	National
5.	Dr. Partho S G Pattader	Symposium on Ionic Liquid and DES, SPARC 2021	IITG	10/03/2021	International
6.	Dr. Partho S G Pattader	FMFP2020	IITG	11/12/2020	International

7.	Dr. Partho S G Pattader	DES SPARC Workshop	IITG	29/07/2020	International
8.	Dr. Uttam Manna	ACS Science Talk	Virtual lecture	10/07/2020	International
9.	Dr. Uttam Manna	International Conference on Recent Trends in Chemical Sciences (RTCS-2020)	Virtual lecture	27/12/2020	International

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Prof. Dipankar Bandyopadhyay	Innovations in Diag-Tech for Primary Care Nano-enabled Multidiagnostic 'Magic Box'	The Davos Lab Dialogue, Assam, Global Shapers Guwahati Hub Guwahati	Guwahati (Online)	March 2021
2.	Prof. Dipankar Bandyopadhyay	Microdroplets & Microchannels for Unit Operations	World Nano Congress on Advanced Science & Technology, Centre for Nanotechnology Research, , VIT, India	VIT, India (Online)	March 2021
3.	Prof. Dipankar Bandyopadhyay	Electrorheology of Micro or Nanoscale Soft-Assemblies, TEQIP Sponsored Symposium on Biomicrofluidics	IIT Guwahati	IIT Guwahati (Online)	February 2021
4.	Prof. Dipankar Bandyopadhyay	Electrorheology of Micro or Nanoscale Soft-Assemblies, STP on Applied Computational Fluid Dynamics for Engineers	-	(Online)	December 2020
5.	Prof. Dipankar Bandyopadhyay	Autopsy on the Anatomy of a Nanoparticle – nCOV	Department of Physics and IQACell, Sipajhar College, Guwahati	Sipajhar College, Guwahati	July 2020
6.	Prof. Dipankar Bandyopadhyay	Inside the Realm of Mesoscale Liquid Crystal Soft-Assemblies	ACS Science Connect: Langmuir	(Online)	October 2020
7.	Prof. Dipankar Bandyopadhyay	Micro-Droplets & Microfluidics Chemical Engineering @ Mesoscale, Advanced Research Trends in Chemical Engineering	NIT Hamirpur	NIT Hamirpur (Online)	October 2020
8.	Prof. Dipankar Bandyopadhyay	Genesis of a Dream – Health Care for a Billion, Nanostructured Materials and their Applications in Nanotechnology NAMAAN	IIT Guwahati	IIT Guwahati (Online)	October 2020
9.	Prof. Dipankar Bandyopadhyay	Genesis of a Dream: Health Care for a Billion	IIT Delhi 5th International Conference on Emerging Electronics, ICEE 2020	IIT Delhi (Online)	November 2020



10.	Prof. Siddhartha Sankar Ghosh	Developing Nanotheranostic Devices and COVID Detection Kits	Emerging Trends in Biotechnological Advancements: Challenges and Prospects in Tackling Human Diseases. NIT Warangal	NIT Warangal (An Online Faculty Development Programme)	17/07/2020
11.	Prof. Siddhartha Sankar Ghosh	Translational Research on Theranostic Devices	Recent Advances in Biomedical Engineering, IIT Roorkee	IIT Roorkee (Online)	02/12/2020
12.	Prof. Siddhartha Sankar Ghosh	Translational Research on Cancer Theranostics	On World Cancer Day-2021. IASST Guwahati	Institute of Advanced Study in Science and Technology (IASST), Guwahati	04/02/2021
13.	Prof. Siddhartha Sankar Ghosh	Biologic Microfluidic Devices in Cancer Research	TEQIP Sponsored Two-day Symposium on "Biomicrofluidics", IIT Guwahati	IIT Guwahati (Online)	20/02/2021
14.	Prof. Siddhartha Sankar Ghosh	Theranostic Applications of Nanostructured Materials	National Conference on "Chemistry of Chalcogenides" (NC3-2021), Pune	Department of Applied Chemistry, Defence Institute of Advanced Technology, Pune (Online)	24/03/2021
15.	Dr. Akshai Kumar A S	Pincer-Metal Complexes in Catalytic Conversions: Synthesis of High-Value Fuels and Specialty Chemicals	ACS National Meeting & Exposition ACS Spring 2021	Virtual	15/04/2021
16.	Dr. Akshai Kumar A S	Pincer-Metal Complexes in Catalytic Conversions: Synthesis of High-Value Fuels and Specialty Chemicals	Webinar "Know Your Members" organized by INYAS, New Delhi	Virtual	20/03/2021
17.	Dr. Akshai Kumar A S	The Fascinating Chemistry of Organometallic Complexes and Their Versatile Applications	International Webinar "Recent Trends in Chemical Science: Development and Application" organized by Department of Chemistry, Poornaprajna College and Postgraduate Centre, Udupi,	Virtual	09/09/2020

18.	Dr. Akshai Kumar A S	The Fascinating Chemistry of Organometallic Complexes and Their Versatile Applications	Webinar Series organized by Department of Chemistry St. Aloysius College, Mangalore	Virtual	08/07/2020
19.	Dr. Akshai Kumar A S	The Fascinating Chemistry of Metal Carbonyls and their Versatile Applications	EURIDITION-2020 organized by Department of Chemistry and IQAC, Payyanur college, Payyanur, Kerala under the auspices of The Kerala State Higher Education Council	Virtual	06/05/2020
20.	Prof. Biman B Mandal	Bioengineered human organs and tissues: The way forward	Society of Polymer Science India, Mumbai Chapter	Online Mode	27/3/2021
21.	Prof. Biman B Mandal	Science, Technology and Innovations for SDGs in India and Japan	Yokohama National University, Japan	Online Mode	28/12/2020
22.	Prof. Biman B Mandal	Nanostructured Materials and their Applications in Nanotechnology	IIT Guwahati	Online Mode	28/10/2020
23.	Dr. Partho S G Pattader	Fabrication of Microfluidic Device and Microextraction Using DES	IITG	IITG	10/03/2021
24.	Dr. Uttam Manna	Webinar Series, Dept of Chemistry	IIT Delhi	Delhi	13/08/2020
25.	Dr. Uttam Manna	TEQIP-III Sponsored Short-term Course, Department of Applied Sciences	Punjab Engineering College	Chandigarh	20/08/2020
26.	Dr. Uttam Manna	TEQIP-III Sponsored Short-term Course, Department of Chemistry	National Institute of Technology, Manipur	Manipur	18/10/2020
27.	Dr. Uttam Manna	Complex Fluids-2020	IIT Bombay and the Indian Society of Rheology (ISR)	IIT Bombay	12/12/2020
28.	Dr. Uttam Manna	SERB Webinar Series On COVID-19 Emerging Research	SERB, DST	Delhi	07/01/2021
29.	Dr. Uttam Manna	One Day Virtual Outreach Programme	Indian Institute of Technology Guwahati In Association with Indian International Science Festival 2020	IITG	18/12/2020

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Prof. Biman B. Mandal and Dr. Uttam Manna	6th National Workshop on "NEMS/MEMS and Theranostic Devices" NWNTD 2020 (Online Mode)	MeitY, Govt. of India	01/12/2020 - 03/12/2020	National	280+
01	Dr. Akshai Kumar (Member of the Organizing Committee)	"Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17th January, 2021	NIPER	11/01/2021 - 17/01/2021	International	>300
02	Prof. Biman B Mandal (Co-convener) jointly with IITD, IISC	30th SBAOI Annual Meeting, 12th STERMI Annual Meeting & International Virtual Conference on Biomedical Materials Innovation ICBMI-2020 (Online Mode).	SBAOI	06/12/2020 - 09/12/2020	International	400+
01	Prof. Tamal Banerjee, Dr. Partho S G Pattader	DES SPARC Workshop	SPARC	29/07/2020	International	~120

**PATENTS**

**No. of Patents Applied: 12**

**No. of Patents Granted: 05**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1.	Prof. Dipankar Bandyopadhyay, Prof. Tapas Kumar Mandal, Dr. Saptak Rarotra,	A Microfluidic Electrolyzer for the Continuous Production and Separation of Hydrogen/Oxygen	Granted on 21/01/2021	PCT/IN2017/050022, date of filing 16-01-2017, Publication number WO/2017/175237, date of publishing 12-10-2017	Granted (Grant no. 10,883,182 B2, 21 <sup>st</sup> January 2021)
2.	Prof. Dipankar Bandyopadhyay, Dr. Nilanjan Mandal, and Satarupa Dutta	A Transmittance Based OptoElectroChemical Device for Detecting Biomarkers on Paper Surface Targeting Low-cost Point-of-Care Diagnostic Tools	Granted on 26/01/2021	PCT/IN2017/050023, date of filing 16-01-2017	Granted (Grant no. 10,900,909 B2, 26 <sup>th</sup> January 2021)
3.	Prof. Arun Chattopadhyay, Prof. Anumita Paul, Dr. Srestha Basu, Dr. Amaresh Kumar Sahoo	A device for visual detection of bilirubin	Granted on 25/03/2021	International Patent (Chinese) filed with Application number: PCT application	Granted

				201680032322.1, date of filing 01/12/2017	
4.	Prof. Arun Chattopadhyay, Prof. Anumita Paul, Dr. Srestha Basu, Dr. Amaresh Kumar Sahoo	A device for visual detection of bilirubin	Granted on 01/04/2020	International Patent (European) filed with Application No: PCT/IN2016/00140, date of filing 2016-06-02	Granted
5.	Prof. Dipankar Bandyopadhyay, Prof. Tapas Kumar Mandal, Dr. Saptak Rarotra,	Integrated MEMS-Microfluidic CO <sub>2</sub> -sequestration Device to Produce Essential Organic Products Emulating Photosynthesis	Granted on 25/02/2020	TEMP/E-1/29803/2017-KOL, Patent Appl. No. 201731029391	Granted (Grant no. 332899 on 25 <sup>th</sup> Feb 2020)
6.	Mr. Sagnik Middy, Ms. Tanushree Ghoshal, Prof. Dipankar Bandyopadhyay	A microfluidic device for the POC detection of oleophilic biomarkers in hydrophilic analytes	Date of filing: 09/12/2020	PCT/IN2020/051014, date of filing 09-12-2020	Filed
7.	Mitali Basak, Shirsendu Mitra, Ankita Jain, Saurabh Kumar Agnihotri, Akanksha Vyas, Madan Lal Brahma Bhatt, Rekha Sachan, Surjendu Maity, Nayanjyoti Kakati, Monika Sachdev, Dipankar Bandyopadhyay,	POCT Device to Detect Cervical Cancer Specific Biomarker,.	Date of filing: 11/12/2020	PCT/IN2020/051023, date of filing 11-12-2020	Filed
8.	Mitali Basak, Shirsendu Mitra, Ankita Jain, Saurabh Kumar Agnihotri, Akanksha Vyas, Madan Lal Brahma Bhatt, Rekha Sachan, Surjendu Maity, Nayanjyoti Kakati, Monika Sachdev, Dipankar Bandyopadhyay	POCT Device to Detect Cervical Cancer Specific Biomarker, ,	Date of Filing 11/08/2020	TEMP/E-1/38296/2020-KOL, Patent Appl. No. 202031034400,; Publication Date: 4 <sup>th</sup> September 2020.	Filed
9.	Surjendu Maity, Uttoriyo Saha, Niti Yadav, Tanusree Ghoshal, Prathu Raja Parmar, Dipankar Bandyopadhyay	A Point-of-Care system to Detect Rest Tremors of Human Limb	Date of Filing 06/05/2020	TEMP/E-1/26035/2020-KOL, Patent Appl. No. 202031023739,; Publication Date: 4 <sup>th</sup>	Filed

				September 2020	
10.	Ankit Chowdhury, Sahil Jagnani, Sobit Newar, Pankaj Upadhyay, Dipankar Bandyopadhyay	Portable Modular Colorimetric Device, ,	Date of Filing 01/10/2020	TEMP/E-1/47459/2020-KOL, Patent Appl. No. 202031042765,; Publication Date: due.	Filed
11.	Dr. Akshai Kumar A S	A process for upgradation of ethanol or alkylation of alcohols	27/05/2020	202031022124	Filed
12.	Prof. Biman B Mandal and Bibhas K. Bhunia	Antimicrobial coatings and preparation process thereof	03/04/2020	202031014932	Filed
13.	Prof. Biman B Mandal, Saptarshi Biswas and Bibhas K. Bhunia	Hemostatic silk fibroin composite powder	28/11/2020	202031051948	Filed
14.	Prof. Biman B. Mandal and Janani G	Silk-Liver ECM composite for bioartificial liver	24/12/2020	202031056432	Filed
15.	Dr. Uttam Manna and Avijit Das, Dr. Sachin Kumar	A Method of Preparing Disposable Water Repellent Mask and a Product Thereof	03/04/2020	202031014922	Applied
16.	Dr. Uttam Manna and Velayudhan Pillai Nandakumar, Karthick Ramalingam, Manjunatha Megur Ganesh BHAT, Pramod Kumar HEGDE, Avijit Das, Arpita Shome, Manideepa Dhar	A coating composition and a process of preparation thereof	16/05/2020	202041020725	Applied
17.	Dr. D. Pamu and E Radhika	Low temperate microwave sintered phase pure AlN ceramics comprising rare earth oxide additives	Filed on 08/07/2020	Indian Patent Application No. 202031028984 dated 08.07.2020	Filed

#### AWARDS AND HONOURS

- Dr. Akshai Kumar A S found mention in "The list of Indian chemists making ACS great"
- Dr. Akshai Kumar A S has been selected as Member of Indian National Young Academy of Sciences (INAYAS), Indian National Science Academy 2021-2026
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- Prof. Biman B Mandal selected for SWARNAJAYANTI Fellowship 2020 in Life Science Department of Science and Technology (DST), Govt of India Scientific excellence. Cash award and citation.
- Prof. Biman B Mandal has received S. Ramachandran NATIONAL BIOSCIENCE AWARD for Career Development 2021
- Prof. Biman B Mandal received Department of Biotechnology (DBT), Govt of India Scientific excellence Cash award and citation.
- Dr. Uttam Manna has been invited as the Fellow of the Royal Society of Chemistry (FRSC)

- Dr. Uttam Manna received the Humboldt Research Fellowship from the The Alexander von Humboldt Foundation
- Dr. Uttam Manna has been Invited as Editorial Advisory Board Member of Materials Horizons, RSC
- Dr. Uttam Manna was Awarded the Emerging Investigator by Nanoscale
- Dr. Uttam Manna was Awarded Life Fellow of Indian Chemical Society

### STUDENTS' ACHIEVEMENTS

- Rajib Shome received the Best Poster Award from Defence Institute of Advanced Technology (DIAT), Pune
- Eileen Yasmin received Consolation Poster Award for "Tools and Techniques to Perform Molecular Modelling and Computer-Aided Drug Design", organized by NIPER Guwahati, 11th-17<sup>th</sup> January, 2021
- Ankit Chowdhury has been awarded Prime Minister's Research Fellowship from MHRD, Govt. of India
- Souradeep Dey has been awarded Prime Minister's Research Fellowship from MHRD, Govt. of India
- Arpita Shomehas received Prof. G. Gopalarao Centenary Young Scientist Award from Indian Chemical Society
- Angana Borbora has received Research Excellence Award in the physical chemistry from Indian Chemical Society
- Arpita Shome was awarded the Sir C V Raman Award of Excellence from Indian Chemical Society

### SPECIAL MENTION

- **Dr. Akshai Kumar A S** has been selected as INYAS new member for the period 2021-25 and following are his contributions
- **Prof. B. B. Mandal:**
  - Inducted as Editorial Board member of prestigious journal "Biofabrication" published by Institute of Physics (IOP) Publishing, UK with impact factor 8.2
  - Inducted as Editorial Board member of journal "In Vitro Models" published by Springer Nature, USA.
  - Inducted as Editorial Board member of journal "Frontiers in Bioengineering and Biotechnology, Biomaterials" (Associate Editor).
  - Inducted as Editorial Board member of journal "Frontiers in Materials" (Associate Editor).
  - Inducted as Editorial Board member of journal "Frontiers in Molecular Biosciences" (Associate Editor).
  - Elected "President" of STERMI (Society for Tissue Engineering and Regenerative Medicine, India) for a 03-year period.
- **Dr. Uttam Manna**  
The research work related to water harvesting and antiviral coating have been highlighted at various national platforms—including in The Shilong Times, Deccan Herald, The Hindu, Edex Live, Northeast Now, The Lallontop, Financial Express, Skilloutlook, Guwahatiplus, Delhi post, The Guwahati Times, Northeast Today, The Telegraph, India Today, The Economic Times, Timesnownews, Zee News, Economic Times, The Sentinel, NDTV Education, EastMojo, The Assam Tribune, The Hindustan Times, Outlook India, The Tribune, BWEducation, The Times of India, Maharashtra Times, Namasthe Telangana, Dainik Jagran, Assam Post, Newsfile, The Print, YourStory on December 8, 2020

**FACULTY MEMBERS**

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1.	Bandyopadhyay, Dipankar	Ph. D (IIT Kanpur)	Head, Centre for Nanotechnology Professor Department of Chemical Engineering E-mail: dipban@iitg.ernet.in Phone:+91 361.2582254	Colloid and Interfacial Phenomena, Computational Fluid Dynamics, Micro and Nano fluidics, Complex Flow and Fluids
2.	Bose, Biplab	Ph. D (AIIMS)	Associate Professor Department of Biosciences and Bioengineering E-mail: biplabbose@iitg.ernet.in Phone:+91 361 2582216	Molecular Networks, Recombinant Proteins
3.	Chattopadhyay, Arun	PhD (Columbia University)	Professor Department of Chemistry Email: arun@iitg.ernet.in Phone: +91 361 2582304	Nanoscale Science & Technology
4.	Dasmahapatra Ashok Kumar	PhD (Indian Institute of Technology Bombay)	Associate Professor Dept. of Chemical Engg & Centre for Nanotechnology E-mail: akdm@iitg.ac.in Phone: +91 361 258 2273 (O)	Complex Fluids, Phase transition in polymeric system, Self assembly in block copolymer, Structure Property relation, Biophysics, Graphene based nano materials, Solar cells.
5.	Ghosh, Siddhartha Sankar	PhD (IICB, Kolkata)	Professor Department of Biosciences and Bioengineering E-mail: sghosh@iitg.ernet.in Phone: +91 361 2583051	Gene Therapy, Nanobiotechnology
6.	Giri, Pravat Kumar	PhD (IIT Kanpur)	Professor Department of Physics Email: giri@iitg.ernet.in Phone: +91 361 2582703	Condensed Matter Physics; Semiconductor nanostructures, Ion-solid interactions, Optoelectronic materials & devices, Nanotechnology
7.	Iyer, Parameswar Krishnan	Ph.D. (CSMCRI, Bhavnagar)	Professor Department of Chemistry E-mail: pki@iitg.ernet.in Phone: +91 361 258 2314	Organic and Polymer synthesis, Bio & Chemosensors, Optoelectronic devices.
8.	Mandal, Tapas K	Ph. D (IIT Kharagpur)	Professor Department of Chemical Engineering E-mail: tapasche@iitg.ernet.in Phone: +91 361.2582271 Fax: +91 361 2582291	Multiphase flow & Measurement in multiphase flow, Bio-diesel.
9.	Mandal, Biman B	IIT Kharagpur	Professor	Regenerative Medicine, Biomaterials, Tissue Engineering, Stem Cells.
10.	Manna, Uttam	Indian Institute of Science, Bangalore	Associate Professor	Bio-inspired polymeric materials

11.	Nemade, Harshal B.	PhD (IIT Bombay)	Professor Department of Electronics and Communication Engineering E-mail: harshal@iitg.ernet.in Phone: Extn. 2204 (+91 361 2582509)	Electronic and Ultrasonic instrumentation, Electronic product design, EMI/EMC issues, Acoustic sensors, SAW devices, MEMS, NEMS
12.	Palathinkal, Roy Paily	Ph. D. (IIT Madras)	Professor Department of Electronics and Communication Engineering Email: roypaily@iitg.ernet.in Phone:+91 361 2582512	VLSI and MEMS
13.	Pattader, Partho Sarathi Gooh	PhD (Lehigh University, USA)	Assistant Professor Dept. of Chemical Engg. & Centre for Nanotechnology E-mail: psgp@iitg.ernet.in Phone: +91 361 2583531	Stochastic dynamics, Colloid and Interface science, Tribology, Soft matter
14.	Pamu, D.	Ph. D. (Univ. of Hyderabad)	Associate Professor Dept.of Physics & Centre for Nanotechnology, Email: pamu [at] iitg.ac.in Tel: 0361-2582721	Condensed Matter Physics; High-k and low loss materials, Ferroelectrics Ceramics, Oxide thin films Nanomaterials
15.	Paul, Anumita	Ph.D. (Columbia University)	Professor Department of Chemistry E-mail: anumita@iitg.ernet.in Phone: +91 361 258 2308	Surface Science, Catalysis, Thin Films.
16.	Peela, Nageswara Rao	PhD (Indian Institute of Technology, Kanpur)	Associate Professor Dept. of Chemical & Centre for Nanotechnology E-mail: peelanr@iitg.ernet.in Phone: +91 361 2583526	Heterogeneous Catalysis and reaction engineering, Biomass conversion to value added chemicals, Bio-oil up-gradation to transportation fuels, Carbon dioxide activation to valuable chemicals, Metal encapsulated zeolites
17.	S. Akshai Kumar A.	Ph.D. (IISc Bangalore)	Assistant Professor Dept. of Chemistry & Centre for Nanotechnology E-mail: akshaikumar@iitg.ernet.in Phone: +91 361 2583479	Organometallic Chemistry, Inorganic Chemistry, Organofluorine Chemistry, Catalysis (Homogeneous and Heterogeneous), C-H and C-F activation
18.	Sahoo, Lingaraj	Ph.D (MDU, Rohtak)	Professor Department of Biosciences and Bioengineering E-mail: ls@iitg.ernet.in Phone: +91 (0361) 2582204	Genetic engineering and functional genomics of plants
19.	Borse, Vivek	Ph.D. (IIT Bombay, Mumbai)	DST-Inspire Faculty Fellow Centre for Nanotechnology Phone : +919421676755 (M)E-mail : vivek.borse@iitg.ac.in	NanoDiagnostics, NanoBiotechnology, Lateral Flow Immunoassays, Point-of-care Medical Devices, Biosensors, Drug Delivery



**LABORATORY FACILITIES:**

Two common laboratories

- (i) One wet lab
- (ii) One for miscellaneous work

**MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

N- analyzer, UV Visible spectrophotometer, Deep freezer (-80 0C), HPLC, TOC Analyzer

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

- Mechanical system design for the rural sector
- Design and Development of Technology for Rural sector
- Climate Change: vulnerability and adaption
- Rural Sanitation
- Food Processing and Food product development
- Waste management
- Agro Biotechnology
- Natural Resources Management
- Rural energy
- Plant Tissue Culture & Secondary Metabolites Production

**MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT**

CRT is actively involved in the above quoted major research domains in continuity. However, the visible snapshots of the period 1 April 2020 – 31 March 2021 were involvement of RuTAG NE facilitating fabrication and dissemination of an indigenously developed pottery dying chamber to over different locations all over NER. Additionally some of the research outputs are close to product development of value added indigenous vegetables and leafy vegetables of North East India.

**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED**

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
01	Mr. Imdadul Hoque Mondal, Prof. Latha Rangan and <b>Prof. Ramagopal Uppaluri</b>	North-East Green Summit, fifth edition 2020	IIT Guwahati	16/11/2020 – 18/11/2020	National
02	Mr. Imdadul Hoque Mondal, Prof. Latha Rangan and <b>Prof. Ramagopal Uppaluri</b>	Bioengineering 2020	Online (organized by NIT Rourkela)	10 /12/2020 – 11/12/2020	National
03	Mr. Imdadul Hoque Mondal, Prof. Latha Rangan and <b>Prof. Ramagopal Uppaluri</b>	CHEMCON 2020	Online (organized by IChE)	16/11/2020 – 18/11/2020	National

04	Ms. Srimonti Dutta, Prof. Pankaj Kalita and <b>Prof. Ramagopal Uppaluri</b>	Accelerating Innovations in Material Science (AIMS - 2020)	Online (organized by BMS Institute of Technology and management)	04/08/2020 - 07/08/2020	International
04	Dr. Sudip Mitra and Sudha Sahu (2020)	Characterization of phosphate solubilizing Bacteria Isolated from Municipal solid waste dumping site soils, 2 <sup>nd</sup> Engineering Sustainable Development Conference organized by American Institute of Chemical Engineers (AIChE), 15-16 December, 2020.	Virtual, South Korea	15/12/2020 - 16/12/2020	International
05	Dr. Sudip Mitra (2020)	Invited panelist in summit 'Global Sustainability Summit–The New Normal' for the session on 'Food and Agriculture'.	Virtual, Amity University, Noida	04/06/2020	National
06	Prof. <b>Rakhi Chaturvedi</b>	<b>42<sup>nd</sup> Annual Meeting of Plant Tissue Culture Association – India (PTCA-I) &amp; International Symposium on “Advances in Plant Biotechnology and Genome Editing” (APBGE-2021)</b>	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi-834010, India,( live, virtual event)	08/04/2021 - 10/04/2021	International
07	Prof./ Dr. Rakhi Chaturvedi	<b>Society for In Vitro Biology Meeting 2021: In Vitro Online!</b>	North Carolina 27605, United States ( live, virtual event)	05/06/2021 - 09/06/2021	International
08	Rajendra Adak and <b>Rakhi Chaturvedi</b>	<b>Detection of Azadirachtin, a Bioactive Triterpenoid from Tissue Culture Derived Neem Plants (<i>Azadirachta indica</i> A. Juss.) by Ultra-High-Performance Liquid Chromatography</b>	Society for In Vitro Biology Meeting 2021: In Vitro Online!	05/06/2021 - 09/06/2021	International
09	Arabindu Debbarma and <b>Rakhi Chaturvedi</b>	<b>42<sup>nd</sup> Annual Meeting of Plant Tissue Culture Association – India (PTCA-I) &amp; International Symposium on “Advances in Plant Biotechnology and Genome Editing” (APBGE-2021)</b>	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi-834 010, India,( live, virtual event)	08/04/2021 - 10/04/2021	International
10	Rajendra Adak and <b>Rakhi Chaturvedi</b>	<b>42<sup>nd</sup> Annual Meeting of Plant Tissue Culture Association – India (PTCA-I) &amp; International Symposium on “Advances in Plant Biotechnology and</b>	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi-834 010,	08/04/2021 - 10/04/2021	International

		<b>Genome Editing” (APBGE-2021)</b>	India,( live, virtual event)		
11	Tapas Das and Rakhi Chaturvedi	<b>42<sup>nd</sup> Annual Meeting of Plant Tissue Culture Association – India (PTCA-I) &amp; International Symposium on “Advances in Plant Biotechnology and Genome Editing” (APBGE-2021)</b>	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi-834010, India,( live, virtual event)	08/04/2021 - 10/04/2021	International

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

Sl. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
01	Dr Sudip Mitra	Stop burning crop residues: utilization of agro-wastes through low cost technologies for rural India.	6th Indian International Science Festival (IISF) 2020.	live, (virtual event)	22/12/2020 - 25/12/2020
02	Dr Sudip Mitra	Agro-products and sustainability issues.	TEQIP-III Short Term Course on ‘Tools and practices for New Product Development for food and bio-Industries’	live, (virtual event)	06/11/2020 - 11/11/2020
03	Dr Sudip Mitra	Climate Change: Vulnerability, Adaptation and Disaster Risk Reduction.	Three days TEQIP-III workshop on ‘Role of S & T in Climate smart agriculture and rural development.	live, (virtual event)	07/12/2020 - 09/12/2020
04	Dr Sudip Mitra	Impact of Covid-19 on climate change and strategies for improvement	ICAR-National Institute of Abiotic Stress Management & Society for Conservation of Nature	live, (virtual event)	20/07/2020
05	Prof./ Dr. Rakhi Chaturvedi	Applications of cellular totipotency in understanding the frontiers of plant sciences and for sustainable production of bio-active metabolites.	ICAR-Indian Institute of Agricultural Biotechnology, Ranchi-834 010, India	live, (virtual event)	08/04/2021 - 10/04/2021
06	Prof./ Dr. Rakhi Chaturvedi	National Seminar on Contemporary Research in Biotechnology	North-Eastern Hill University, Shillong, Meghalaya	live, (virtual event)	25/03/2021
07	Prof./ Dr. Rakhi Chaturvedi	Webinar on Life Sciences	Gauhati University, Guwahati, Assam, India	live, (virtual event)	22/03/2021

08	Prof./ Dr. Rakhi Chaturvedi	TEQIP Lecture- Plant tissue Culture and its Applications.	IIT Guwahati, Assam, India	live, (virtual event)	22/02/2021 - 26/02/2021
09	Prof./ Dr. Rakhi Chaturvedi	Webinar on Research Methodology in Sciences- Research & Innovation Ecosystem	Panjab University, Chandigarh, India	live, (virtual event)	13/02/2021
10	Prof./ Dr. Rakhi Chaturvedi	Webinar on Plant-Environment Interactions and Sustainable Production	Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, India	live, (virtual event)	10/02/2021
11	Prof./ Dr. Rakhi Chaturvedi	Webinar on Life Sciences and Biotechnology: Recent Trends, Advances and Challenges	University of Delhi, Delhi India	live, (virtual event)	25/01/2021 - 08/02/2021
12	Prof./ Dr. Rakhi Chaturvedi	International Joint Symposium - Plant Cell and Organ Culture: Value Addition to the Bioresources of NE Region of India	Jointly by Gifu University, Gifu, Japan and IIT Guwahati, Guwahati, India	live, (virtual event)	08/12/2020 - 10/12/2020
13	Prof./ Dr. Rakhi Chaturvedi	Webinar Series -Trends in life sciences	Bangalore University, Bangalore, Karnataka, India	live, (virtual event)	27/07/2020 - 05/08/2020
14	Prof./ Dr. Rakhi Chaturvedi	National Lecture Series- Biotechnology and its Applications	CMP College, Prayagraj, Uttar Pradesh, India	live, (virtual event)	18/07/2020
15	Prof. Ramagopal Uppaluri	Pedagogy associated to Research Methodology	TEQIP III Short Term Course (STC)/FDP on Tools and Practices for New Product Development for Food and Bio-Industries	live, (virtual event)	6/11/2020 - 10/11/2020

#### VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
01	Prof./ Dr. (Name) (Surname)	xxx	xxx	D/M/Y	xxx

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

Sl. No	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
01	Dr. Sudip Mitra	Workshop on innovation and entrepreneurship development in rural technology organized by Newgen IEDC, IIT Guwahati (NSTEDB) IITG-TIC & Centre for Rural Technology, IIT Guwahati.	IEDC	19/03/2021	National	
02	Dr. Sudip Mitra	TEQIP-III workshop on 'Role of S & T in Climate Smart Agriculture and Rural Development'.	TEQIP	7/12/2020 - 9/12/2020	National	
03	Dr. Sudip Mitra	North East Green Summit (5 <sup>th</sup> Edition).IIT Guwahati		16/11/2020 - 18/11/2020	National	
04	Dr.Meena Khwairakpam	Challenges and opportunities in solid and liquid waste management	TEQIP	2/11/2020 - 6/11/2020	National	45
05	Dr. Siddhartha Singha	Tools and practices for New Product Development for food and bio-Industries	TEQIP	6/11/2020 - 11/11/2020	National	

#### AWARDS AND HONOURS

- Dr. Rakhi Chaturvedi received Prof. F.C. Steward Memorial Lecture Award from Plant Tissue Culture Association (India) for Outstanding achievements in the field of plant tissue culture and in vitro biology research

#### STUDENTS' ACHIEVEMENTS

- Ms. Kumudhini Akasapu received the Prime Minister Research Fellowship from the Ministry of Human Resource Development, Government of India
- Kamal Narayan Baruah has been selected for Joint PhD degree on 01/04/2020 from IIT Guwahati and Gifu University
- Vijaya was awarded the Samsung Fellowship from Samsung Electronics
- Sapunii Sebastian won the The Idea Exposition (Online) on "INNOVATIONS IN AGRICULTURE AND SUSTAINABILITY" organised by BIRAC Regional Innovation Centre (BRIC) in collaboration with IKP and Guwahati Biotech Park

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
01	Prof. Ramagopal Uppaluri	University of Manchester, U.K.	Professor	Food Processing, Low cost nutritionally rich food product development
02	Rakhi Chaturvedi	University of Delhi, India	Professor	Plant Tissue Culture & Secondary Metabolites Production
03	Dr Sudip Mitra	Indian Agricultural Research Institute (IARI), New Delhi	Associate Professor	<ul style="list-style-type: none"> <li>• Natural Resources Management</li> <li>• Climate Change-V&amp;A at the community level.</li> <li>• Greenhouse gases emission from Agriculture sector and its adaptation and mitigation options.</li> <li>• Soil C and N dynamics, Biochar, bio-fertilizers development</li> <li>• Soil Pollution studies and its management.</li> <li>• Community Based Disaster Management, DRR</li> </ul>
04	Dr. Meena Khwairakpam	Indian Institute of Technology Roorkee (IITR)	Assistant Professor	Rural Sanitation Biological transformation of organic waste

**LABORATORY FACILITIES:**

**No. of Laboratories with brief introduction: (Total No: 29)**

**Existing Facilities (Major Equipment):**

1. **Electron Spin Resonance (ESR) Spectrometer**, Make: JEOL, Model: JES-FA200
2. **Field Emission Scanning Electron Microscope (FESEM) with OXFORD EDS**, Make: Zeiss, Model: Sigma
3. **Laser Micro Raman System**, Make: Horiba Jobin Yvon, Model: LabRam HR
4. **High Temperature Differential Scanning Calorimetry (DSC) / Thermo Gravimetric (TG) System**, Make: Netzsch Model: STA449F3A00
5. **Transmission Electron Microscope (TEM)**, Make: JEOL, Model: JEM 2100
6. **Vibrating Sample Magnetometer (VSM)**, Make: Lakeshore, Model: 7400 series
7. **Liquid Chromatography Mass Spectrometer (LCMS/MS)**, Make: Waters, Model: Q-ToF Premier
8. **Picosecond Time-resolved and Steady State Luminescence Spectrometer**, Make: Edinburg Instruments, Model: Lifespec II & FSP 920.
9. **Desktop Helium Liquefier**, Make: Cryomech, Model: LHEP18
10. **Physical Property Measurement System (PPMS)**, Make: Quantum Design, Model: PPMS-9
11. **Nanoindenter**, Make: CETR, Model: UNMT-1
12. **Spectroscopic Ellipsometer**, Make: SEMILAB, Model: GES5E
13. **Single Crystal X-ray Diffractometer**, Make: Agilent, Model: Single source supernova E (Mo source).
14. **Surface Area and Pore Size Analyzer and High Pressure Surface Analyzer**, Make: Quantachrome Instruments, Model: Autosorb, IQ MP
15. **Impedance and Material Analyzer (IMA)**, Make: Novocontrol, Model: BDS 2300
16. **600 MHz Nuclear Magnetic Resonance (NMR) Spectrometer**, Make: Bruker, Model: AVANCE III HD
17. **250 kN Servo Hydraulic Universal Testing Machine**, Make: BISS, Model: MEDIAN 250
18. **Matrix Assisted Laser Desorption/Ionization – Time Of Flight**, Make: BRUKER Model : AUTOFLEX SPEED
19. **Field Emission Transmission Electron Microscope (FETEM)**, Make: JEOL, Model: 2100F(HR)
20. **Isothermal Titration Calorimeter**, Make: GE Health Care, Model: iTC 200 Micro-calorimeter
21. **Field Emission Scanning Electron Microscope (FESEM) with OXFORD windowless EDS**, Make: Zeiss, Model: Gemini 300
22. **Micro Particle Image Velocimetry System**, Make: Dantec Model : 9080M0571
23. **Field Emission Scanning Electron Microscope (FESEM) with Element EDS Detector**, Make: Zeiss, Model: Sigma 300
24. **Large Molecule Single Crystal X-ray Diffractometer**, Make: Rigaku Model: Micromax 007 HF R-axis IV<sup>++</sup> Oxford
25. **High Temperature Gel Permeation Chromatography (HT-GPC)**, Make: Agilent, Model: G7820A
26. **Atomic Force Microscope**, Make: Oxford Instruments, Model: Cypher S
27. **9 kW Powder X-Ray Diffractometer**, Make: Rigaku Technologies, JAPAN, Model: Smartlab
28. **5 kN Electromechanical Universal Testing Machine**, Make: ZwickRoell, Model: Z005TN Proline.
29. **Photovoltaic/ Solar Cell/ Photo-Electrochemical Analyzer/Workstation**, Make: CH Instruments Inc., USA, Model: CHI 604E + Amp i-t

## **MAJOR EQUIPMENT AND FACILITIES ACQUIRED**

### **1. Automated ultra-high vacuum (UHV) X-ray photoelectron spectroscopy**

Make: M/s Physical Electronics, USA

Model: PHI 5000 versa probe III

**PO is issued, but the item is yet to be delivered.**

### **2. Upgradation of the existing online booking system for Institute internal users**

Following are some unique features of the upgraded online booking system for CIF:-

- 1) Reporting of sample analysis details
- 2) Digital slot recommendation system over email.
- 3) Dynamic booking status over user email.
- 4) Complete carbon neutral booking system with access even from outside of campus

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

- **CIF is used by 12 of the 17 Academic/Research Departments and Centres of the Institute.**
- **The facilities of CIF are also used by external institutes and research organizations from all over India.**

## **MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT**

### **Major initiatives (Achievements/Challenges faced during COVID-19 time)**

The **Central Instruments Facility (CIF)** houses 29 sophisticated research instruments with users not only from the IIT Guwahati community, but also external universities, educational institutions, government organizations and industries from all over India. When the Covid-19 pandemic forced all on-campus activity to come to a halt last March, the CIF was faced with the challenge of quickly adapting its policies and procedures to accommodate the newly framed guidelines for safely working at a social distance, all while preventing contamination.

Throughout the pandemic, the CIF's priority has been to regularly maintain these instruments to keep them in a good running condition in the social distancing and restricted-access environment. Whenever service engineers were not available, the passionate CIF team could provide critical maintenance service of instruments under the remote supervision of the trained engineers.

All of the CIF systems are networked, enabling remote monitoring, and the systems were built in such a way that users could access their data as easily from home as they could do from their lab, enabling them to continue their work from home itself.

CIF team helped in performing experiments / analyzing samples for users, which is generally done by the student operators in normal circumstances. During phase II of the lockdown, the CIF staff could partially resume their work, but successfully complete the analysis of all the samples received from the IIT Guwahati fraternity and external users as well.

## **SPECIAL MENTION**

An amount equal to Rs. 4,19,309/- has been collected as sample charges from the analysis of external samples during the reporting year.



**FACULTY MEMBERS**

<b>Sl. No.</b>	<b>Name</b>	<b>Name of the University/Institute/Org PhD degree received from</b>	<b>Designation</b>	<b>Areas of Interest</b>
01.	Pugazhenth G.	Indian Institute of Technology Kanpur, Kanpur (Chemical Engineering, 2005)	Professor	Membrane Separation, Polymer Nanocomposites, Nanomaterials

## LAKSHMINATH BEZBAROA CENTRAL LIBRARY

Being a major service centre of the Institute, Lakshminath Bezbaroa Central Library provides library and information services to support teaching, learning, research activities by creating state-of-the-art facilities and offering innovative services. The library is a window to world of latest information in sciences, engineering, technology, humanities & social sciences with a fast growing collection of books, journals, magazines both in print and digital format. It is housed on a four-stored building having a floor area of about 7500 sq. meter and can accommodate around 464 readers at a time. In-house services of the library are fully computerized and wi-fi facility is provided within library building for connecting to internet and accessing Institute's electronic resources.

During the reported period about 63 visitors from other academic Institutions have availed reference and reading facility of the Library. Library remains open from 8.00 am to 02.00 am (next day) throughout the year and 24 hours during mid/end semester examination, to provide reading facility to Institute's academic community.

### 1. Collection Development:

- a) The library has a fast growing collection of books, journals, magazines both in print and digital format. A large number of books, database, international and national journals on various subjects have been added during Financial Year 2020-21. Total collection strength of the Library now stands as follows:

ITEMS	Collection Size (2020-21)
Printed Books and bound volume journals (including NBHM collection)	1,81,748
E- books (including NBHM collection)	2,15,466
Back file electronic journals (including NBHM collection)	2,066
Ph.D. Theses	1,580
Non-Book material (CD, DVD, etc.)	7,165
Current Print Journal Subscription	29
Total Journals (including backfiles & current journals subscribed and access provided by Consortia)	26,186

- b) The growth of the collections since 2011-12 stand as follow:

Sl. No.	F.Y. Collection	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
(i)	Printed Books & Bound Volume Journals	1,34,687	1,40,434	1,48,181	1,54,564	1,57,955	1,64,701	1,69,409	1,76,947	1,80,878	1,81,748
(ii)	E-books	26	7,931	7,931	1,45,770	1,47,463	1,53,089	1,80,559	1,88,516	2,03,640	2,15,466
(ii)	Printed Journals	578	591	151	120	90	84	68	50	29	29
(iii)	Online Journals (including journals subscribed and access provided by Consortia)	9,795	12,630	12,656	12,835	24,012	24,264	25,143*	27,492*	27,557*	26,186*

\* includes backfiles

- c) As scientific research activities are profoundly dependent on the journal publications, Library has emphasized on enhancing subscription of current journals and expanded

the collection significantly over last few years. Further, for better accessibility of contents, efforts have been made to increase online journal collection over printed journals. Presently Library is subscribing 15,295 journal titles across all academic areas of which 15,266 are online journals. In addition to that, Institute is having access to 8,825 online journals through 'e-Shodh Sindhu Consortium' and 'DeLCON: DBT- Electronic Library Consortium'.

- d) Apart from the above, Library has procured some of world's most renowned abstract/full-text database like EBSCO Discovery Service, Scopus, SciFinder Scholar, ACS Web Edition, EBSCO Business Source Complete, eHRAF Database, IEC Standards, ISO Standards, IOP Science Collection, Royal Society of Chemistry Gold Collection, etc. and some well-known national database i.e. CMIE ProweesIQ, Economic Outlook, BIS Standards, EPWRF Time Series, etc. during the reporting period.
- e) Library has also subscribed Turnitin, a Plagiarism-detection Software, during the reporting period.
- f) To make awareness about the regional culture and to generate interest about vernacular literature, Library has developed a reasonably good collection on Assamese and Hindi language and on literary works of Sahityarathi Lakshminath Bezbaroa.
- g) Library has also developed a good number of collection on Braille Books and a special literary collection on Mahatma Gandhi.

## 2. Expenditure on books and research journals:

Expenditure on books and research journal of Lakshminath Bezbaroa Central Library has also increased over last ten financial years, details of which as follows:

Financial Year	Expenditure on Books (Rs. In Lakhs)	Expenditure on Research Journals (Rs. In Lakhs)
2011-12	272.05	301.91
2012-13	108.96	369.99
2013-14	147.57	570.15
2014 -15	190.82	666.84
2015-16	124.91	685.72
2016-17	75.12	746.20
2017-18	149.99	883.89
2018-19	148.87	1,022.56
2019-20	65.58	1,088.22
2020-21	52.80	1,140.40

## 3. Services and Facilities:

- a) To facilitate the users, a digital repository of theses, submitted by Ph. D. scholars of the Institute, has been created and made accessible to the academic community via <http://gyan.iitg.ac.in>. By end of the reporting period, total 1526 full-text theses had been uploaded in the stated repository.
- b) To provide sufficient reading facility, Central Library has added 52 more seating capacity during the reporting period. With this, total seating capacity now stands 464.
- c) To extend better searching of huge electronic resources of the Library, a world-renowned Discovery Service has been made available to academic community of the Institute.
- d) Circulation system is being upgraded with RFID based technology for faster transactions.
- e) One RFID based Book Drop Kiosk and two Self- Check-Out Kiosk have been installed in the first floor of library for self issue/re-issue/return of library books beyond regular

working hours. Another RFID based 24x7 Book Drop kiosk has been installed in the basement of the Library Building for uninterrupted supports to the library users.

- f) For safekeeping of personal belongings of library users, token-based property counter has been made available throughout library operation hours.
- g) To facilitate and enable the academic community to access paid online contents from their own residences beyond Institute campus due to pandemic, Lakshminath Bezbaroa Central Library quickly arranged to provide remote access to e-resources via Shibboleth in association with INDIAN Access Management Federation (INFED) at INFLIBNET Centre, Ahmedabad.

#### **4. Infrastructure and developmental activities:**

- a) Library has taken several initiatives for the safety of the library visitors during this COVID-19 pandemic.
- b) For enabling better delivery of circulation facility, the library management software has been upgraded to web-based version. This helped to provide better browsing of library collection, instant email and SMS generation for individual library transactions.
- c) A large format display monitor has been installed for intimating the users about recent developments and facilities of library.
- d) Interior of entire Library building has been renovated with modern illumination system for creating appropriate ambiance for readers.
- e) North East Regional Centre of National Digital Library of India (NDLI) has been setup in the premise of Lakshminath Bezbaroa Central Library and providing training & support to build digital repositories to the institutes of North East India.

**LABORATORIES FACILITIES**

**State-of-the-art E-class room:** Provides all facilities to conduct online lectures and connects across the Nation. Provides facilities for IITG Faculty to conduct Lectures in other IITs & institutions from IITG campus.

**Video Studios (1, 2 & 3):** Recording of various educational content is done in these studios. These studios are equipped with devices of latest technology such as, HD cameras, interactive display, Graphics tablet, Switcher, Recorder etc.

**Editing Laboratory:** Edits all kind of educational content created at IITG, using Apple Mac Pro system.

**MOOCs Laboratory (1 & 2):** Uploads & maintains MOOCs Content on Servers for National & International web cast via NPTEL HQ at IITM.

**State-of-the-art Video Conferencing Room:** The newly constructed Video Conferencing room contains 9+1 node VC system, 5.1 Digital Dolby system & NKN backbone. It enables us to have conference with all IITs and IISc simultaneously.

**Science Laboratory** under Centre of Excellence in Science and Mathematics Education, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT)

**3D Virtual Content Creation Lab:** Conducts Research on creation of next generation 3D Virtual reality educational content using a Virtual Reality System with Headgear mount.

**Virtual Labs:** Under Virtual lab project there are total 18 nos. of Labs which are physically located in 6 departments at IITG.

- **Virtual Mass Transfer Lab:** This is a chemical engineering lab developed using Labview software. A total of 12 experiments have been developed under this lab.
- **System, Communication and Control Lab:** This lab is under electrical and electronics engineering department. Ten experiments are developed out of which 4 experiments are real time experiments. Labview software is used to develop the experiments.
- **Virtual Labs for Mechanical Vibrations:** This lab is under mechanical engineering department. Ten experiments are developed using Labview software.
- **Speech Signal Processing Lab:** This lab is under electrical and electronics engineering department. Nine experiments are developed using Scilab software.
- **Digital VLSI Design Lab:** This lab is under electrical and electronics engineering department. Seven experiments are developed using NGSpice software. Currently the lab is integrated and hosted in the cloud.
- **Signals and Systems Lab:** This lab is under electrical and electronics engineering department. Five experiments are developed using Labview software. Currently the lab is integrated and hosted in the cloud.
- **Electrical Machines Lab:** This lab is under electrical and electronics engineering department. Nine experiments are developed using adobe flash software. Currently the lab is integrated and hosted in the cloud.
- **Electronic Instrumentation Lab:** This lab is under electrical and electronics engineering department. Nine experiments are developed using Labview software. Currently the lab is integrated and hosted in the cloud.

- **Virtual Laboratory Experience in Fluid and Thermal Sciences:** This lab is under mechanical engineering department. Twelve experiments are developed using Labview software.
- **Digital North East:** This lab which is actually a repository of rare periodical archives, ethnographic reports etc is under humanities department.
- **Virtual English and Communication:** This is a laboratory under humanities department. This laboratory is about English comprehension, grammatical errors, passage making etc. Eight experiments are developed using html, adobe flash software. Currently the lab is integrated and hosted in the cloud.
- **Virtual Anthropology Lab:** This laboratory is under humanities department. A total of nine experiments are developed using adobe flash software. Currently the lab is integrated and hosted in the cloud.
- **Ergonomics Lab for accessing physical aspect of design:** This lab is under design department. Ten experiments are developed using adobe flash software. Currently the lab is integrated and hosted in the cloud.
- **Creative design, prototyping and experimental simulation in human computer interaction:** This lab is under design department. Sixteen experiments are developed using html5 and php.
- **Remote triggered fiber optic communication lab:** This is a real time lab under electrical and electronics engineering department. Six experiments are developed using Labview software.
- **Remote triggered digital system design lab:** This is a real time lab under computer science engineering department. Ten experiments are developed under this lab.
- **Virtual robotics lab:** This is a real time lab under mechanical engineering lab. Eight experiments are developed under this lab.
- **Remote triggered electromechanical conversion lab:** This is a real time lab under electrical and electronics engineering lab.

#### MAJOR EQUIPMENT AND FACILITIES ACQUIRED

Workstation Lenovo: 2 Nos.

#### MAJOR AREAS OF RESEARCH AND DEVELOPMENT/ACTIVITIES

Course Content Creation with a foreign expert under GIAN, MOOCS content creation, Pedagogy Training, Teachers training.

Generation of design education courseware, Indian Craft resources, Case studies and video lectures for e-learning. Development of basic science experiments and pedagogy modules, Development, Integration and Hosting of the virtual labs on cloud.

#### MAJOR INITIATIVES

- Total 94 nos. of video courses were completed under CSS- MOOCs
- Total 28 courses, 4 Collaborative Research Project and one international conference were conducted under TEQIP III.
- Total 4 nos. QIP-STCs were conducted under QIP program.

**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL: NIL**

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

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/National	No. of participants
1	Dr. Pankaj Kalita	Recent Trends in Developments of Thermos-Fluids and Renewable Energy	MHRD	26.11.20 to 28.11.20	International	52

II	Faculty	Course Name	Funded by	Date	National/International	No. of participants
<b>Under QIP</b>						
1	Dr. D. Pamu	Vacuum science and thin-film technology	AICTE	31 <sup>st</sup> Aug. to 5 <sup>th</sup> Sept. 2020	National	56
2	Prof. S. Natesan	Differential Equations: Solution Techniques and Applications	AICTE	7-12 Sept. 2020	National	272
3	Dr. R. Sonkar	Optoelectronics and Nanophotonics	AICTE	6-12 Nov 2020	National	35
4	Dr. R. Sonkar	Photonics and Photovoltaics: Devices, Circuits and Metrology	AICTE	11-24 Dec 2020	National	37
<b>Under TEQIP-III</b>						
1	Dr. Sajan Kapil, Basireddy Sandeep Reddy	Robotics for 3D Printing	MHRD	30.11.20 to 04.12.20	National	41
2	Dr. Chandan Das	Recent Advances in Food Engineering in North-East India	MHRD	17.12.20 to 19.12.20	National	12
3	Dr. Amaresh Dalal	Computational Fluid Dynamics for Incompressible Flow	MHRD	19.02.2021 to 20.02.2021	National	18

4	Dr. D. Pamu & Prof. A. Perumal	Nanostructured Materials and their applications in nanotechnology	MHRD	26.10.20 to 30.10.20	National	24
5	Dr. Manas Das	Micromanufacturing Processes	MHRD	30.11.2020 to 04.12.2020	National	29
6	Dr. Manas Das	Recent Advances in Geotechnical and Geoenvironmental Engineering	MHRD	17.12.2020 to 23.12.20	National	50
7	Dr. Meena Khwairakpam & Dr. Ajay Kalamdhad	Challenges and opportunities in solid and liquid waste management	MHRD	02.11.2020 to 06.11.2020	National	22
8	Dr. Manas Das	Advanced manufacturing technology	MHRD	21.12.2020 to 25.12.2020	National	30
9	Dr. Sudip Mitra	Role of Science & Technology in climate smart Agriculture and rural development	MHRD	07.12.2020 to 09.12.2020	National	12
10	Dr. Arup Nandy and Dr. Atanu Banerjee	Finite element method: Variational methods to computer applications	MHRD	02.11.2020 to 06.11.2020	National	22
11	Dr. Siddhartha Singha	Tools & practices for new product development for food and bio industries	MHRD	06.11.2020 to 10.11.2020	National	17
12	Dr. S.K.Dwivedy	Virtual Experiments in Mechanical Engineering	MHRD	02.11.2020 to 06.11.2020	National	101
13	Dr. Satyajit Panda	Structural Vibration Problems: Theoretical and Experimental Analysis Methodologies	MHRD	21.12.2020 to 23.12.2020	National	17



14	Prof. U.S.Dixit and Prof. S.K.Dwivedy	Analytical Mechanics and its Applications	MHRD	14.12.20 to 18.12.20	National	50
15	Dr. Urmi Ravindra Salve and Dr. Sougata Karmakar	Ergonomics in the Era of Industry 4.0	MHRD	22.02.2021 to 26.02.2021	National	34
16	Dr. Sambit Bhattacharya	Virtual Reality India	MHRD	01.12.20 to 10.12.20	National	33
17	Dr. Pankaj Kalita	Advanced Solar Collectors	MHRD	14.12.20 to 18.12.20	National	56
18	Dr. Ramesh Kumar Sonkar	Recent Advances in RF and Photonics	MHRD	22.02.2021 to 26.02.2021	National	43
19	Prof. Utpal Bora	Environmental Genomics and Genome Editing	MHRD	23.02.2021 to 27.02.2021	National	16
20	Prof. Niranjana Sahoo & Dr. Pankaj Kalita	Combustion, Emission and Power Technology	MHRD	22.02.2021 to 26.02.2021	National	51
21	Prof. Niranjana Sahoo & Prof. Ujjwal. K. Saha	Aerospace Technology: Theory and Practice	MHRD	17.02.2021 to 21.02.2021	National	41
22	Dr. Biranchi Panda and Prof. U.S.Dixit	Fundamentals and Applications of Engineering Dynamics.	MHRD	27-28 Feb, 2021 & 5-7 March, 2021	National	24
23	Dr. Swarup Bag	Advances in Manufacturing Science and Technology	MHRD	22.02.2021 to 26.02.2021	National	33
24	Prof. Karuna Kalita	Intellectual Property Rights for Academic and Research Institutions	MHRD	23.02.2021 to 27.02.2021	National	38

25	Dr. Nelson Muthu	Fracture Mechanics and Its Applications to Laminated Composites	MHRD	01.03.2021 to 05.03.2021	National	62
26	Dr. Vishal Trivedi	Modern Analytical Tools for Bio- medical research and teaching	MHRD	22.02.2021 to 26.02.2021	National	19
27	Dr. Rajib Kumar Bhattacharya	Classical and Metaheuristic Methods for Engineering Planning and Design	Civil Engineering	22.02.2021 to 26.02.2021	STC	55
28	Dr. Amaresh Dalal	Computational Fluid Dynamics for Incompressible Flow	Mechanical Engineering	9-13 Nov2020	STC	30
<b>Under TEQIP III CRP</b>						
Sl.No.	Faculty	Course Name	Funded by	Date	National/International	No. of participants
1	Dr. Mihir Kumar Purkait	Development of household Prototype for the treatment of arsenic contaminated drinking water	MHRD	Jan 2018 to Dec 2019	National	One -Dr. Bandana Chakraborty
2	Dr. Mihir Kumar Purkait	Development of functionalized Carbon nanomaterial composite for removal of pharmaceutical waste	MHRD	16.03.2020 to 15.03.2022	National	One -Dr. Gitanjali Majumder
3	Prof. Santosh Dwivedy	3D-Printed Microneedles for improving Antibiotic Treatment Adherence.	MHRD	2019 to 2021	National	One -Dr. Subham Banerjee
4	Prof. U.S.Dixit	Some studies on Surface Modification of Hybrid Metal Matrix Composite	MHRD	2020 to 2022	National	One -Dr. Anil Kumar Birru

Online Video courses developed Under CSS-MOOCs				
Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Date	Funded By
1	Experimental Biotechnology	Prof. Vishal Trivedi	Jul-20	MHRD
2	River Engineering	Prof. Subashisa Dutta	Jul-20	MHRD
3	Computer Graphics	Prof. Samit Bhattacharya	Jul-20	MHRD
4	Fundamentals of Compressible Flow	Prof. Niranjana Sahoo	Jul-20	MHRD
5	Municipal Solid Waste Management	Prof. Ajay Kalamdhad	Jul-20	MHRD
6	Introduction to Western Political Thought	Prof. Mithilesh Kumar Jha	Jul-20	MHRD
7	Mathematical Portfolio Theory	Prof. Siddhartha Pratim Chakrabarty	Jul-20	MHRD
8	Finite Element Method: Variational Methods to Computer Programming	Prof. Atanu Banerjee Prof. Arup Nandy	Jul-20	MHRD
9	Computational Continuum Mechanics	Prof. Sachin Singh Gautam	Jul-20	MHRD
10	Automation in Manufacturing	Prof. Shrikrishna N. Joshi	Jul-20	MHRD
11	Fundamentals of Convective Heat Transfer	Prof. Amaresh Dalal	Jul-20	MHRD
12	Solar Energy Engineering and Technology	Prof. Pankaj Kalita	Jul-20	MHRD
13	Theoretical Mechanics	Prof. Charudatt Kadolkar	Jul-20	MHRD
14	Thermal Processing of Foods	Prof. R. Anandalakshmi	Jul-20	MHRD
15	Genetic Engineering: Theory and Application	Prof. Vishal Trivedi	Jul-20	MHRD
16	Chemical Process Intensification	Prof. S. K. Majumder	Jul-20	MHRD
17	Chemical Reaction Engineering	Prof. Bishnupada Mandal	Jul-20	MHRD
18	System Design for Sustainability	Prof. Sharmistha Banerjee	Jul-20	MHRD
19	Fluidization Engineering	Prof. S. K. Majumder	Jul-20	MHRD

20	Mechanical Unit Operations	Prof. Nanda Kishore	Jul-20	MHRD
21	Principles of organic synthesis	Prof. T. Punniyamurthy	Jul-20	MHRD
22	Reagents in Organic Synthesis	Prof. Subhas Chandra Pan	Jul-20	MHRD
23	Microwave Engineering	Prof. Ratnajit Bhattacharjee	Jul-20	MHRD
24	Ecology and Society	Prof. Ngamjahao Kipgen	Jul-20	MHRD
25	Science, Technology and Society	Prof. Sambit Mallick	Jul-20	MHRD
26	Sociological Perspectives on Modernity	Prof. Sambit Mallick	Jul-20	MHRD
27	Mathematical Finance	Prof. N. Selvaraju Mathematics Prof. Siddhartha P. Chakrabarty	Jul-20	MHRD
28	Aircraft Propulsion	Prof. Vinayak N. Kulkarni	Jul-20	MHRD
29	Dynamic Behavior of Materials	Prof. Prasenjit Khanikar	Jul-20	MHRD
30	Fundamentals of Artificial Intelligence	Prof. Shyamanta M. Hazarika	Jul-20	MHRD
31	Fundamentals of Conduction and Radiation	Prof. Amaresh Dalal Prof. Dipankar N. Basu	Jul-20	MHRD
32	Mathematical Modeling of Manufacturing Processes	Prof. Swarup Bag	Jul-20	MHRD
33	Ergonomics Workplace Analysis	Prof. Urmi R Salve	Jul-20	MHRD
34	Introduction to Polymer Physics	Prof. Amit Kumar	Jul-20	MHRD
35	Natural Gas Engineering	Prof. Pankaj Tiwari	Jul-20	MHRD
36	Fluid Mechanics	Prof. Subashisa Dutta	Jul-20	MHRD
37	Remote Sensing and GIS	Prof. Rishikesh Bharti	Jul-20	MHRD
38	Consumer Psychology	Prof. Naveen Kashyap	Jul-20	MHRD
39	Development Research Methods	Prof. Rajshree Bedamatta	Jul-20	MHRD

40	The Psychology of Language	Prof. Naveen Kashyap	Jul-20	MHRD
41	Advanced Machining Processes	Prof. Manas Das	Jul-20	MHRD
42	Advances in Welding and Joining Technologies	Prof. Swarup Bag	Jul-20	MHRD
43	Principle of Hydraulic Machines and System Design	Prof. Pranab K. Mondal	Jul-20	MHRD
44	Steam Power Engineering	Prof. Vinayak N. Kulkarni	Jul-20	MHRD
45	Numerical Methods and Simulation Techniques for Scientists and Engineers	Prof. Saurabh Basu	Jul-20	MHRD
46	Nuclear and Particle Physics	Prof. Poullose Poullose	Jul-20	MHRD
47	A brief course on Superconductivity	Prof. Saurabh Basu	Jan-21	MHRD
48	Advanced Computer Architecture	Prof. John Jose	Jan-21	MHRD
49	Advanced Condensed Matter Physics	Prof. Saurabh Basu	Jan-21	MHRD
50	Advanced Soil Mechanics	Prof. Sreedeeep S.	Jan-21	MHRD
51	Advanced Thermodynamics	Prof. Nanda Kishore	Jan-21	MHRD
52	An Introduction to Cardiovascular Fluid Mechanics	Prof. Raghvendra Gupta	Jan-21	MHRD
53	Basic Principles and Calculations in Chemical Engineering	Prof. Subrata Kumar Majumder	Jan-21	MHRD
54	Biointerface Engineering	Dr. Lalit M. Pandey	Jan-21	MHRD
55	Biomass Conversion and Biorefinery	Prof. Kaustubha Mohanty	Jan-21	MHRD
56	Computational Fluid Dynamics for Incompressible Flows	Prof. Amaresh Dalal	Jan-21	MHRD
57	Computer Aided Applied Single Objective Optimization	Prof. Prakash Kotecha	Jan-21	MHRD
58	Computer Organization and Architecture: A Pedagogical Aspect	Prof. Santhosh biswas Prof. Jatindra kumar deka Prof. Arnab sarkar	Jan-21	MHRD
59	Computer Vision and Image Processing – Fundamentals and Applications	Prof. M.K. Bhuyan	Jan-21	MHRD

60	Construction methods and equipment management	Prof. Indu Siva Ranjani Gandhi	Jan-21	MHRD
61	Economic Growth and Development	Prof. Rajshree Bedamatta	Jan-21	MHRD
62	Essentials of Biomolecules : Nucleic Acids and Peptides	Prof. Lal Mohan Kundu	Jan-21	MHRD
63	Evolutionary Computation for Single and Multi-Objective Optimization	Dr. Deepak Sharma	Jan-21	MHRD
64	Experimental Methods in Fluid Mechanics	Prof. Pranab K. Mondal	Jan-21	MHRD
65	Finite element modeling of welding processes	Prof. Swarup Bag	Jan-21	MHRD
66	Fluid Flow Operations	Prof. Subrata Kumar Majumder	Jan-21	MHRD
67	Fundamental of Fluid Mechanics for Chemical and Biomedical Engineers	Dr Raghvendra Gupta	Jan-21	MHRD
68	Fundamental of Welding Science and Technology	Prof. Pankaj Biswas	Jan-21	MHRD
69	Fundamentals of Nuclear Power Generation	Prof. Dipankar N. Basu	Jan-21	MHRD
70	Human Behaviour	Prof. Naveen Kashyap	Jan-21	MHRD
71	IC Engines and Gas Turbines	Prof. Pranab K. Mondal Prof. Vinayak N. Kulkarni	Jan-21	MHRD
72	Indian Business History	Prof. Vipul Dutta	Jan-21	MHRD
73	Introduction to Abrasive Machining and Finishing Processes	Prof. Mamilla Ravi Sankar	Jan-21	MHRD
74	Introduction to Cognitive Psychology	Prof. Naveen Kashyap	Jan-21	MHRD
75	Introduction to Machining and Machining Fluids	Prof. Mamilla Ravi Sankar	Jan-21	MHRD
76	Introduction to Modern Indian Drama	Prof. Kiran Keshavamurthy	Jan-21	MHRD
77	Introduction to Modern Indian Political Thought	Prof. Mithilesh Kumar Jha	Jan-21	MHRD
78	Introduction to Political Theory	Prof. Mithilesh Kumar Jha	Jan-21	MHRD
79	Mass Transfer Operations -I	Prof. Bishnupada Mandal	Jan-21	MHRD

80	Mechanics of Machining	Prof. Uday S. Dixit	Jan-21	MHRD
81	Membrane Technology	Prof. Kaustubha Mohanty	Jan-21	MHRD
82	Microprocessors and Interfacing	Prof. Shaik Rafi Ahamed	Jan-21	MHRD
83	Multiphase Flows	Prof. Rajesh Kumar Upadhyay	Jan-21	MHRD
84	Nonlinear Vibration	Prof. S. K. Dwivedy	Jan-21	MHRD
85	Philosophical Foundations of Social Research	Prof. Sambit Mallick	Jan-21	MHRD
86	Phonetics and Phonology: A broad overview	Prof Shakuntala Mahanta	Jan-21	MHRD
87	Principles of Mechanical Measurement	Prof. Dipankar N. Basu	Jan-21	MHRD
88	Product Design and Innovation	Prof. Supradip Das Prof. Swati Pal Prof. Debayan Dhar	Jan-21	MHRD
89	Psychology of Stress, Health and Well-being	Dr. Dilwar Hussain	Jan-21	MHRD
90	Renewable Energy Engineering: Solar, Wind and Biomass Energy Systems	Dr. R. Anandalakshmi Prof. Vaibhav Vasant Goud	Jan-21	MHRD
91	Statistical Signal Processing	Prof. Prabin Kumar Bora	Jan-21	MHRD
92	Theory of Composite Shells	Dr. Poonam Kumari	Jan-21	MHRD
93	User-centric Computing for Human-Computer Interaction	Prof. Samit Bhattacharya	Jan-21	MHRD
94	Viscous Fluid Flow	Prof. Amaresh Dalal	Jan-21	MHRD

## FACULTY MEMBERS

Sl. No.	Name	Name of the University/Institute/Org PhD degree received from	Designation	Areas of Interest
1	Prof. Hemant B. Kaushik	IIT Kanpur	HoC, CET	Structural Engineering, Earthquake Engineering; Earthquake Resistant Design; Nonlinear Behaviour of Structures; Retrofitting of Structures; Finite Element Modeling
2	Prof. Sunil Khijwania	IIT Delhi	PI- PMMMMNMTT Project	Fiber & Integrated Optics, Optical Fiber Sensor, Photonic Crystal Fiber and Applications, Surface Plasmon Resonance based Sensors, Fiber Bragg Gratings/Long Period Gratings and based Devices, Nano/Bio-Photonics, Propagation Characteristics of Specialty Optical Fiber
3	Prof. Ratnajit Bhattacharjee	Jadavpur University	PI –Virtual Lab Project & E&ICT Academy Project	Microwave Engineering, Micro strip Antennas, Electromagnetics, Wireless Communication
4	Dr. Gaurav Trivedi	IIT Bombay	Co- PI, E&ICT Academy Project	VLSI CAD, High Performance Computing, High Power Devices, IOT & Embedded Systems, Renewable Energy, Quantum Computing
5	Dr. Santosh Biswas	IIT Kharagpur	Co- PI, Virtual Lab Project	Networking, Fault Tolerance, VLSI Testing, Embedded Systems



## **PART III**

### **RESEARCH PUBLICATION**

Research Publication

Book

Book Chapter

### **DETAILS OF RESEARCH AND DEVELOPMENT**



## Link to Research Publication, Book, Book Chapter

<https://www.scopus.com/results/results.uri?sort=plf-f&src=s&nlo=&nlr=&nls=&sid=ea413e3941a870b3855d30846fc4ebfd&sot=aff&sdt=c&cluster=scopubyr%2c%222020%22%2ct&sl=15&s=AF-ID%2860010126%29&origin=resultslist&zone=leftSideBar&editSaveSearch=&txGid=d901a5076a514bdbf78050157002caf0>



## DETAILS OF RESEARCH AND DEVELOPMENT PROJECTS

### New Sponsored Projects

Sl.No	Principal Investigator	Name Of The Project	Funding Agency	Sanctioned Amount (In Lakh)	Co-Investigator	Duration
1.	Shrikrishna Nandkishor Joshi	Design And Development Of A Simple Cost-Effective Table-Top Multi-Axis CNC Machine Tool Configuration Using Parallel Kinematics	SERB	3534764	1. Santosha Kumar Dwivedy	36
2.	Sukumar Nandi	Quality Of Living: Smart Home Environment Creation Through Automatic Monitoring And Utilization Of The Physical And Cognitive State Of The Residents	DEITY	11030000	1. Samit Bhattacharya 2. S Ranbir Singh 3. Rohit Sinha	36
3.	Chandan Mahanta	Study Of Glacial Dynamics And Sustainable Hydrological Resources In Arunachal Himalaya	DST	26923690	NA	36
4.	Chandan Karfa	Security Analysis Of Compiler Optimization Techniques	SERB	2211264	NA	36
5.	Biman Behari Mandal	Injectable Bioresorbable Silk Hydrogel System For Localized Breast Cancer Therapy And Post-Lumpectomy Reconstruction.	SERB	4691240	1. Manish Kumar	36
6.	Vimal Katiyar	This Project Is To Develop Reusable And Compostable CNC Formulated Nano-Coating Based Anti-Viral Mask And Coverall Suites For COVID 19 Patients And Healthcare Workers.	DST	1752984	1. Sachin Kumar 2. Sajan Kapil 3. Sheetal Madhav Gokhale 4. Supradip Das 5. Pankaj Upadhyay	12
7.	Uttam Manna	Extremely Water Repellent Coating For Anti-Viral Application	SERB	1705000	1. Sachin Kumar	12
8.	Shyamanta Moni Hazarika	Electroencephalographic Characterization Of Post-Stroke Motor Imagery Induced Mental Fatigue For Adaptive Neurorehabilitation	DST	4774600	1. Souptick Chanda	36
9.	Kanhaiya Pandey	Towards Scalable Quantum Computer Using Yb Atoms In An Optical Lattice	DST	29082000	1. Tapan Mishra	36
10	Siddhartha Pratim Chakrabarty	Mathematical And Statistical Modeling Of COVID-19 Outbreak In India	SERB	550000	NA	12

11	Ramesh Kumar Sonkar	Design, Analysis, Modeling, And Fabrication Of The Silicon Photonic Devices	DST	2386000	1. Dr. Donguk Nam 2. Dr. Fairuz Bin Abdullah	24
12	Sanjukta Patra	Strategic Planning For Water Resources And Implementation Of Novel Biotechnical Treatment Solutions And Good Practice	DBT	14694560	1. Anil Mukund Limaye	36
13	Chandan Mahanta	Study Of Glacial Dynamics And Sustainable Hydrological Resources In Arunachal Himalaya	DST	26923690	NIL	36
14	Sawmya Ray	Women's Lives Within Legal Pluralism: A Study In Assam	ICSSR	800000	NIL	24
15	Subashisa Dutta	Cumulative Impact Assessment For Cascading Interventions In Himalayan Rivers (Ci2hr)	Ministry Of Environment, Forest And Climate Change, GOI	24501040	1. Rishikesh Bharti 2. Santosha Kumar Dwivedy	36
16	Senthilmurugan Subbiah	Development And Demonstration Of Water Generating Unit From Atmospheric Air	Indian Army	240000	1. P. Muthukumar	6
17	Manish Kumar	Repurposing Endogenous CRISPR-Cas Type-I Machinery For Efficient Markerless Genome Editing Tool In Leptospira Interrogans	DBT	2375000	1. Shankar Prasad Kanaujia	18
18	Parameswar K Iyer	Design And Synthesis Of New Light Harvesting Chromophores And Studying Their Photophysical Properties	SERB	3036000	NA	36
19	Mihir Kumar Purkait	Prototype Development For Catechins Extraction And Production Of Low Cost Antioxidants Tablets And Capsules	INAE	5700000	NA	36
20	Selvaraju Narayanasamy	Development Of An Integrated Water Treatment And Fuel Production System Using Ceramic Membranes And Microchannel Reactors.	DST	6891752	1. Senthilmurugan Subbiah	36

21	Gaurav Trivedi	Smart Contactless Technology Development For Smart Fencing	DST-DAAD	3241141	1. Hanumant Singh Shekhawat 2. Prithwijiit Guha 3. Rohit Sinha 4. Ratnajit Bhattacharjee 5. Harshal Bhalchandra Nemade 6. Srinivasan Krishnaswamy 7. Anand Bulusu 8. Sanjeev Manhas	36
22	Bhisma Kumar Patel	Functionalization Of Sulfoximines And Related Compounds Based On Nitrogen-Centred Radical Chemistry.	SERB	1830000	1. Dr. Kamal Krishna Rajbongshi	36
23	Arun Goyal	Lignocellulosic Biomass Utilization For Lactic Acid And Bioethanol Production	DBT	3710240	1. Vijayanand S. Moholkar	36
24	Selvaraju Narayanasamy	Water Filtration, Advanced-Oxidation And Capacitive-Deionisation Treatments For Removal Of Emerging Contaminants In Water. Acronym: (Water-Facts)	DST	4304164	1. Senthilmurugan Subbiah	24
25	Mohammad Qureshi	Combinatorial Approach For Enhancing Surface Oxidation And Reduction Kinetics For Value Added Products From Renewable Sources	DST	3637788	NA	36
26	Praveen Kumar	Intelligent Disturbance Observer Based Adaptive Control Of DC-DC Power Converter For Nonlinear Loads	DST	3204000	1. Tousif Khan N	36
27	Debapratim Das	Localized Therapeutic Delivery Systems Based On Water Insoluble Thixotropic Hydrogels Of Small Peptides For Breast Cancer Treatment	SERB	5236000	NA	36
28	Mihir Kumar Purkait	Preparation Of DPR For The Treatment Of Polluted Kamalpur Beel Under Kamrup Zilla Parishad	Govt Of Assam	441320	NA	4
29	Pranab Kumar Mondal	CRISPER Based Diagnosis Of Covid-19 Using Paper Microfluidics	DBT	1493000	NA	12
30	Biman Behari Mandal	Modeling Human Liver Microarchitecture And Cellular Physiology In Vitro Using 3D Bioprinting For Drug Toxicity And High	DST	30635040	NA	60

		Throughput Drug Screening Applications				
31	Biman Behari Mandal	Swarnajayanti Fellowship Grant	SERB	2500000	NA	60
32	Sudarshan Mukherjee	Timing Synchronization In Cell-Free Massive MIMO Systems	SERB	1279344	NA	24
33	Anil Mukund Limaye	The Non-Canonical Estrogen Receptor Repertoire In Breast Cancer: Towards Refined Disease Classification And Therapeutic Decision	ICMR	2460966	1. Bithiah Grace Jaganathan	36
34	Pranab Kumar Mondal	Variational Calculus Method For Solving Microflows In A Rotating Platform	DST	660000	1. Pranab Kumar Mondal	36
35	Manish Kumar	Role Of Trigger Factor In Caseinolytic Protease System Of Leptospira	DST	5624605	1. Shankar Prasad Kanaujia	36
36	Vijayanand S. Moholkar	Biocatalytic Desulphurization Of Crude Oil By High Performing Genetically Engineered Microorganisms	CSIR	1800000	1. Lepakshi Barbora	36
37	Santabrata Das	Study Of Ejection Mechanism From Magnetized Accretion Disk Around Rotating Black Holes	SERB	660000	NA	36
38	Subhamay Saha	Stochastic Games For Continuous-Time Stochastic Processes	SERB	660000	NA	36
39	Biplab Mondal	Synthesis Of Cobalt - Nitrosyl Complexes Having {Co(NO)} <sub>9</sub> Configuration As A Source Of Nitroxyl/HNO	SERB	4356000	NA	36
40	Gagan Kumar	Dynamically Tunable Resonances In Terahertz Metamaterials Using 2-D Materials.	SERB	7436000	1. Uday Narayan Maiti	36
41	Satyajit Panda	Development Of A Reduced-Basis Numerical Continuation Method	SERB	660000	NA	36
42	Kalyan Raidongia	Fabrication Of Electrical Actuators With Special Wettability Surfaces For Efficient Handling Of Micro/Nano Droplets	SERB	2772000	NA	36
43	Bibhas Ranjan Majhi	Connecting Navier-Stokes Equation With Dynamical Equations In Gravity: A New Perspective	SERB	2126894	1. Sayan Kumar Chakrabarti	36
44	Debaprasad Maity	Reheating The Universe:Decoding The Observational Signatures	SERB	1017491	1. L. Sriramkumar	36



45	Roy Paily Palathinkal	Powering The Ultra-Low-Power Wireless System/lot Node By Scavenging Multi-Band Radio Frequency (RF) Energy	SERB	1937760	NA	36
46	Vibin Ramakrishnan	Study On The Bioactive Compounds Of Five Ethno-Medicinal Plants Of Assam	SERB	335000	1. Siva Chetri	36
47	Santabrata Das	Probing The Effect Of Strong Gravity Around The Black Hole X-Ray Binaries Through Astrosat Observations	ISRO	1808480	1. Dr. Anuj Nandi	24
48	Atul Kumar Soti	Development Of An Ultra-Low Head Flow-Induced Vibration Turbine	SERB	2871000	NA	24
49	Tharmalingam Punniyamurthy	Tandem Ring-Opening Cyclization/Cycloaddition Of Small Ring Heterocycles  With Nucleophiles For The Assembly Of Medicinally Important Heterocycles	SERB	335000	NA	36
50	Poulose Poulose	Teachers Associateship Forresearch Excellence (TARE)	SERB	1005000	NA	36
51	Siddhartha Singha	Technology Development & Innovation Engineering For Value Chain Development For Citrus Fruits Of North East Region	DBT	4250240	1. Him Jyoti Dutta	36
52	Gagan Kumar	Metamaterials Based Compact Broadband Tunable Modulator For Terahertz Photonics	DEITY	7339640	NA	36
53	Deepak Sharma	An Advanced Predictive Maintenance Tool For Equipment And Machines Using Industry 4.0 Concepts	SERB	2739264	1. Ashish Anand	36
54	Mihir Kumar Purkait	Development Of Solar Power Driven Water Treatment Plant	OTHER	3916800	1. Er. Amalendu Bikash Paul	12
55	Anupam Saikia	A Study Of Selmer Groups Of Elliptic Curves And Their Applications	SERB	660000	NA	36
56	Lingaraj Sahoo	Development Of Diagnostic Kits For Quick Detection Of CTV, HLB And Phytophthora Rot Diseases In Citrus Of North East India	DBT	6135440	NA	36
57	Ratnajit Bhattacharjee	Development Of Signal And Channel Models, Circuits, And Antennas For Next Generation Wireless Systems With	Miety	47496000	1. Rohit Sinha 2. Nagarjuna Nallam 3. Kalpana Dhaka 4. Ribhu 5. Salil Kashyap	36

		Emphasis On Vehicular Communication			6. Moumita Patra 7. Mahima Arrawatia 8. Sudarshan Mukherjee	
58	Vimal Katiyar	Use Of Non-Toxic Nanoformulations For Prolonging Shelf Life And Reduction Of Post-Harvest Loss Of Khasi Mandarin Orange (Citrus Reticulata) Of North East India	DBT	9023200	NIL	36
59	Kusum Kumari Singh	Understanding The Regulations Of RNPS1 By Mirnas And RNA-Binding Proteins Under ER Stress	DBT	4866956	1. Anil Mukund Limaye	36
60	Sajan Kapil	Design And Development Of A Bulk Material Handling Device For Metering, Mixing, And Delivery Of Powder Feedstock	DST	5275240	1. Manas Das	36
61	Poulose Poulose	Exploring Beyond The Standard Model Physics: Multi-Scalar And Darkmatter Studies	Shastri Indo-Canadian Institute	57250	NA	12
62	Biranchi Narayan Panda	Design And Development Of An Intelligent Extrusion Device For 3D Printing Of Concrete Structures	DST	4344222	1. Uday Shanker Dixit 2. Arun Chandra Borsaikia	36
63	Sandip Paul	Theoretical Insight Into The Structure And Functioning Of Defensin Family Of Proteins: An All-Atom Molecular Dynamics Simulation Study	DBT	2650000	1. Lal Mohan Kundu	36
64	Sachin Kumar	Understanding The Cross Talk Between The Host And The Pathogen: A Way To Identify The Novel Biomarker For The Diagnosis Of Japanese Encephalitis Virus Infection	ICMR	7200000	1. Pranab Kumar Mondal	36
65	Rishikesh Dilip Kulkarni	Development Of Configurable Digital Holographic Microscope For Microfluidics Applications	SERB	5270034	NA	36
66	Hemant B. Kaushik	Evaluation Of Column-To-Beam Flexural Capacity Ratio For Strong-Column Weak-Beam Design In RC Buildings	SERB	4048264	1. Sandip Sarkar	36
67	Arnab Kr. De	Vortex-Induced Vibrations Of A Rotating Sphere Close To A Solid Wall	DST	1350000		24

68	HOD, Design	M.Des Programme/Executive Development Programme in Electronics Product Design	MEITY	180211000	NA	60
69	Arunasis Chakraborty	Combined Synchrosqueezing and HMC based Bayesian Updating for Condition Assessment of Reinforced Concrete Road Bridge	SERB	3201520	1. Sandip Das	36
70	P. Muthukumar	Design and Development of Biogas Driven Hybrid Solar Dryer for North-Eastern Climate Condition	DBT	3541000	1. Dr G Srinivasan	36
71	Anil Mukund Limaye	Investigations into estrogen receptor modulatory activities of Karanjin, a furanoflavonol from Pongamia pinnata	DST	2709344	1. Latha Rangan	24
72	Tapan Krishnakumar Mankodi	Development of hybrid CPU/GPU direct simulation Monte Carlo with dynamic load balancing schemes for hypersonic flow applications	DST	1280000	NA	24
73	Debabrata Sikdar	iDT-NaPaMeGs: Inverse design tool for nanoparticle meta-grid based photonic devices using computational electromagnetics and deep learning	DST	1950040	1. Prithwijit Guha	24
74	Sachin Kumar	Modelling of indigenous diagnostics and immunopotent vaccine candidates to combat African swine fever in India	DBT	8253040	1. Shirisha Nagotu	24
75	Ramesh Kumar Sonkar	Fabrication and demonstration of a state-of-the-art C-band optical modulator in silicon photonics platform for 400G networks	SERB	3927264	1. Arun Tej Mallajosyula	36
76	Arijit Sur	Design of a framework to resist image-based adversarial attacks on deep learning models	DST	2928821	1. Arijit Sur	36
77	Atanu Banerjee	Design and Development of Smart Morphing Wing based on Shape Memory Alloy Actuators	SERB	4092264	1. Vinayak Narayan Kulkarni	36
78	Mahuya De	Development of low cost transition metal based catalysts for electro-oxidation of poly-alcohols for application in Fuel Cells	DST	5538764	1. Lepakshi Barbora	36

79	Rishikesh Bharti	ROAD SURFACE QUALITY ASSESSMENT OF SELECTED BORDER ROADS SECTIONS OF INDIA THROUGH ADVANCED REMOTE SENSING TECHNIQUE	DTRL	5902028	1. Rajan Choudhary 2. Akhilesh Kumar Maurya	36
80	Siddhartha Sankar Ghosh	Development of nano-ensemble kit for the detection of clinically Relevant serum biomarkers.	DBT	8663280	1. Aiyagari Ramesh	36
81	Pranab Goswami	Development of a Low Cost and Field Deployable Sensor for Detection of Formaldehyde Both in Liquid and Gaseous Forms	DBT	9479720	1. Biplab Bose	36
82	Pranab Goswami	Development of Low Cost and Portable Field Deployable Methanol and Malaria Sensing Kits	DBT	10074000	1. Lingaraj Sahoo	36
83	Gaurav Trivedi	AI enabled advanced aquaponics ecosystem for the self-reliance of SC community in central and lower Assam	DST	26847040	1. Hanumant Singh Shekhawat 2. Prithwijiit Guha 3. Aryabartta Sahu 4. Pratima Agarwal 5. Srinivasan Krishnaswamy	36
84	Poonam Kumari	Development and testing of a wearable device for the early detection of a cartilage damage in a knee stepping towards an osteoarthritis condition using acoustic emission	DST-DAAD	2976738	1. Subramani Kanagaraj 2. Dr. Parag A Deshmukh 3. Dr. Ravikant Narain	24

## Ongoing Sponsored Projects

Sl.No	Principal Investigator	Name Of The Project	Funding Agency	Sanctioned Amount (In Lakh)	Co-Investigator	Duration
1.	Shrikrishna Nandkishor Joshi	Design And Development Of A Simple Cost-Effective Table-Top Multi-Axis CNC Machine Tool Configuration Using Parallel Kinematics	SERB	3534764	1. Santosha Kumar Dwivedy	36
2.	Sukumar Nandi	Quality Of Living: Smart Home Environment Creation Through Automatic Monitoring And Utilization Of The Physical And Cognitive State Of The Residents	DEITY	11030000	1. Samit Bhattacharya 2. S Ranbir Singh 3. Rohit Sinha	36
3.	Chandan Mahanta	Study Of Glacial Dynamics And Sustainable Hydrological Resources In Arunachal Himalaya	DST	26923690	NA	36
4.	Chandan Karfa	Security Analysis Of Compiler Optimization Techniques	SERB	2211264	NA	36
5.	Biman Behari Mandal	Injectable Bioresorbable Silk Hydrogel System For Localized Breast Cancer Therapy And Post-Lumpectomy Reconstruction.	SERB	4691240	1. Manish Kumar	36
6.	Vimal Katiyar	This Project Is To Develop Reusable And Compostable CNC Formulated Nano-Coating Based Anti-Viral Mask And Coverall Suites For COVID 19 Patients And Healthcare Workers.	DST	1752984	1. Sachin Kumar 2. Sajan Kapil 3. Sheetal Madhav Gokhale 4. Supradip Das 5. Pankaj Upadhyay	12
7.	Uttam Manna	Extremely Water Repellent Coating For Anti-Viral Application	SERB	1705000	1. Sachin Kumar	12
8.	Shyamanta Moni Hazarika	Electroencephalographic Characterization Of Post-Stroke Motor Imagery Induced Mental Fatigue For Adaptive Neurorehabilitation	DST	4774600	1. Souptick Chanda	36
9.	Kanhaiya Pandey	Towards Scalable Quantum Computer Using Yb Atoms In An Optical Lattice	DST	29082000	1. Tapan Mishra	36
10.	Siddhartha Pratim Chakrabarty	Mathematical And Statistical Modeling Of COVID-19 Outbreak In India	SERB	550000	NA	12
11.	Ramesh Kumar Sonkar	Design, Analysis, Modeling, And Fabrication Of The Silicon Photonic Devices	DST	2386000	1. Dr. Donguk Nam 2. Dr. Fairuz Bin Abdullah	24
12.	Sanjukta Patra	Strategic Planning For Water Resources And Implementation Of Novel Biotechnical Treatment Solutions And Good Practice	DBT	14694560	1. Anil Mukund Limaye	36
13.	Chandan Mahanta	Study Of Glacial Dynamics And Sustainable Hydrological	DST	26923690	NIL	36

		Resources In Arunachal Himalaya				
14.	Sawmya Ray	Women's Lives Within Legal Pluralism: A Study In Assam	ICSSR	800000	NIL	24
15.	Subashisa Dutta	Cumulative Impact Assessment For Cascading Interventions In Himalayan Rivers (Ci2hr)	Ministry Of Environment, Forest And Climate Change, GOI	24501040	1. Rishikesh Bharti 2. Santosha Kumar Dwivedy	36
16.	Senthilmurugan Subbiah	Development And Demonstration Of Water Generating Unit From Atmospheric Air	Indian Army	240000	1. P. Muthukumar	6
17.	Manish Kumar	Repurposing Endogenous CRISPR-Cas Type-I Machinery For Efficient Markerless Genome Editing Tool In Leptospira Interrogans	DBT	2375000	1. Shankar Prasad Kanaujia	18
18.	Parameswar K Iyer	Design And Synthesis Of New Light Harvesting Chromophores And Studying Their Photophysical Properties	SERB	3036000	NA	36
19.	Mihir Kumar Purkait	Prototype Development For Catechins Extraction And Production Of Low Cost Antioxidants Tablets And Capsules	INAE	5700000	NA	36
20.	Selvaraju Narayanasamy	Development Of An Integrated Water Treatment And Fuel Production System Using Ceramic Membranes And Microchannel Reactors.	DST	6891752	1. Senthilmurugan Subbiah	36
21.	Gaurav Trivedi	Smart Contactless Technology Development For Smart Fencing	DST-DAAD	3241141	1. Hanumant Singh Shekhawat 2. Prithwijiit Guha 3. Rohit Sinha 4. Ratnajit Bhattacharjee 5. Harshal Bhalchandra Nemade 6. Srinivasan Krishnaswamy 7. Anand Bulusu 8. Sanjeev Manhas	36
22.	Bhisma Kumar Patel	Functionalization Of Sulfoximines And Related Compounds Based On Nitrogen-Centred Radical Chemistry.	SERB	1830000	1. Dr. Kamal Krishna Rajbongshi	36
23.	Arun Goyal	Lignocellulosic Biomass Utilization For Lactic Acid And Bioethanol Production	DBT	3710240	1. Vijayanand S. Moholkar	36
24.	Selvaraju Narayanasamy	Water Filtration, Advanced-Oxidation And Capacitive-Deionisation Treatments For Removal Of Emerging Contaminants In Water. Acronym: (Water-Facts)	DST	4304164	1. Senthilmurugan Subbiah	24

25.	Mohammad Qureshi	Combinatorial Approach For Enhancing Surface Oxidation And Reduction Kinetics For Value Added Products From Renewable Sources	DST	3637788	NA	36
26.	Praveen Kumar	Intelligent Disturbance Observer Based Adaptive Control Of DC-DC Power Converter For Nonlinear Loads	DST	3204000	1. Tousif Khan N	36
27.	Debapratim Das	Localized Therapeutic Delivery Systems Based On Water Insoluble Thixotropic Hydrogels Of Small Peptides For Breast Cancer Treatment	SERB	5236000	NA	36
28.	Mihir Kumar Purkait	Preparation Of DPR For The Treatment Of Polluted Kamalpur Beel Under Kamrup Zilla Parishad	Govt Of Assam	441320	NA	4
29.	Pranab Kumar Mondal	CRISPER Based Diagnosis Of Covid-19 Using Paper Microfluidics	DBT	1493000	NA	12
30.	Biman Behari Mandal	Modeling Human Liver Microarchitecture And Cellular Physiology In Vitro Using 3D Bioprinting For Drug Toxicity And High Throughput Drug Screening Applications	DST	30635040	NA	60
31.	Biman Behari Mandal	Swarnajayanti Fellowship Grant	SERB	2500000	NA	60
32.	Sudarshan Mukherjee	Timing Synchronization In Cell-Free Massive MIMO Systems	SERB	1279344	NA	24
33.	Anil Mukund Limaye	The Non-Canonical Estrogen Receptor Repertoire In Breast Cancer: Towards Refined Disease Classification And Therapeutic Decision	ICMR	2460966	1. Bithiah Grace Jaganathan	36
34.	Pranab Kumar Mondal	Variational Calculus Method For Solving Microflows In A Rotating Platform	DST	660000	1. Pranab Kumar Mondal	36
35.	Manish Kumar	Role Of Trigger Factor In Caseinolytic Protease System Of Leptospira	DST	5624605	1. Shankar Prasad Kanaujia	36
36.	Vijayanand S. Moholkar	Biocatalytic Desulphurization Of Crude Oil By High Performing Genetically Engineered Microorganisms	CSIR	1800000	1. Lepakshi Barbora	36
37.	Santabrata Das	Study Of Ejection Mechanism From Magnetized Accretion Disk Around Rotating Black Holes	SERB	660000	NA	36
38.	Subhamay Saha	Stochastic Games For Continuous-Time Stochastic Processes	SERB	660000	NA	36
39.	Biplab Mondal	Synthesis Of Cobalt -Nitrosyl Complexes Having {Co(NO)} <sub>9</sub> Configuration As A Source Of Nitroxyl/HNO	SERB	4356000	NA	36
40.	Gagan Kumar	Dynamically Tunable Resonances In Terahertz	SERB	7436000	1. Uday Narayan Maiti	36

		Metamaterials Using 2-D Materials.				
41.	Satyajit Panda	Development Of A Reduced-Basis Numerical Continuation Method	SERB	660000	NA	36
42.	Kalyan Raidongia	Fabrication Of Electrical Actuators With Special Wettability Surfaces For Efficient Handling Of Micro/Nano Droplets	SERB	2772000	NA	36
43.	Bibhas Ranjan Majhi	Connecting Navier-Stokes Equation With Dynamical Equations In Gravity: A New Perspective	SERB	2126894	1. Sayan Kumar Chakrabarti	36
44.	Debaprasad Maity	Reheating The Universe:Decoding The Observational Signatures	SERB	1017491	1. L. Sriramkumar	36
45.	Roy Paily Palathinkal	Powering The Ultra-Low-Power Wireless System/lot Node By Scavenging Multi-Band Radio Frequency (RF) Energy	SERB	1937760	NA	36
46.	Vibin Ramakrishnan	Study On The Bioactive Compounds Of Five Ethno-Medicinal Plants Of Assam	SERB	335000	1. Siva Chetri	36
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51.	Siddhartha Singha	Technology Development & Innovation Engineering For Value Chain Development For Citrus Fruits Of North East Region	DBT	4250240	1. Him Jyoti Dutta	36
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53.	Deepak Sharma	An Advanced Predictive Maintenance Tool For Equipment And Machines Using Industry 4.0 Concepts	SERB	2739264	1. Ashish Anand	36
54.	Mihir Kumar Purkait	Development Of Solar Power Driven Water Treatment Plant	OTHER	3916800	1. Er. Amalendu Bikash Paul	12
55.	Anupam Saikia	A Study Of Selmer Groups Of Elliptic Curves And Their Applications	SERB	660000	NA	36



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65.	Rishikesh Dilip Kulkarni	Development Of Configurable Digital Holographic Microscope For Microfluidics Applications	SERB	5270034	NA	36
66.	Hemant B. Kaushik	Evaluation Of Column-To-Beam Flexural Capacity Ratio For Strong-Column Weak-Beam Design In RC Buildings	SERB	4048264	1. Sandip Sarkar	36

67.	Arnab Kr. De	Vortex-Induced Vibrations Of A Rotating Sphere Close To A Solid Wall	DST	1350000	NA	24
68.	HOD, Design	M.Des Programme/Executive Development Programme in Electronics Product Design	MEITY	180211000	NA	60
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73.	Debabrata Sikdar	iDT-NaPaMeGs: Inverse design tool for nanoparticle meta-grid based photonic devices using computational electromagnetics and deep learning	DST	1950040	1. Prithwijit Guha	24
74.	Sachin Kumar	Modelling of indigenous diagnostics and immuno-potent vaccine candidates to combat African swine fever in India	DBT	8253040	1. Shirisha Nagotu	24
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77.	Atanu Banerjee	Design and Development of Smart Morphing Wing based on Shape Memory Alloy Actuators	SERB	4092264	1. Vinayak Narayan Kulkarni	36
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80.	Siddhartha Sankar Ghosh	Development of nano-ensemble kit for the detection	DBT	8663280	1. Aiyagari Ramesh	36

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84.	Poonam Kumari	Development and testing of a wearable device for the early detection of a cartilage damage in a knee stepping towards an osteoarthritis condition using acoustic emission	DST-DAAD	2976738	1. Subramani Kanagaraj 2. Dr. Parag A Deshmukh 3. Dr. Ravikant Narain	24
85.	Meena Khwairakpam	Composting/Vermicomposting Of Mikania Micrantha Kunth And It's Effect On Soil Properties	DST	4398434	1. NA	36
86.	Tarak Nath Dey	Coherent Control Of Wave Front Engineering	SERB	2346850	1. NA	36
87.	Sajal Kanti Deb	Experimental Study On Seismic Evaluation Of Performance Of 3 Storeyed Test Structure Isolated By U-Freis	Arunachal Pradesh, PWD	200000	NA	36
88.	Nelson Muthu	Computational And Experimental Study Of Damage And Failure In Carbon/Glass Fiber Reinforced Composite Materials.	SERB	4959350	1. NA	36
89.	Soumitra Nandi	Study Of The Heavy Flavour Observables For An Indirect Detection Of Physics Beyond The Standard Model	SERB	2320560	NA	36
90.	Animes Kumar Golder	Integrated Solar-Photocatalytic And Biological Treatment Of Pharmaceutical Wastewater	SERB	9663060	1. Kaustubha Mohanty	36
91.	Manas Das	Design And Development Of A Novel Plasma Processing Set Up For Uniform Nano-Polishing Of Prism And Any Freeform Surfaces Of Fused Silica	SERB	4983000	1. NA	36
92.	P. Muthukumar	Metal Hydride Materials And Systems For The Increase Of Efficiency In Renewable And Hydrogen Energy	DST	3516400	1. Pankaj Kalita	36
93.	Prabu Vairakannu	Experimental And Power Plant Simulation Studies On Co-	DST	7402047	1. NA	36

		Chemical Looping Combustion Of Coal And Biomass In The Context Of Clean Fuel Utilization				
94.	Abu Taleb Khan	Synthesis Of Heterocycles And Their Biological And Photo-Physical Studies	DST	5942990	NA	36
95.	Gaurav Trivedi	An Energy Efficient IOT Processor Built Using An Optimized Near-Threshold Voltage Standard Cell Library	SERB	4895000	1. NA	36
96.	Sukumar Nandi	Archiving, Modelling And Visualization Of The Eco-Cultural Heritage Of The Majuli River Island Of Assam	DST	4950000	1. Samit Bhattacharya	36
97.	Kaustubha Mohanty	Innovative Algae Platform For Industrial Wastewater Valorization (Inwap)	DBT	119.0252	NA	36
98.	P. Muthukumar	DST-Energy Storage Platform On Hydrogen	DST	16594920	NA	60
99.	Subramani Kanagaraj	Development Of New Generation Acetabular Socket Linear And Femoral Head Prototypes With Unique 3D Microstructures And Better Fracture Resistance For Osteoporosis And Osteoarthritis Treatment	MHRD	2134008	1. Subramani Kanagaraj	36
100.	Senthilmurugan Subbiah	Low-Cost Innovative Technology For Water Quality Monitoring And Water Resources Management For Urban And Rural Water Systems In India (LOTUS)	DST	23271000	1. Chandan Mahanta	48
101.	Bipul Bhuyan	Indian Institutions-Fermi Lab Collaboration In Neutrino Physics.	DST	16054000	NA	60
102.	Bhaba Kumar Sarma	A Study On Highly Acyclic Matrices With Special Emphasis On The Role Of Graph Labelling In Solving Some Inverse Eigenvalue Problems For Such Matrices	SERB	1005000	1. Dr. Debashish Sharma	36
103.	R Anandalakshmi	Thermal Food Processing Optimization For Simultaneous Multi-Product Sterilization	MHRD	5300635	1. Prakash Kotecha	24
104.	Ashok Kumar Dasmahapatra	Studies On The Crystallization Of Crystalline/Crystalline Binary Polymer Blends	SERB	5383000	1. NA	36
105.	Cota Navin Gupta	Data Driven Neuro-Behavioral Clusters In Adults Who Were Born Very Preterm Using Multivariate Analysis	MHRD	4442900	1. Dr.Souptick Chanda	24
106.	Soumen Kumar Maiti	Process Intensified Production Of Lignocellulosic Liquid Biofuel By Cyclic Shifting Of The Process Parameters In A Single Bioreactor	SERB	2995920	1. NA	36

107.	Poonam Kumari	Experimental And Theoretical Studies Of Thermo-Elastic Response Of Axially Graded Beams	SERB	1800000	NA	36
108.	Mahima Arrawatia	Design Of lot Trans-Receiver Integrated With Compact MIMO/Diversity Antenna Scheme	DST	2592000	1. NA	36
109.	Parameswar K Iyer	Hybrid Organic-Inorganic Perovskites For Solar Energy Conversion	Indian Institute Of Technology Guwahati	2639450	1. Arun Tej Mallajosyula	24
110.	Hemant B. Kaushik	EVALUATION OF BAMBOO HOUSES FOR EARTHQUAKE RESISTANCE	Ministry Of Environment, Forest And Climate Change, GOI	1498420	1. NA	36
111.	Rajib Kumar Bhattacharjya	Impact Of Climate Change On The Integrated Flood Vulnerability Index Of Hilly Terrain	DST	2132000	NA	24
112.	Anil Kumar Saikia	Synthesis Of Heterocyclic Compounds Via Activation Of C-H, Allylic-OH And Alkynes By Organic And Metallic Reagents	CSIR	1390000	NA	36
113.	John Jose	Approximate Computing Techniques For Resource Constrained Edge Devices	MHRD	7748935	1. Dr. Tamarapalli Venkatesh	24
114.	Sajal Kanti Deb	Experimental Study On Cyclic Horizontal Force-Displacement Characteristics Of Prototype U-Freis With And Without Rotation	APWD	2833600	NA	36
115.	Chandan Kumar	Design, Operation, And Control Of Distributed Generation (DG) Integrated Unified Power Quality Conditioner (UPQC) In Electric Grid	Centre For Power Research Ins	3228000	1. Ravindranath Adda	24
116.	Tamal Banerjee	Deep Eutectic Solvent For Remediation Of Antifungal And Antibiotics In Waste Water	MHRD	5179584	1. Partho Sarathi Gooh Pattader	24
117.	Tamal Banerjee	Development Of Novel Deep Eutectic Solvents For The Extraction Of Aromatics To Produce Food/Pharma Grade Hexane And Speciality Products Using COSMO-SAC Screening	HPCL GREEN	2792790	1. NA	24
118.	Parameswar K Iyer	Organic Nanomaterials Based Portable Device For Biosensing And Disease Diagnostic	MHRD	2639450	1. Siddhartha Sankar Ghosh	24
119.	Sushanta Karmakar	Game Theory Based Intrusion Detection System (IDS) For Cyber Physical System.	DST	30.601	1. Santosh Biswas	36
120.	Santosh Biswas	Formal Methods For Modeling And Verification Of Intrusion Detection System In Wireless Networks.	DST	2674400	1. Chandan Karfa	36

121.	Ashok Singh Sairam	Uncloaking Covert Networks: Identification And Analysis	Elint Technologies, Subsidiary Of Seclabs & Systems Private Ltd., Noida, UP	1407600	1. NA	18
122.	HOD, Mechanical	FIST 2018: Mechanical Engineering Department	DST	57000000	1. Santosha Kumar Dwivedy	60
123.	Hemant B. Kaushik	Seismic Strengthening Of Unreinforced Masonry Buildings Using Ferrocement Bands	CSIR	1696000	1. Hemant B. Kaushik	36
124.	Subramani Kanagaraj	Development Of A Novel Endotracheal Tube Holder For Better Management Of Invasive Ventilation	NPIU	1700000	NA	16
125.	Kusum Kumari Singh	Construction Of A Minigene To Analyze The Alternative Splicing Regulation Of UPF3B Variable Exon	CSIR	2000000	NA	36
126.	Shyamanta Moni Hazarika	Five Fingered Bionic Prosthetic Hand	DST	2600422	1. Sangamesh Deepak Rajendraswamy	24
127.	Rishikesh Bharti	RISK ASSESSMENT OF FLOATING DEBRIS DOMINATED FLASH FLOODS IN TRANS-BOUNDARY UPPER HIMALAYAN CATCHMENTS	DTRL	13495020	1. Subashisa Dutta	36
128.	Sanjukta Patra	Study Of In-Depth Genetic Heterogeneity With Respect To Resistome And Compensatory Adaptation Of MDR Mtb Clinical Strains Inside BM- Mesenchymal Stem Cells Circulating In The North East Region	DBT	6841000	1. Shankar Prasad Kanaujia	36
129.	Vimal Katiyar	NRL-Centre Of Excellence On Sustainable Materials [NRL-COE-SUSMAT] For Development Of Biodegradable Plastics From Oil And Bio-Refinery Streams	Numaligarh Refinery, PSU	40000000	NA	24
130.	Vaibhav Vasant Goud	Enhanced Carbonate Precipitation Of Ureolytic And Nitrifying Microbe Treated Rubber Wastewater	DBT	3756520	NA	36
131.	Vibin Ramakrishnan	Design And Characterization Of Peptide Based Cell Targeting Domains With Live Cell And Animal Imaging Methods	DBT	4306240	1. Nifin Chaudhary	36
132.	Sweta Tiwari	Study Of Nonlocal Elliptic And Parabolic Problems With Variable Exponents	SERB	600000		36
133.	Bithiah Grace Jaganathan	Targeting Mechanosensitive Ion Channel Piezo1 In Metastatic Breast Cancer	ICMR	2149100	1. Rajkumar Parshottambhai Thummer	36
134.	Nanda Kishore	Combined Catalytic Reforming And Upgrading	SERB	3630000	1. Nageswara Rao Peela	36

		Technique For Production Of Biofuels In Circulating Fluidized Bed Reactor				
135.	Nitin Chaudhary	Isolation, Synthesis, And Structure-Function Analysis Of Frog And Toad-Skin Derived Antimicrobial, Anticancer, And Wound-Healing Peptides	DBT	4801240	1. Sachin Kumar	36
136.	Sudip Mitra	"Greenhouse Gas Emission, Mitigation & Adaptation: Strategies For Better Inventory And Management Of Such Gases In Rice Ecosystems Of Two Agro-Climatic Zones Of Assam	DBT	5471856	1. Dr. Pratap Bhattacharyya	36
137.	Anjan Kumar Siddagangaiah	Life Cycle And Performance Assessment Of Roads Constructed Using Cold Mix Technology	NRRDA	3322000	1. Teiborlang Lyngdoh Ryntathiang	18
138.	Mihir Kumar Purkait	Development Of Catalysts And A Prototype Device For Conversion Of CO <sub>2</sub> To Fuels/Chemicals	DST	1674000	1. Mihir Kumar Purkait	36
139.	Bhubaneswar Mandal	Tailor Made Peptidomimetics Designing Against Human Islet Amyloid Polypeptide (Hiapp) Aggregation: A Therapeutic Approach Associated With Type-2 Diabetes	DBT	2487456	1. NA	36
140.	Dobbidi Pamu	Development Of Biologically Active Ferroelectric Ca <sub>10</sub> (PO <sub>4</sub> ) <sub>6</sub> (OH) <sub>2</sub> - K <sub>0.5</sub> Na <sub>0.5</sub> Nb <sub>3</sub> Composite Thin Films For Biomedical Applications	SERB	53099	NA	36
141.	Anil Mukund Limaye	DNA Methylation In The Upstream CpG Island Of GPER1 And Its Association With GPER1 Expression In Colon Cancer: A Pre-Clinical Proof Of Concept Study In Colon Cancer Cell Lines	ICMR	3011112	1. Rajkumar Parshottambhai Thummer	24
142.	Niranjan Sahoo	Stress Wave Force Balance (SWFB) Technique: An Alternative Method Of Accurate Force Measurement	ISRO	2807000	1. Vinayak Kulkarni	18
143.	Manish Kumar	Biochemical Characterization Of Seminal Gel And Its Application For Biostimulation In Pigs	DBT	1179900	1. NA	24
144.	Kalyan Raidongia	Design And Synthesis Of Freestanding Ion-Selective Membranes From Peptide Modified Two-Dimensional Nanomaterials	CSIR	800000	1. Sunanda Chatterjee	36
145.	Sisir Kumar Nayak	Development Of Non-Edible Green Vegetable Oil As A Potential Liquid Dielectric For Power/Distribution Transformer From The Renewable Source.	SERB	6870461	1. Santosha Kumar Dwivedy	36

146.	Souptick Chanda	Proximal Femoral Locking Plates (PFLP): Biomechanical Exploration Of Design Variants For North Eastern (NE) Population	SERB	2297270	1. NA	24
147.	Bhisma Kumar Patel	Probing Annulations In Multi Directing Systems And Development Of Multifunctional Aiegens	CSIR	800000	NA	36
148.	Souptick Chanda	Investigation On The Influence Of Ferromagnetic Coating On Bone Ingrowth In Hip Stems Made Of Composite Titanium-Tantalum (Ti-Ta) Foam	MHRD	2726893	1. Debabrata Chakraborty	24
149.	Ashish Anand	Integrated Software For Analyzing Single-Cell RNA Sequencing	DBT	75000	1. NA	24
150.	Manas Khatua	Adaptive Cell Scheduling Function Of 6tisch Network For Efficient Data Communication In Industrial Internet Of Things	SERB	2050400	NA	24
151.	Chivukula Vasudeva Sastri	Chemical And Structural Intricacies In The Formation, Stability And Reactivity Of Metal-Oxygen Adducts In Non-Heme Synthetic Scaffolds	SERB	4782230	NA	36
152.	Subhaditya Bhattacharya	Multipartite Dark Matter At Direct And Collider Searches	DST	3105300	NA	36
153.	Harsh Chaturvedi	Technology For Large Scale Development Of Textile Fibres For Wearable Electro-Optic Devices	MHRD	80.6	1. NA	24
154.	Uday Shanker Dixit	Experimental And Numerical Research On Contact Friction In The Process Of Plastic Deformation By Means Of Compression With Torsion	DST	2629152	1. NA	24
155.	Sumana Dutta	Dynamics And Control Of Two And Three-Dimensional Excitation Waves	SERB	7719154	1. NA	36
156.	Sachin Singh Gautam	Functionality Enhancement Through Design And Development Of Advanced Finite Element Algorithms For STRTOOLS	SERB	6610692	1. Arup Kumar Nandy	36
157.	Arup Kumar Sarma	DESIGN OF AN AUTOMATIC COMMUNICATION SYSTEM THROUGH CLOUD COMPUTING USING SENSOR BASED AUTOMATED INPUT FOR EFFICIENT OPERATION OF RANGANADI HEP WITH DUE EMPHASIS ON DOWNSTREAM CONCERNS UPTO CONFLUENCE WITH SUBANSIRI RIVER	NEEPCO	6193824	1. Rajib Kumar Bhattacharjya	36
158.	Pavan Kumar Kancharla	Synthesis Of 1-C, 2-C, 3-C- Branched Pyranosides And Heptanosides, Higher-Carbon Sugars, L-Sugars And All The	SERB	4684648	NA	36



		Epimers Of Sialic Acids And KDN Non-Ulosinic Acids From Perlin Aldehydes				
159.	Partho Sarathi Gooh Pattader	Investigation Of The Dynamics Of Charged Particle/Macromolecules In Gel Electrophoresis In Presence Of External Noise	SERB	4664000	1. Dipankar Bandypadhyay	36
160.	Akshai Kumar Alape Seetharam	Design Of Efficient, Recyclable And Sustainable Immobilised Molecular-Pincer Group (VIII) Metal Catalytic Systems For Fine Chemical Synthesis Via Direct Functionalization Of Carbon Dioxide	MHRD	4992000	1. NA	36
161.	Kusum Kumari Singh	Deciphering The Assembly Of RNPS1 Into The Spliceosomal Machinery	SERB	4548740	1. Sachin Singh Gautam	36
162.	Anand Baskaran	Functional Mechanism Of CRISPR RNA Maturation In An Atypical CRISPR-Cas Adaptive Immune System	SERB	7448760	1. NA	36
163.	Senthilkumar Sivaprakasam	Process Analytical Technology (PAT) Control Tools For High Cell Density Cultivation Of Glycoengineered Pichia Pastoris For Human Interferon Alpha 2b Production	SERB	4301264	1. Anil Mukund Limaye	36
164.	Chandan Kumar Jana	Metal Free Simultaneous C(Sp3)-H And C(Sp2)-H Functionalizations Of Aliphatic Amines/Amino Acids And Nitrosoarenes To Indoles And Perophoramidine $\pi$ S Analogs	SERB	6029760	1. NA	36
165.	Santosha Kumar Dwivedy	Bioengineered Bilayer 3D Printlets For Segregated Compartmental Delivery Of Fixed Dose Antitubercular Drug Combinations	DBT	1190250	1. NA	24
166.	Tamal Banerjee	Deep Eutectic Mixtures With Graphene Functionalized Nanofluids For Indirect Solar Desalination Using Multistage Flash Approach	DST	4040220	1. NA	36
167.	Vinayak Narayan Kulkarni	Experimental Studies On Finiteness Of A Wing	ARDB	3554000	1. Niranjana Sahoo	24
168.	Partha Sarathi Mandal	Fault-Tolerance In Priority Evacuation And Mutual Visibility Of Mobile Robots	SERB	660000	NA	36
169.	Shreemayee Bora	Eigenvalues Of Linear And Non-Linear Matrix Valued Functions: A Study Of Inclusion Regions, $\pi$ -Pseudospectra And Low Rank Perturbations	SERB	660000	NA	36
170.	Poonam Kumari	Development Of Three-Dimensional Analytical Solutions For Elastic Laminated And Piezoelectric Shells Subjected To Levy-Type	SERB	660000	1. NA	36

		Boundary Conditions Using Extended Kantorovich Method				
171.	Arnab Kr. De	Dynamics Of Wake Behind 3D Tapered And Circular Cylinder In Vortex Induced Vibration Subject To Planar And Span-Wise Shear	SERB	660000	1. NA	36
172.	Arnab Kr. De	Numerical Investigation On The Effect Of Surface Roughness And Tilt Angle On Turbulent Rayleigh-Bénard Convection	SERB	1582000	1. NA	24
173.	Sushanta Karmakar	Design And Analysis Of Some Fast Steiner Tree Algorithms	SERB	720000	1. NA	36
174.	Arup Chattopadhyay	Trace Formulae And Multivariable Operator Theory	SERB	660000	NA	36
175.	Arun Chattopadhyay	Assembly Of Nanoscale Particles For Theranostic And Energy Applications Sanction Order No JCB/2019/000039	SERB	9500000	NA	60
176.	Siddhartha Pratim Chakrabarty	Stochastic Models For Chronic Myeloid Leukemia	SERB	660000	1. NA	36
177.	Anjan Kumar Siddagangaiah	Assessment Of Recycled Materials Interaction And Its Effect On Durability Of Cold Bituminous Mixes	SERB	2836022	1. Teiborlang Lyngdoh Ryntathiang	36
178.	Bithiah Grace Jaganathan	To Study The Mechanosensitive Cell Surface Protein Piezo1 As A Target For Metastatic Colorectal Cancer	SERB	3982000	1. Bosanta Ranjan Boruah	36
179.	Amarendra Kumar Sarma	Soliton Dynamics Of The Generalized Nonlinear Schrödinger Models In Parity-Time (PT) Symmetric Potentials	SERB	660000	NA	36
180.	K S R Krishna Murthy	An Examination On Use Of The Quarter Point Elements For The Accurate Determination Of Notch Stress Intensity Factors	SERB	1899415	1. Debabrata Chakraborty	24
181.	Biman Behari Mandal	Bioengineered 3D Constructs For Cartilage Repair, Osteochondral Regeneration And High Throughput Drug Screening Towards Osteoarthritis Management.	SERB	4681000	1. NA	36
182.	Kanhaiya Pandey	Laser Cooling And Trapping Of Rubidium Atom, And Superflash Of Light Using The Narrow $5S_{1/2} \rightarrow 6P_{3/2}$ Transition At 420 Nm	SERB	3406611	NA	36
183.	Chandan Mukherjee	Synthesis And MR Image Investigation On MRI Contrast Agent-Entrapped Mesoporous Silica Nanoparticles	DBT	6900000	1. Achalkumar Ammathnadu Sudhakar	36
184.	Pratul Chandra Kalita	Bamboo Bricks/Laminates From Bmfs (Bamboo Micron Fibres) For Low Cost Housing	Moef	1156000	1. Amarendra Kumar Das	36

		Structures For North Eastern Himalayan Region				
185.	Amaresh Dalal	Development Of Microbial Fuel Cells And Theoretical Modeling On The Multiple Effect Of Flow-Materials In Waste Water Bio-Energy Reactor	DST	4296756	1. Gautam Biswas	36
186.	Kannan Pakshirajan	The Development And Implementation Of Sensors And Treatment Technologies For Freshwater Systems In India	DST	34227700	1. G. Pugazhenth	36
187.	Biman Behari Mandal	Fabrication Of Biocompatible Scaffolds For Delivery Of Stem Cells In Myocardial Infarct Model: In Search Of An Ideal Cardiac Patch	DBT	4123000	1. Rajkumar Parshottambhai Thummer	36
188.	Tapan Mishra	Theoretical Studies Of Quantum Phase Transitions Of Dipolar Bosons In Frustrated And Flatband Lattices.	SERB	3205915	NA	36
189.	Rakhi Chaturvedi	SEEDLESS PLANT PRODUCTION AND MASS SCALE PROPAGATION OF MUSA BALBISIANA (BHIMKOL BANANA) OF NER USING IN VITRO APPROACHES	DBT	4562000	1. NA	36
190.	Raghvendra Gupta	Validating CFD Simulations Of Gas-Liquid Stirred Tank Reactor For Different Impellers Through Radiotracer Based Techniques	BRNS	2488160	1. Rajesh Kumar Upadhyay	36
191.	Ajaikumar Bahulayan Kunnumakkara	Placental Oxidative Stress In Gestational Diabetes Mellitus	ICMR	2077000	NA	36
192.	P. Muthukumar	Reversible Alkali Metal Based Hydrides For High Temperature Thermal Energy Storage.	DST	4505774	NA	36
193.	Rajesh Kumar Upadhyay	Investigation Of Flow Behavior Of Pulsed Sieve Plate Column Through Radiotracer Based Techniques	BRNS	3375500	1. Raghvendra Gupta	36
194.	Uday Narayan Maiti	Studies On The Development Of Devices Using Mxenes/Mono-Elemental 2D Materials For Energy Harvesting And Storage Applications (Part 2: Energy Storage Applications)	BRNS	2993483	1. Subhradip Ghosh	36
195.	90009	FIST Project Level-2	DST	59400000	NA	60
196.	A Srinivasan	Comparative Study Of Low Dimensional Ferromagnetic Heusler Alloys Prepared By Different Routes	CSIR	900000	1. Sidananda Sarma	36
197.	Rupam Barman	Elliptic Curves With Complex Multiplication And Hypergeometric Sums	SERB	660000	NA	36
198.	Manish Kumar	Elucidating The Role Of Cas6, Cas7 And Cas8 In Spirochetes	DBT	4272996	1. Shankar Prasad Kanaujia	36

		CRISPR Adaptive Immunity Against Alien Genetic Elements				
199.	Uday Narayan Maiti	Defect And Doping Synergist In Perforated Graphene-Aerogel Nanohybrid For The Development Of Efficient Hydrogen Generation Catalyst	CSIR	1100000	NA	36
200.	Dipankar Narayan Basu	Experimental And Computational Analyses Of Flow-Induced Heat Transfer Deterioration In Supercritical Natural Circulation Loop	SERB	4726040	NA	36
201.	Ayon Ganguly	Investigation Of Statistical Aspects Of Step-Stress Life Testing	SERB	660000	1. NA	36
202.	Subhas Chandra Pan	Novel Rationally Designed DNA Gyrase Inhibitors As Antibacterials	DBT	4114991	1. Priyadarshi Satpati	36
203.	Biman Behari Mandal	NIRMAN 3D- Novel Minimally Invasive Implants For Reconstructive Surgery Using Materials Providing Mechanical Instruction And Prepared By 3D Printing.	DBT	12363600	1. Rajkumar Parshottambhai Thummer	48
204.	Jiten Chandra Kalita	Coupled $\tilde{T}$ -V And Immersed Interface Method For Incompressible Viscous Flows	SERB	660000	1. NA	36
205.	Ajaikumar Bahulayan Kunnumakkara	DBT-AIST International Center For Translational And Environmental Research (DAICENTER)	DBT	9846000	NA	36
206.	Manas Das	Fabrication Of Prosthetic Implants And Further Nanofinishing Using Magnetic Field Assisted Finishing (MFAF) Process	SERB	4768000	1. Manas Das	36
207.	Rajaram Swaminathan	Research Project For Understanding Structure And Function Of Several Idps And Mechanism Of HBV Capsid Formation Using Procharts	Purplepatch Services, USA	2062500	NA	36
208.	Uday Narayan Maiti	Ultrafast Joule Heating Induced Defect Healing And In-Situ Activation Of Spontaneously Assembled Graphene Network For Wearable Energy Storage	DRDO	2118400	1. N/A	36
209.	Shabari Nath	Development Of High Power Density Solid State Transformer Using Direct AC To AC Power Electronic Conversion	SERB	3699724	1. Ravindranath Adda	36
210.	Vimal Katiyar	Integrated Production Of Advanced Biofuels And Biocommodities Under 'Center Of Excellence (COE)Proposal'	DBT	11422000	1. NA	36
211.	Nitin Chaudhary	Mechanistic Insights Into IAPP Self-Assembly ? Targeting Early Intermediates For Therapeutics	SERB	4785000	1. Sachin Kumar	36

212.	Vishal Trivedi	Re-Purposing Of FDA Approved Drugs For Tuberculosis Treatment.	DBT	21187972	1. Vibin Ramakrishnan	36
213.	Vishal Trivedi	Chemical Biology Approaches To Exploit FIKK Kinase (S) From Plasmodium Falciparum To Develop Potent Antimalarials.	SERB	5120249	1. Tharmalingam Punniyamurthy	36
214.	Amaresh Dalal	National Centre Of Clean Coal Research And Development	DST	3370000	1. Gautam Biswas	60
215.	Chandan Kumar	Design, Operation And Control Of Smart Transformer-Based Microgrid System	SERB	5282500	1. NA	36
216.	Sashindra Kumar Kakoty	Rural Technology Action Group (Rutag)- At IIT Guwahati	PSA - Goi	16556560	1. Siddhartha Singha	36
217.	Vimal Katiyar	Development Of Biodegradable Polymer Based Controlled Release Fertilizers And Pesticides For Sustainable Agro-Economy ?Biopolycrf?	DBT	5172996	1. Raghvendra Gupta	36
218.	90001	Strengthening Of Research Facilities In The Department	DST	14400000	NA	60
219.	Sandip Paul	Understanding The Inhibiting Actions Of Different Inhibitors On The Aggregation Of Human Amylin Peptide	DST	4521835	1. NA	36
220.	Ranjan Tamuli	Understanding Molecular Mechanism Of Calcium Signaling In Neurospora Crassa	DBT	5641200	1. Manabendra Sarma	36
221.	Siddhartha Sankar Ghosh	Modulation Of Connexin-43 And Histone Deacetylase To Comprehend Cancer Therapy.	DBT	3423200	1. Arun Chattopadhyay	36
222.	Chandan Kumar Jana	Synthesis And Biological Evaluation Of Dysideanone And Its Synthetic Analogs For The Development Of Potent And Selective Anti-Oral-Cancer Agents.	DBT	4409600	NA	36
223.	Arun Goyal	Development Of Novel And Efficient Carbohydrate Enzymes For Bioenergyand Biovalued Products	DBT	7199996	1. Priyadarshi Satpati	36
224.	Senthilkumar Sivaprakasam	Continuous Fermentative Production Of D (-) Lactic Acid Using Whey As A Feedstock In Automated Membrane Integrated Bioreactor	DBT	4464996	1. Vimal Katiyar	36
225.	Sachin Kumar	Molecular Platform For Epidemiology, Disease Mapping And Development Of Diagnostics For Economically Important Diseases Of Ducks	DBT	2722996	1. Vishal Trivedi	36
226.	Ajaikumar Bahulayan Kunnumakkara	Deciphering The Role Of Different Isoforms Of AKT In The Development Of Human Oral	ICMR	3033000	1. NA	36

		Squamous Cell Carcinoma (North-East Concept-ECD)				
227.	Shirisha Nagotu	Investigating The Role Of Peroxisomes In Parkinson'S Disease	DBT	7095360	1. Rajkumar Parshottambhai Thummer	36
228.	Arun Goyal	Efficient Utilization Of Sugarcane Top For Production Of Cellulosic Ethanol And Other Value Added Products	DBT	2495000	1. V S Moholkar	36
229.	90036	Fabrication Facility For Silicon Photonics And Microelectronic Devices	DST	26000000	1. Ramesh Kumar Sonkar	60
230.	Lal Mohan Kundu	Development And Evaluation Of Peptide Conjugated Antitumor Drugs In Combination With Nucleobases Deaminases For Controlled And Targeted Drug Delivery	DBT	4172000	1. NA	36
231.	Pankaj Kumar Mishra	Numerical And Theoretical Investigation Of Different States Of Turbulence In Counterflow Superfluid Turbulence In A Channel.	DST	2181507	1. Pankaj Kumar Mishra	36
232.	Debasish Borah	Particle Dark Matter Beyond The WIMP Paradigm: Model Building And Phenomenological Studies	SERB	2137520	1. NA	36
233.	Subashisa Dutta	Integrated Use Of WRF-Hydro And Space Based Inputs For Flood Forecasting	ISRO	2763600	1. Na	30
234.	Chandan Kumar	Design, Control And Management Of Distributed Generation In Microgrid	DST	2152000	1. Chandan Kumar	36
235.	90005	FIST Grant	DST	33400000	NA	60
236.	Keyur Babulal Sorathia	Design And Development Of An ICT Based Ecosystem For Digitization Of Educational Resources/Materials For Teachers And Students	Sarba Sikhsha Abhiyan, Government Of Assam	14961600	NA	36
237.	Mihir Kumar Purkait	Centre For Technological Excellence In Water Purification (CTEWP)	DST	9993000	1. Mihir Kumar Purkait	60
238.	Vijayanand S. Moholkar	Design, Optimization And Intensification Of A Bioprocess For Converting North East Natural Gas Into Liquid Fuels (Bio-GTL)	DBT	2250000	1. Lepakshi Barbora	36
239.	Biman Behari Mandal	DEVELOPMENT OF MINIMAL INVASIVE NOVEL INJECTABLE HYDROGEL AND NANO-CARRIER - HYBRID SYSTEM FOR LOCALIZED TARGETED CANCER THERAPY	ICHR	4722356	1. Manish Kumar	36
240.	Kalyan Raidongia	Aerobic Oxidations Of Light Alkanes Over Atomically Thin Clay Layers Of Controlled Lateral Dimensions	DST	5950520	1. NA	36

241.	Ramesh Kumar Sonkar	Analytical And Numerical Design Of Hybrid Multiplexer For Optical Interconnect Using Silicon Photonics	SERB	3669000	1. Ramesh Kumar Sonkar	36
242.	Subramani Kanagaraj	An Affordable Lower Limb Prosthesis With Polycentric Knee Joint, Dynamic Ankle Joint And Suction-Suspension Socket System Having Advanced Features	MHRD	7337818	1. Nelson Muthu	36
243.	Tharmalingam Punniyamurthy	Study Of Selective C-H Activation: Carbon-Carbon And Carbon-Heteroatom Bonds Formation	SERB	5462864	NA	36
244.	Achalkumar Ammathnadu Sudhakar	Molecular Engineering Of Perylene For Energy Conversion	SERB	4191000	NA	36
245.	Manas Kamal Bhuyan	Development Of A Prototype Of Disabled-Friendly Automatic Virtual Text-Entry Keyboard Interface System	SERB	2301025	NA	36
246.	Subhas Chandra Pan	Organocatalytic Asymmetric Kinetic Resolution For The Synthesis Of Aziridines And Tetrahydropyrans	SERB	4301000	1. NA	36
247.	Shankar Prasad Kanaujia	Structural And Functional Characterization Of An ABC Transporter Involved In The Maintenance Of Lipid Asymmetry In Escherichia Coli And Shigella Flexneri: Structure-Based Drug-Designing	SERB	2750000	1. NA	36
248.	Akshai Kumar Alape Seetharam	Greenhouse Gas To Fuel: Development Of Powerful Catalytic Systems Based On Pincer-Metal Catalysts Heterogenized On Solid Supports For The Conversion Of Carbon Dioxide To Methanol	SERB	3875696	1. NA	36
249.	Moumita Patra	Conceptualizing Strategies For Efficient Information Dissemination And Resource Management In Internet Of Vehicles	SERB	1852230	NA	36
250.	Sisir Kumar Nayak	Dynamic Charging Of Drone Using Metamaterial Including Sensors Used In Iot For Control And Communication	DST	6845520	1. D.Senthil Kumar	36
251.	Arun Tej Mallajosyula	Flexible Memristors Using 2D Layered Hybrid Organic-Inorganic Perovskites	SERB	4993090	1. NA	36
252.	Krishna Pada Bhabak	Development Of ROS Sensitive Turn-On Fluorescent Probes For Targeted Delivery Of Anti-Cancer Compounds	SERB	5304000	1. NA	48
253.	Perumal Alagarsamy	FIST Phase II	DST	44000000	1. Subhash Thota	60

254.	HOD, Chemical	FUND FOR IMPROVEMENT OF SCIENCE AND TECHNOLOGY	DST	39000000	1. Raghvendra Gupta	60
255.	Satyam Agarwal	Wireless Networking For Sustainable Rural Connectivity	DST	3500000	1. NA	60
256.	Pranjal Chandra	Development Of Electrocatalytic Aptamer-Nanosensor For Bacterial Exotoxin Detection	SERB	3800000	NA	60
257.	Ajay Dashora	Risk Assessment Of Moraine Dammed Glacier Lakes Due To Climate Change (IMPRINT)	MHRD	5959000	NA	48
258.	Senthilmurugan Subbiah	Development Of Low-Cost Sericin Coated Industrial Capacity Filters To Remove Antibiotics And Associated Chemicals From Effluent	BIRAC	6458400	NA	36
259.	Arun. Chattopadhyay, Roy Paily Palathinkal, Dipankar Bandyopadhyay	Centre For Excellence In Research And Development Of Nanoelectronics Theranostic Devices	DEITY	510500000	NA	96
260.	HoD, Design	National Initiative for setting up of Design	MHRD	100000000	NA	84
261.	Rakhi. Chaturvedi	Seedless Plant Production And Mass Scale Propagation Of Musa Balbisiana (Bhimkol Banana) Of NER Using In-Vitro Approaches	DBT	4562000	NA	36
262.	S. Senthilvelan	Manufacturing Solutions For The Preparation Of Siddha Medicines (Traditional Medicines Originated From Tamilnadu)	MHRD	5798496	1. S. Kanagaraj 2. P.S. Robi 3. Kannan Pakshirajan 4. G. Pugazhenthii	36
263.	P. Muthukumar	Design And Development Of Energy Efficient And Environment Friendly LPG And Kerosene Cooking Stoves With Porous Radiant Burners For Household And Large-Scale Cooking Applications	MHRD	8100000	NA	36
264.	Arnab Sarkar	A Software Tool for the Planning and Design of Smart Micro Power Grids	MHRD, Ministry of Power	20300000	NA	48
265.	Abhishek Srivastava	A System For Automated Assessment And Rehabilitation Of Persons With Articulation Disorders	MHRD, ICMR	70,23,360	NA	48
266.	Kaustubha Mohanty	Mass Cultivation of Microalgae for the Production of High Value Bio-Fuel Fractions through Hydro-Thermal Liquefaction (HTL)	MHRD & MNRE	2,37,00,000	NA	48
267.	Sisir Kumar Nayak	Metamaterial Enhanced Wireless Power Transmission system	MHRD, DST	64,44,000	NA	48



268.	Shankar Prasad Kanaujia	Structural And Functional Investigation Of Mammalian Cell Entry (MCE) Proteins From Human Pathogens: Development Of Structure-Based Lead Molecules	SERB	4251000	NA	36
269.	Debasish Das	DBT Pan IIT Center for Bioenergy	DBT	17416000	Arun Goyal	66
270.	Biplab Bose	Design principles in the Molecular Network of an Oncofetal Protein	DBT	8423000	Siddhartha Sankar Ghosh	60
271.	Siddhartha Sankar Ghosh	Fundamental Molecular Investigations in Biotechnology	DBT	24876000	NA	60
272.	Lingaraj Sahoo	Development of Abiotic Stress Resilient Tropical Pulses Through Tailoring of ABA Receptor genes	DBT	15562000	Biplab Bose	60
273.	Pranab Goswami	Studies and application of redox enzymes for bioelectronics devices	DBT	14534000	Siddhartha Sankar Ghosh	60
274.	Siddhartha Sankar Ghosh	Investigations on the molecular mechanism of Nanomaterial-cellular interactions to develop Potential Therapeutics	DBT	8909000	1 A. Ramesh 2 Biplab Bose	60
275.	Prasanna Venkatesh Rajaraman	Corrosion of carbon steel (API 5L X60) in CO <sub>2</sub> -H <sub>2</sub> S medium in the presence of volatile fatty acids	ONGC	15600000	Prabu Vairakannu	36

### Completed Sponsored Projects

Sl.No	Principal Investigator	Name Of The Project	Funding Agency	Sanctioned Amount (In Lakh)	Co-Investigator	Duration
1.	Pankaj Kalita	Development of renewable energy technology package for clean power generation in remote utility	SERB	5165710	NIL	36
2.	Animesh Das	Incorporation of Pendant Lewis Pairs into Secondary Coordination Sphere of the Metal ions: Cooperative Substrate Binding and Activation	SERB	4620000	NIL	36
3.	Priyankoo Sarmah	Development of Speech Interface for Form-filling application (SiFA) in Five Indian languages	MHRD	9120000	1. S R Mahadeva Prasanna	24
4.	Poonam Kumari	Analytical solution for boundary layer stresses in piezoelectric plates with longitudinally	SERB	2396020	NA	36

		functionally graded materials				
5.	<i>Partho Sarathi Gooh Pattader</i>	An experimental investigation on the instability, self organization and micro-patterning of blended polymer and nanoparticle incorporated polymer thin film	SERB	4564394	NA	36
6.	Tamal Banerjee	Ionic liquids and Deep Eutectic Solvents as electrolytes for Energy efficient Electrochemical Double Layer Capacitor	ISRO	1800000	I. Prasanna Venkatesh Rajaraman	24
7.	<i>. Bishnupada Mandal</i>	Development of CO <sub>2</sub> -Selective Ceramic Membrane for separation of CO <sub>2</sub> from Flue Gas and Natural Gas	DST	5861700	<i>M.K. Purkait</i>	36
8.	Sharad B. Gokhale	Urban Black Carbon Global Impacts and Local Mitigations	SERB	4910000	NA	36
9.	John Jose	Performance and energy optimization in many core processors using dynamic cooperation of cache memory, NoC and DRAM controller	SERB	1970960	NA	36
10.	<i>Subrata Kumar Majumder</i>	Removal of pharmaceutical derivatives present in waste water by advanced oxidation integrating with microstructure and rotating packed bed of grapheme (G)/Graphene oxide (GO)/GO-metal nanocomposites	DST	2332475	<i>Pallab Ghosh</i>	36
11.	<i>S. Kanagaraj</i>	Preservation of residual hearing by localized delivery of nanoceria based solid solution and composite as an antioxidant in cochlear implants	DBT	5798000	<i>. Ajaikumar B. Kunnumakkara</i>	36
12.	HOD,CSE	Intelligent Robot Human Interaction and Embedde System	DST	8600000	NA	60
13.	<i>Ravi K</i>	Developing a sustainable construction practice to improve the	SERB	4446670	NA	36

		resiliency of embankments of Brahmaputra using Bio-Mediated soil treatment and its impact on the river bank ecology				
14.	<i>Dipankar Srimani</i>	Integration of photoredox catalysis with chiral bronsted acids: towards enantioselective synthetic routes of versatile structural motifs	DST	3500000	NA	60
15.	Rajkumar P. Thummer	Generation of transgene-free human induced pluripotent stem cells using non-genetic approaches for cell therapeutic applications	DBT	5131000	<i>Shirisha Nagotu</i>	36
16.	Akshai Kumar Alape Seetharam	Fluorine and Boron doped pi conjugated organic materials via transition metal catalyzed C-F activation	BRNS	1998800	NA	36
17.	Dr. Anjan Dutta	Studies on influence of HyFRC in enhancing of reinforced concrete bridge pier	SERB	827000	NA	24
18.	Dr. Saurabh Basu	Role of spin orbit coupling in spintronic devices: Search for new topological state of matter	SERB	2159520	NA	36
19.	HOD,BSBE	Creation of Bioinformatics Infrastructure Facility (BIF) for the promotion of Biology Teaching through Bio-Informatics (BTBI) scheme of BTISnet	DBT	2000000	NA	120
20.	Sudip Mitra	Assessing the bio-availability of nutrients and reduction of heavy metals in soils amended with inorganic and organic wastes in the presence of AM fungi and biochar	DBT	2963000	<i>Latha Rangan</i>	36
21.	Biman Behari Mandal	Use of silk from northeast India for culture and transplantation of corneal endothelial cells.	DBT	1820000	1. Piruthivi Sukumar	24

22.	U.S. Dixit	Modelling of advanced materials for simulation of transformative manufacturing processes	DST	2093600	NA	48
23.	Dr. Keyur Sorathia	A Mobile-based Virtual Reality Platform for Training and Educating Community Health Workers (CHWs) (Imprint)	MHRD	4496000	NA	18
24.	Dr. Keyur Sorathia	A web and mobile phone based service for health administrators, medical officers and health workers to track/monitor progress of Tuberculosis (TB) patients in (real-time) (Imprint)	DBT	4087000	NA	48
25.	V.V. Goud	Pilot scale study for biodiesel production using waste rubber seeds as raw material (UAY)	MHRD	41050000	Harsh Chaturvedi	36
26.	Amit Balasaheb Shelke	Development of Stiffened Honeycomb Composite Structure to Safeguard against Shock and Impact Loading	DRDO	3498000	1. Budhaditya Hazra	24
27.	Uttam Manna	Å¿¿¿BulkÅ¿¿¿- Superhydrophobic Polymer materials for controlled and Tunable release of Antimicrobial peptides: A novel material for generating antimicrobial Material	DBT	4214000	1. Sunanda Chatterjee	36
28.	Mahima Arrawatia	Design of High Efficiency Power Amplifier for 5G Applications	SERB	4525040	NA	36
29.	Debasis Manna	Development of Novel Inhibitors of AKT: An Unorthodox Approach Targeting the Pleckstrin Homology Domain	DBT	8053000	NA	36
30.	Dr. Animesh Das	Terminal Oxo and Imido Transition-Metal Complexes of Group 11 (Cu,Ag,Au): Strategies for Sequential C-H Bond Activation, Functionalization, Carbon-Heteroatom	DST	8300000	NA	60

		(C-N and C-O) Bond-Forming Reactions and Group-transfer catalysis				
31.	Mohammad Qureshi	Design and Development of novel broad absorption semiconductor/ Oxides for efficient water splitting: Role of morphology and charge transfer amongst the composites	SERB	3910720	NA	36
32.	Lingaraj Sahoo	Functional validation of yield related genes	DBT	5650000	NA	36
33.	Biman B. Mandal	"North East Silk Biomaterial Based Injectable Hydrogels for Drug Delivery and Tissue Engineering".	DBT		NA	36
34.	S.Chandra Pan	Asymmetric Organocatalytic Benzylic C-H Activation: Application to the synthesis of SUGiol and its Derivatives with Biological Study	SERB	4905000	Biman B. Mandal	36
35.	Arup Kumar Sarma	Statistical Downscaling for Hydro-Climatic projection with CMIP5 Simulations to assess impact of Climate Chnage	Govt., MOWR	5789493	I. Rajib Kumar Bhattacharjya	18
36.	Pankaj Kalita	Development of renewable energy technology package for clean power generation in remote utility	SERB	5165710	NA	36
37.	Lalit Mohan Pandey	Mechanistic Insight of Shear Induced Aggregation of Proteins and the Effect of Transition Metal Ions	SERB	4632100	NA	36
38.	Debasish Das	Optimisation and scale up trials of Plant Meristem cells through Bioreactors	Himalaya Drug Company	340800	NA	12
39.	Vibin Ramakrishnan	Design, Synthesis and Characterization of Metal Impregnating Nano-assemblies using Peptide Model Systems; Applications in heavy metal entrapment in North-East Region.	BCIL	15489200	NA	36

40.	Archana M Nair	Evidence comparison between Tharsis and Deccan Volcanic Provinces based on Geomorphology and Lithology	ISRO	1564000	NA	36
41.	B. Anand	Mapping the hierarchical participation of assembly factors during ribosome assembly	DBT	9796000	NA	36
42.	S. Ranbir Singh	Design and Development of opinion mining and sentiment analysis of Social Media Content to assess security threats	DeitY	11140000	NA	36
43.	Kaustubha Mohanty	Development of ceramic membrane based process for treatment and recycling of textile effluent towards zero discharge concept	DST	4206137	Senthilmurugan S	36
44.	A. K. Saikia	Diastereo-and Enantio-selective synthesis of oxygen, nitrogen and sulfur heterocyclic compounds	SERB	4949120	NA	36
45.	Debasis Manna	Cancer Immunotherapy: Mechanism-Based Design of Potent Inhibitor for Indoleamine 2,3-Dioxygenase-1	SERB	5081960	NA	36
46.	Dr. Bhubaneswar Mandal	Effect of naturally occurring as well as synthetic cyclic molecules on inhibition of beta amyloid aggregation in vivo and in vitro	DBT	4726000	NA	36
47.	Senthilmurugan S	Membrane based efficient energy storage, clean energy generation and waste water treatment system	DST	12919200	NA	36
48.	Sachin D Kore	Electromagnetic Shearing of Tubes and Sheets	SERB	1850000	NA	36
49.	Latha Rangan	Genome and transcriptome sequencing of aromatic rices from North Eastern Region	DBT	5021000	Sudip Mitra	36

50.	Chandan Das	Nano-enhanced adsorptive microporous membranes for effective removal of heavy metals from water sources	DST	56666	NA	1
51.	Dobbidi Pamu	Development of pill box type rf window based on AlN ceramic for 3.7 GHz	BRNS	3403500	NA	24
52.	Shankar Prasad Kanaujia	Understanding the mechanism of ABC-type metal sequestering proteins: structure-based novel drug development against human pathogens	DBT	5123000	V.K. Dubey	36
53.	Kannan Pakshirajan	Novel biological treatment process for water recycle-reuse and energy conservation in refinery industry	DST	4275300	1 G. Pugazhenthii, 2 Ajaikumar B. Kunnumakkara	36
54.	Debapratim Das	Peptide Based Semiconducting Materials for Organic-electronic devices	UKIERI	1158750	NA	36
55.	Rohini Mokashi Puneekar	Anthology of abhangas from the Varkari Bhakti tradition of Maharashtra in English translation	ICHR	252000	NIL	24
56.	Rakhi Chaturvedi	To impact quality education to girls in realm of science and engineering to inculcate scientific temperament.	DST	1657900	1. Charu Monga	12
57.	Kalyan Raidongia	Ramanujan Fellowship	SERB	3800000	NA	36
58.	Ajay Kalamdhad	Pilot scale studies on rotary drum composting and Anaerobic biphased baffled reactor (ABBR) technology for biomethanation of industrial sludges and aquatic weeds	DST	10367832	NA	36
59.	Ramabadran Ganesh Narayanan	Forming of automotive materials at elevated temperature and selection of lubricants for sustainable manufacturing	DST	1111000	1. Prof. P.S. ROBI	24
60.	Adapa Murali Krishna	Comprehensive rainfall induced landslide hazard analysis of	DST	3960000	1. Arindam Dey	24

		‘Sunsali’ and ‘Noonmati’ hills in Guwahati region				
61.	V.V. Goud	Integrated biorefinery approach towards production of sustainable fuel and chemicals from Algal biobased systems	DBT	7641321	NA	48
62.	Rajan Choudhary	Use of Industrial Waste Steel Slag in Design of Open Graded Asphalt Friction Courses	DST	9615200	NA	36
63.	Shankar Prasad Kanaujia	Structural investigation of sugar ABC transporters in Mycobacterium tuberculosis and thermophiles; application to the development of drug carriers and biosensors	DBT	12638400	V.K Dubey	36
64.	Priyankoo Sarmah	Development of Speech Interface for Form-filling application (SiFA) in Five Indian languages	MHRD	9120000	NIL	24
65.	Ravi Mokashi Punekar	Design of Gear Avalanche Survival	HAWS	3122064	NIL	30
66.	A. B. Kunnumakkara	An investigation of the therapeutic potential of buttein isolated from toxicodendron verniciffuum against human oral squamous carcinoma	SERB	2255000	NIL	24
67.	Lalit Mohan Pandey	An advanced integrated process for the treatment of sewage plant effluent using bio-based antimicrobial metal biosorbents and photocatalytic materials	DST	1186000	1. Animes Kumar Golder	24



**PART IV**

Administrative and Technical Staffs (Group A)

Degree Awarded

Progress of Construction Work

Summary of Institute Accounts



**ADMINISTRATIVE STAFF (GROUP A)**

<b>Name</b>	<b>Designation</b>	<b>Department/Section</b>
Dr. Suresh S.M.	Registrar	
Mr. Dibya Jyoti Goswami	Joint Registrar	Finance & Accounts
Mr. Prakash Hazarika	Joint Registrar	Administration
Mr. Dilip Boro	Joint Registrar	Students' Affairs
Mr. Kuntal Bhuyan	Joint Registrar	Stores & Purchase
Mr. Dhruvajyoti Sharma	Joint Registrar	Academic Affairs
Mr. T. Tongkholum Haokip	Joint Registrar	Establishment
Mr. Gunamani Das	Assistant Registrar	EO-cum-SRC & Additional charge of Student Affairs
Mr. Labanu Kishore Konwar	Assistant Registrar	Industrial Interactions & Special Initiatives
Dr. Subhajit Choudhury	Assistant Registrar	Research & Development
Mr. Pranab Borgohain	Assistant Registrar	Legal Cell & Public Information Officer
Mr. Sanjay Mandal	Assistant Registrar	On Deputation
Ms. Monalisa Kakati	Assistant Registrar	Faculty Affairs
Ms. Nandeeta Das Salhotra	Assistant Registrar	Alumni & External Relations
Ms. Amaya Phukan	Assistant Registrar	Directors Office
Mr. Kushal Ch. Das	Assistant Registrar	Administration
Mr. Dipon Lal Boishya	Assistant Registrar	Finance & Accounts
Mr. Dip Jyoti Dutta	Assistant Registrar	Internal Audit
Mr. A. Wanshai Shynret	Assistant Registrar	Academic Affairs & Additional charge of Sr. Security Officer
Dr. Tamal Kr. Guha	Librarian	LNB Central Library
Mr. Ranjit Kr. Rajbangshi	Assistant Librarian	RAM Cell
Dr. Sanjib Kr. Deka	Assistant Librarian	LNB Central Library
Dr. Anuj Kr. Baruah	Chief Medical Officer (SAG)	Medical
Dr. Mala Borthakur	Chief Medical Officer (SAG)	Medical
Dr. Leena Barua	Chief Medical Officer (SAG)	Medical
Dr. Surojit Majumdar	Medical Officer	Medical
Dr. Pallabi Sarmah	Medical Officer	Medical
Mr. Nirupam Roy	Addl. Superintending Engineer	Infrastructure, Planning & Management
Mr. Aditya Kr. Gogoi	Executive Engineer	Infrastructure, Planning & Management
Mr. Srikanta Senapati	Executive Engineer	Infrastructure, Planning & Management

Mr. Dibyajyoti Dutta	Executive Engineer	Infrastructure, Planning & Management
Mr. Nayan Kr. Sarma	Asst. Executive Engineer	Infrastructure, Planning & Management
Mr. Kumud Barman	Asst. Executive Engineer	Infrastructure, Planning & Management
Mr. Bhaskar Choudhury	Asst. Executive Engineer	Infrastructure, Planning & Management
Mr. Sunirmal Bhattacharjee	Asst. Executive Engineer	Infrastructure, Planning & Management

#### TECHNICAL STAFF (GROUP A)

Name	Designation	Department/Section
Dr. Laxmi Narayan Sharma	Sr. Technical Officer	Electronics & Electrical Engineering
Dr. Sanjib Das	Sr. Technical Officer	Electronics & Electrical Engineering
Dr. Pallav Kr. Dutta	Sr. Technical Officer	Directors Office
Dr. Sidananda Sarma	Technical Officer Gr. I	Physics
Mr. Chandan Borgohain	Technical Officer Gr. I	Central Instruments Facility
Dr. Arun Ch. Borsaikia	Technical Officer Gr. I	Civil Engineering
Dr. Babulal Das	Technical Officer Gr. I	Chemistry
Mr. Kaustubh Acharyya	Technical Officer Gr. I	Nanotechnology
Dr. Deepmoni Deka	Technical Officer Gr. I	Environment
Dr. Lepakshi Barbora	Technical Officer Gr. I	Energy
Ms. Josephine S.	Technical Officer Gr. I	Electronics & Electrical Engineering
Mr. Sanjoy Das	Technical Officer Gr. I	Computer & Communication
Mr. Manab Mohan Borah	Technical Officer Gr. I	Computer & Communication
Dr. Kula Kamal Senapati	Technical Officer Gr. I	Central Instruments Facility
Ms. Jonali Saikia	Technical Officer Gr. I	Civil Engineering
Dr. Rituraj Saikia	Technical Officer Gr. I	Mechanical Engineering
Mr. Jishu Krishna Ghosh	Technical Officer Gr. I	Computer & Communication
Mr. Nanu Alan Kachari	Technical Officer Gr. I	Computer Science & Engineering
Mr. Bhriguraj Borah	Technical Officer Gr. I	Computer Science & Engineering
Mr. Pranjol Paul	Technical Officer Gr. I	Mechanical Engineering

Dr. Madhuriya Pratim Das	Technical Officer Gr. I	Electronics & Electrical Engineering
Mr. Guna Kanta Saikia	Technical Officer Gr. I	Computer & Communication
Ms. Ritumoni Kalita	Technical Officer Gr. I	Chemical Engineering
Dr. Pranjoli Das	Technical Officer Gr. I	Nanotechnology
Mr. Iqbal Inam	Technical Officer Gr. I	Public Relations, Branding & Ranking
Md. Jeherul Islam	Technical Officer Gr. I	Computer & Communication
Mr. Harsaraj Biswanath	Technical Officer Gr. I	Chemical Engineering
Ms. Abhilasha Mohan Baruah	Technical Officer Gr. II	Chemistry
Dr. Dolly Gogoi	Technical Officer Gr. II	Central Instruments Facility
Mr. Kuldeep Kalita	Technical Officer Gr. II	Civil Engineering
Mr. Samarjyoti Kalita	Technical Officer Gr. II	Civil Engineering
Mr. Debarshi Baruah	Technical Officer Gr. II	Energy
Mr. Dhruvajyoti Pathak	Technical Officer Gr. II	Computer & Communication
Mr. Bishnu Tamuli	Technical Officer Gr. II	Design
Mr. Hitesh Sharma	Technical Officer Gr. II	Design
Mr. Pankaj Kumar	Technical Officer Gr. II	Chemical Engineering
Mr. Basab Bijoy Purkayastha	Technical Officer Gr. II	Physics
Mr. Aditya Kalita	Technical Officer Gr. II	Physics
Mr. Paban Bujor Barua	Technical Officer Gr. II	Electronics & Electrical Engineering
Mr. Gobinda Chhetry	Technical Officer Gr. II	Nanotechnology
Ms. Sayanika Das	Technical Officer Gr. II	Nanotechnology
Dr. Dhruvajyoti Bordoloi	Technical Officer Gr. II	Mechanical Engineering
Mr. Jyotirmoy Kakati	Technical Officer Gr. II	Mechanical Engineering
Mr. Deepjyoti Saikia	Technical Officer Gr. II	Computer & Communication
Ms. Aparna Barik	Technical Officer Gr. II	Computer & Communication
Mr. Romen Ch. Dutta	Asst. Physical Education Officer	Gymkhana
Dr. Diganta Saikia	Asst. Physical Education Officer	Gymkhana

Mr. Nandan Kanan Das	Asst. Workshop Superintendent	Mechanical Engineering
Ms. Pallabita Barooah Chowdhury	Students' Counsellor	Student Affairs
Ms. Namrata Naomi Rynjah	Students' Counsellor	Student Affairs
Dr. Nesmita Das	Students' Counsellor	Student Affairs

**DEGREE AWARDED****List of students who have fulfilled the requirements for award of BTech degree in Computer Science and Engineering**

Sl. No	Roll No	Name
1.	160101001	AADIL HODA
2.	160101002	AAYUSH SANJAY AGARWAL
3.	160101003	ABHAY KSHATRIYA
4.	160101004	ABHINAV HINGER
5.	160101005	ABHINAV MISHRA
6.	160101006	ABHISHEK BHARDWAJ
7.	160101007	ABHISHEK KUMAR KOTIYA
8.	160101008	ABHISHEK RANJAN
9.	160101009	ABHISHEK SURYAVANSHI
10.	160101010	ADITYA CHOUHAN
11.	160101011	AKHIL CHANDRA PANCHUMARTHI
12.	160101012	ANSH SOOD
13.	160101013	APURVA N SARAOGI
14.	160101014	ARPAN KONAR
15.	160101015	ARPIT GUPTA
16.	160101016	ASHVEEN BANSAL
17.	160101018	AVINASH UCHCHAINIYA
18.	160101019	BALABOLU TUSHARA LANGULYA
19.	160101020	BEDADHALA MANOJ REDDY
20.	160101021	BHADKE RAJAS JAGANNATH
21.	160101022	BODDU HARI
22.	160101023	CHANDRA PRAKASH MEENA
23.	160101024	DAMAN TEKCHANDANI
24.	160101025	DIVYAM AGARWAL
25.	160101026	DIVYANSH SHARMA

Sl. No	Roll No	Name
26.	160101027	DURGESH YADAV
27.	160101028	EKTA DHAN
28.	160101029	GUDALA AJAYRAM
29.	160101030	HARSHIT AGRAWAL
30.	160101031	HARSHIT GUPTA
31.	160101032	HARSHIT SHARMA
32.	160101033	HARSHIT SRIVASTAVA
33.	160101034	HEMANT YADAV
34.	160101035	INDERPREET SINGH CHERA
35.	160101036	JATIN GOYAL
36.	160101037	KAKUSTHAM ANURAG
37.	160101038	KANIKA AGARWAL
38.	160101039	KAPIL GOYAL
39.	160101040	MALLALA BHARGAV
40.	160101042	MITANSH JAIN
41.	160101043	MOHIT SINGH
42.	160101044	MUKUL VERMA
43.	160101045	MYNENI LAKSHMISAIDURGA
44.	160101046	NAMIT KUMAR
45.	160101047	NIKHIL KUMAR
46.	160101048	NITIN KEDIA
47.	160101049	PANT ROHIT RAKESH
48.	160101050	PARANJAY BAGGA
49.	160101051	PHOOL CHANDRA
50.	160101052	POREDDY SAI KIRAN REDDY
51.	160101054	RAVI VENKATA NAGA PAVAN KUMAR
52.	160101055	RITIK AGRAWAL



Sl. No	Roll No	Name
53.	160101056	SACHIN CHOUHAN
54.	160101057	SAHIB KHAN
55.	160101058	SAHIL GARHWAL
56.	160101059	SAMYAK JAIN
57.	160101060	SANCHIT JANGIR
58.	160101061	SAURABH BAZARI
59.	160101062	SAVINAY
60.	160101063	SAVSANI KEVIN MUKESHBHAI
61.	160101064	SEELAM PRADEEPA
62.	160101065	SHIMONA VERMA
63.	160101066	SHIVAM KUMAR
64.	160101067	SHREYANSHI BHARADIA
65.	160101068	SHUBHENDU PATIDAR
66.	160101069	SHUBHAM KUMAR KOUL
67.	160101070	SHUBHANKER JAUHARI
68.	160101071	SIDDHARTH SHARMA
69.	160101072	SPARSH BANSAL
70.	160101073	SUJOY GHOSH
71.	160101075	VARUN KUMAR KEDIA
72.	160101076	VIVEK RAJ
73.	160101077	VYKUNTAM AKHIL
74.	160101078	WAKADE YUGANDHAR MORESHWAR
75.	160101079	YAGYANSH BHATIA
76.	160101080	YASH RATHORE
77.	160101081	DEBANGSHU BANERJEE
78.	160101082	AMEYA DAIGAVANE
79.	160101083	SHUBHAM GOEL

Sl. No	Roll No	Name
80.	160101084	NITESH JINDAL
81.	160101085	AKUL AGRAWAL
82.	160101086	SHAURYA GOMBER
83.	160101087	ARCHIT JUGRAN
84.	160101088	RISHABH JAIN
85.	130101013	B HITESH VAMSHI
86.	130101039	KOTHAPALLI MOHAN SAI KRISHNA
87.	140101019	DASARI BINDU BHARADWAJ
88.	140101035	LONGKIRI BEY
89.	140101075	TANGULA ARUN CHANDH
90.	150101007	ANKIT PRAJAPATI
91.	150101013	AYUSH SINGH
92.	150101016	BHOLA SHANKAR RATHIA
93.	150101023	G SHARATH KUMAR
94.	150101024	GOURAV
95.	150101030	KRISHNA KUMAR
96.	150101048	PRAVEEN JANGID
97.	150101056	SAMRAT YADAV
98.	150101067	SHASHANK GAREWAL
99.	150101074	SOUMIK ROY

**List of students who have fulfilled the requirements for award of BTech degree in Electronics and Communication Engineering**

Sl. No	Roll No	Name
1.	160102001	AADITYA SANWAL
2.	160102002	ABHISHEK MATHUR
3.	160102006	AMARTYA ROY
4.	160102008	AMEYA VIKRAM
5.	160102009	AMRITANSH KUMAR SHARMA
6.	160102010	ANAND
7.	160102011	ANIKET BALIYAN
8.	160102012	ANKUR PRAKASH
9.	160102013	ANVITA CHOUDHARY
10.	160102014	ARCHANA
11.	160102015	AYUSH SHIVALI
12.	160102017	CHINTALA JALASWI
13.	160102018	CHIPPA ANUDEEP
14.	160102019	CHITIPROLU AJITH
15.	160102021	DHEERAJ SARAF
16.	160102022	DIPJYOTI DAS
17.	160102023	EKAGRA RANJAN
18.	160102024	ESHANT VERMA
19.	160102025	GAURAV LIKHAR
20.	160102026	GOLI RAVITEJA
21.	160102029	KADAM MANISH DNYANESHWAR
22.	160102031	KHARWADKAR SAGAR SACHIN
23.	160102032	KOLLA VENKATA MANIDEEP
24.	160102033	KONDA CHANDU
25.	160102034	KURUBA ABHIJITH
26.	160102035	MARAM DURGA PRASAD

Sl. No	Roll No	Name
27.	160102038	MAMIDI CHANDRA MOULI
28.	160102040	MAYANK SINGLA
29.	160102041	MRIDUL SHARMA
30.	160102044	NAGENDRA BALOT
31.	160102046	NILESH MITTAL
32.	160102048	PARTH MAHESHWARI
33.	160102049	PIYUSH RAJ
34.	160102050	PRATEEK SHARMA
35.	160102052	RAJEEV NAYAN
36.	160102053	RAUSHAN KUMAR
37.	160102054	RAUSHAN SINGH
38.	160102055	RAYAPU SAI PRANAV REDDY
39.	160102056	ROHIT GUPTA
40.	160102057	SACHIT KUCHAR
41.	160102058	SANKALP JAIN
42.	160102060	SHANKHAJYOTI DE
43.	160102061	SHASHANK VATS
44.	160102062	SHRUTI MITTAL
45.	160102063	SIDHARTH HEMANI
46.	160102064	SPARSH JAIN
47.	160102065	TARUN KUMAR YADAV
48.	160102066	TEJAS K ATREYA
49.	160102068	UTKARSH SINGH
50.	160102069	VEMURI DHARANI NATH
51.	160102070	VIVEK RAJPUT
52.	160102071	WAGHMARE SANKET
53.	160102072	YASH KULKARNI

Sl. No	Roll No	Name
54.	160102073	YASHWANTH KUMAR TIRUPATI
55.	160102074	ADDRISH ROY
56.	160102075	AVI JAIN
57.	160102076	NAMAN PODDAR
58.	160102077	SAROJIT AUDDYA
59.	160102078	ANKIT MATHUR
60.	160102079	RAJAT KUMAR SINGH
61.	160102080	ARIGHNA CHAKRABARTY
62.	160102081	SHATAKSHI GUPTA
63.	160102082	PRAVANDAN CHAND
64.	160102083	DAVE ACHAL ALOK
65.	160102084	SANSKAR BHARTI
66.	160102085	SHUBHANSH AWASTHI
67.	160102086	SOUNAK RAY
68.	160102087	DEEPTI MATHUR
69.	160102088	SHETH PARTH MAHESH
70.	11010208	AMRIT RAJ
71.	120102052	ROHIT THAOSEN
72.	140102018	CHETAN HASAGONDA
73.	140102036	NAGARJUNA H R
74.	140102066	UDAY SHANKAR KUMAR
75.	150102020	GIRIJA SHANKAR KUANR
76.	150102028	KONALA VIJAYA KRISHNA
77.	150102032	MANDARAPU VAIBHAV
78.	150102051	PRANAV SATISH TOTALA
79.	150102068	UTTAM KUMAR

**List of students who have fulfilled the requirements for award of BTech degree in Mechanical Engineering**

Sl. No	Roll No	Name
1.	160103002	ABHAY PRATAP SINGH
2.	160103003	ABHISHEK TIWARI
3.	160103004	ABHISHEK VERMA
4.	160103005	AGARWAL TEJAL SANJAY
5.	160103006	AKASH DEY SARKAR
6.	160103007	AKSHAY KUMAR BAIRWA
7.	160103008	AMAN GOSWAMI
8.	160103009	AMIT KUMAR
9.	160103010	ANIKET MANDLE
10.	160103011	ANMOL DEEP
11.	160103012	AYUSH KUMAR CHOUDHARY
12.	160103013	AYUSHMAAN YADAV
13.	160103015	CHAKRAVADHANULA VEDANT VENKAT
14.	160103016	CHANDAN T
15.	160103017	CHANDRAHAS KUMAR
16.	160103018	CHAUHAN SAMARTH MANISHKUMAR
17.	160103019	DASARI RAGHUPRASAD
18.	160103020	DATTI NAVEEN
19.	160103021	DEEP ANAND BASUMATARY
20.	160103022	DEEPAK RAJPUROHIT
21.	160103023	DEEPESH CHOUDHARY
22.	160103024	DEVASHISH KUMAR
23.	160103025	DHIRAJ MITTAL
24.	160103026	DHONGDE YASH BHAGWAN
25.	160103027	DILIP SAINI
26.	160103028	DUDDU VARAPRASAD

Sl. No	Roll No	Name
27.	160103029	DYUMAN VILASKUMAR JOSHI
28.	160103030	GALLA LAHARI
29.	160103031	GANPAT LAL SONARIWAL
30.	160103032	GAURAV JAISWAL
31.	160103033	GUTAPU ROHITH KUMAR
32.	160103034	HIMANSH KUMAR MITTAL
33.	160103036	HIMANSHU VERMA
34.	160103037	HRIDYANSH VERMA
35.	160103038	JATIN KUMAR MANGAL
36.	160103039	KALANI ADITYA SACHIN
37.	160103040	KARTIK KANAN
38.	160103041	KAUSHAL KUMAR
39.	160103042	LOKHANDE PRANIT DILIP
40.	160103043	MALOTHU SRINIVAS
41.	160103044	MAMIDI VENKATESH
42.	160103045	MANTHAN SHARMA
43.	160103046	MAYANK KUMAR
44.	160103047	MD ZIYAU HAQUE
45.	160103048	MOHAMMED ASIF KHAN
46.	160103049	MOTHIKA HEMANTH
47.	160103050	MRATUNJAY SINGH BHADORIYA
48.	160103051	NAMAN PAL
49.	160103052	NIMIT VIJAY
50.	160103054	NITUL DEORI
51.	160103055	PANKAJ KUMAR MANDAL
52.	160103056	PARIKH RUDRA RASESH
53.	160103057	PARV JAIN

Sl. No	Roll No	Name
54.	160103058	RAHUL SAXENA
55.	160103059	RAHUL YADAV
56.	160103060	RAVI KANT PANDEY
57.	160103061	RISHABH SACHAN
58.	160103062	SACHIN SHARMA
59.	160103063	SAGAR PANWAR
60.	160103064	SAPAVAT AMARNATH
61.	160103065	SHAILESH KUMAR
62.	160103067	SHRAWAN AGRAWAL
63.	160103069	SUDHANSHU VERMA
64.	160103070	SURYANSH SINGH
65.	160103071	THANGELLA SRIKAR REDDY
66.	160103072	THARUN PATNAIK MADALA
67.	160103073	UTKARSH AGGARWAL
68.	160103074	VIKAS KUMAR
69.	160103075	VISHVA JEET
70.	160103076	VRISHANK BHARDWAJ
71.	160103077	YASH KULKARNI
72.	160103078	YASHPAL SINGH
73.	160103079	YUGAM JAYANT
74.	160103080	GURIBELLI PRADEEP KUMAR
75.	160103081	PANSE NIKHIL CHETAN
76.	160103082	MEDISETTY SIVARAMA KRISHNA
77.	160103083	SANCHIT JHUNJHUNWALA
78.	160103084	MD ASIF IMAM
79.	160103085	AYUSH NARAYAN
80.	160103086	NAWAL MRIDULYA



<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
81.	150103016	BANDRAPALLI TEJA
82.	150103024	DEBASHRIT DAS
83.	150103048	NARNAWARE AJINKYA PRAKASH
84.	150103052	PENMETSА GOPAL KRISHNA RAJU
85.	150103072	SUTE SANKET CHANDU

**List of students who have fulfilled the requirements for award of BTech degree in Civil Engineering**

Sl. No	Roll No	Name
1.	160104001	A OM PRAKASH SUBUDHI
2.	160104002	ABHIRAM SINGH
3.	160104003	ABHISHEK KAUSHAL
4.	160104004	AJAY SINGH
5.	160104005	ALIASGAR BHARMAL
6.	160104006	ANAND KUMAR
7.	160104007	ANKIT AHUJA
8.	160104010	ANSHUL MODI
9.	160104011	ARNAV BHASKAR
10.	160104012	ATUL KUMAR SINGH
11.	160104013	AVUGADDI JITHENDRA ROY
12.	160104015	BONALA KRISHNA
13.	160104016	BUSA ROHITH KUMAR REDDY
14.	160104017	DAKHARE SRUSHTI RAMKRISHNA
15.	160104018	DEEPAK GARG
16.	160104019	DEEPAK KUMAR
17.	160104020	DEEPAK KUMAR
18.	160104021	DEEPAK SHARMA
19.	160104022	DEVENDRA SINGH MEENA
20.	160104023	DHANANJAY PATHAK
21.	160104024	FAIJAN DAYER
22.	160104025	GANTA SAI CHAKRADHAR
23.	160104027	GAUTAM KUMAR SINGH
24.	160104029	GUNTI CHETAN
25.	160104031	HEMANT GARHWAL
26.	160104032	HEMRAJ CHOUDHARY

Sl. No	Roll No	Name
27.	160104033	HIMANSHU KAUSHIK
28.	160104034	KADAVAKOLLU UDAY KIRAN
29.	160104035	KAMIREDDY SAI SRINIVAS REDDY
30.	160104036	KAPISH VERMA
31.	160104038	KUNAL GAURAV
32.	160104039	MANISH KUMAR
33.	160104040	MANISH KUMAR SIHARA
34.	160104041	MANU PORWAL
35.	160104042	MAYANGLAMBAM KHOGENDRAJIT SINGH
36.	160104044	MEGH CHAND
37.	160104046	NARESH KUMAR MEENA
38.	160104047	NAYAN MANGAL
39.	160104048	PIYUSH GUPTA
40.	160104049	PRABHJOT SINGH GILL
41.	160104050	PRAKHAR SHRIVASTAVA
42.	160104051	PRANAV DHADNEKAR
43.	160104052	PRASHANT SINGH
44.	160104053	PRIYANSHU KUMAR SINHA
45.	160104054	PRIYANSHU RAJ
46.	160104055	RACHIT SRIVASTAVA
47.	160104056	RAJAT DHANOTIYA
48.	160104058	RAJAT SHARMA
49.	160104059	RAKESH
50.	160104061	RAKESH ROUSHAN
51.	160104064	SAMPAT CHOUDHARY
52.	160104066	SARTHAK SAXENA
53.	160104068	SAURABH KUMAR

Sl. No	Roll No	Name
54.	160104069	SAURAV KHANDELWAL
55.	160104070	SHERU KHAN
56.	160104071	SHIVENDU ANAND
57.	160104072	SHRIVASTAVA AYUSH ABHAY
58.	160104073	TUSHAR YADAV
59.	160104074	VAIBHAV
60.	160104075	VIBHANSHU MISHRA
61.	160104076	VIKRANT CHANDARANA
62.	160104077	VINAY KUMAR ARYA
63.	160104078	VIVEK KUMAR
64.	160104079	VIVEK SINGH
65.	160104080	YASHWARDHAN PANWAR
66.	160104081	YOGESH KUMAR
67.	130104010	ANKIT TAMTA
68.	140104046	OJASV AGARWAL
69.	150104003	ABHISHEK JAIN
70.	150104014	DEVРАНJAN MEENA
71.	150104018	GAURAV KUMAR
72.	150104025	KONDREDDIGARI SHRIKAR REDDY
73.	150104046	RANJEET ROY
74.	150104053	SHARAD KUMAR
75.	150104056	SHIVAM PATHAK
76.	150104071	TELUGU NAVEEN
77.	150104076	VISHVAJEET KANT
78.	150104077	WILLIAM DUPAK

**List of students who have fulfilled the requirements for award of BTech degree in  
Biotechnology**

Sl. No	Roll No	Name
1.	160106001	AJAY BHAKHAR
2.	160106002	AMAN NAHAR
3.	160106003	ANUPAM MISHRA
4.	160106005	ASHWIN M DEVANGA
5.	160106007	BALLA NAVEEN
6.	160106008	BIKASH DAS
7.	160106009	DAS BEDADEEP
8.	160106010	DEEPAK NAGAR
9.	160106012	HRIDAYESH DEBBARMA
10.	160106013	HRITUSHREE MOG
11.	160106014	ISHU KALRA
12.	160106015	JAIN PAKSHAL RAVI
13.	160106016	JASMEET SINGH
14.	160106017	JUNU RANI BRAHMA
15.	160106018	KARTHIK J
16.	160106022	MANAV AGRAWAL
17.	160106024	MUNAGADA NAVEEN KUMAR
18.	160106026	N SUDHEER
19.	160106027	NAMRATA GUPTA
20.	160106028	NEHA MEENA
21.	160106030	PATIL DIGVIJAY RAVINDRA
22.	160106031	POTINI ADITYA
23.	160106032	PRASHANT KUMAR
24.	160106033	PULKIT AGARWAL
25.	160106035	RAJNIKANTH KAUSALYA
26.	160106036	RAMTEKE ANIKET VISHWAJEET

Sl. No	Roll No	Name
27.	160106038	SAMBARAJU YASHWANTH
28.	160106040	SANGAM SHARMA
29.	160106042	SHELKE SURAJ JAYANT
30.	160106043	SHUBHANG SHUKLA
31.	160106044	SHWETANK PANWAR
32.	160106045	SUBHAM PRASAD
33.	160106046	SUJAL HARSH RANJAN
34.	160106047	UMANG MATHUR
35.	160106048	V PRASANNA VENKATESH
36.	160106049	VIJAYANT BALHARA
37.	160106050	VIKAS DIWAKER
38.	160106051	VINIT YADAV
39.	160106052	VIPIN JAGRIT
40.	160106053	VISHWAS MISHRA
41.	160106054	VIVEK KUMAR SAINI
42.	160106056	YERRA PRAMOD REDDY
43.	140106032	KARIPE UDAY KUMAR
44.	140106038	MD SHAHNAWAZ ALAM
45.	140106044	RAJSHEKHAR PEGU
46.	150106028	NAKSHATRA SHARMA
47.	150106035	RAGHUNATH KATARIYA
48.	150106037	RAKESH KUMAR YADAV
49.	150106045	SHUBHANKAR VERMA
50.	150106047	SURAJ CHAURASIA
51.	150106048	TATINENI PRAKASH RAJ

**List of students who have fulfilled the requirements for award of BTech degree in Chemical Engineering**

Sl. No	Roll No	Name
1.	160107001	ADITYA JAISWAL
2.	160107002	ADVAIT GANGAL
3.	160107003	AKASH SONOWAL
4.	160107004	AKSHAT JAIN
5.	160107005	ALANKRAT SHIVHARE
6.	160107006	AMIT KUMAR
7.	160107008	ANSHUMAN DHAR
8.	160107009	ANTARIKH SAIKIA
9.	160107010	ARULMURUGAN M
10.	160107011	ASHISH KUMAR GAUTAM
11.	160107012	ASHISH RAJ
12.	160107013	ASHITA GUPTA
13.	160107014	AVI GHANSHANI
14.	160107015	AVINASH KUMAR
15.	160107017	AYUSH KEDAWAT
16.	160107018	AYUSH SHARMA
17.	160107019	BHANUPRAKASH SINGH
18.	160107020	BHUVAN AGRAWAL
19.	160107021	BONDA LAXMI SAI KRISHNA
20.	160107024	DEVESH SONI
21.	160107025	DHEERAJ KUMAR
22.	160107026	DHRUV AGARWAL
23.	160107027	DIVY RANJAN
24.	160107028	HARSH KEDIA
25.	160107029	HITESH LUHAR
26.	160107030	IRAMANI PARTH CHANDRASHEKHAR

Sl. No	Roll No	Name
27.	160107031	JYOTISHMAN MAZUMDAR
28.	160107034	MAYANK DHAKER
29.	160107035	MAYANK VERMA
30.	160107036	MRIDUL
31.	160107037	MUKESH ANAND MANJHI
32.	160107038	PARUL BANSAL
33.	160107040	POLANATI SAI ARUN KUMAR
34.	160107041	PRADEEP VERMA
35.	160107042	PRAKSHAL JAIN
36.	160107044	PRATYUSH BHARDWAJ
37.	160107045	PREETI GUPTA
38.	160107046	PRIYANSHU VERMA
39.	160107047	RAJ KUMAR KUMAWAT
40.	160107048	RAVI KUMAR
41.	160107049	RITIK KUMAR MEENA
42.	160107050	SABBIREDDY RAGHU RAM
43.	160107051	SAMBIT HOTA
44.	160107052	SANNIDHYA SHARMAH
45.	160107054	SAURABH DONGARE
46.	160107055	SAYAN HALDER
47.	160107056	SHIVANK SHRIDHAR
48.	160107057	SHIVPRASAD DUBEY
49.	160107058	SHRUTI SHARMA
50.	160107060	SRIRAM NATARAJAN
51.	160107062	SUBHASH CHANDER
52.	160107063	SUBHRADIP ROY
53.	160107064	SUBODH TRIPATHI



Sl. No	Roll No	Name
54.	160107065	SUMIT
55.	160107066	UMANG KUMAR BAJAJ
56.	160107067	VIKAS GEHLOT
57.	160107068	VIKRAM DOLEY
58.	160107069	YOGESH KUMAR
59.	10010758	VASAM PRAVEENA
60.	130107012	CHIRAG BENIWAL
61.	130107034	NAMRATA DAS
62.	140107025	DURLOV JYOTI PEGU
63.	140107030	KAUSHIK DOLEY
64.	140107047	RAJDEEP DOLEY
65.	150107002	ABHISHEK TOMAR
66.	150107003	ADARSH K SIVARAM
67.	150107027	KONATHALA Y S V SAI ASHOK
68.	150107034	MIHIR KUMAR MECH
69.	150107061	UTPAL SAIKIA

**List of students who have fulfilled the requirements for award of BTech degree in Electronics and Electrical Engineering**

Sl. No	Roll No	Name
1.	160108001	ADITYA RAJ
2.	160108002	AKASH PANDAURIYA
3.	160108003	ALOK KUMAR
4.	160108004	AMAN VERMA
5.	160108005	ANIKET AGRAWAL
6.	160108006	ANKIT KUMAR
7.	160108007	ANUJ GUPTA
8.	160108008	ANUPAM KHANDELWAL
9.	160108009	ANURAG GOTHWAL
10.	160108010	APOORVA KUMAR
11.	160108012	ASHOK KUMAR
12.	160108013	BALBIR SINGH
13.	160108015	DHOOLAM SAI GOPI KRISHNA
14.	160108016	GANDHI VARSHIL
15.	160108017	GAURAV GUPTA
16.	160108018	VATSAL GOEL
17.	160108020	HRISHABH RAGHUWANSHI
18.	160108021	KOLLA GANESH
19.	160108022	KONARK JAIN
20.	160108023	KOTTEM JATHINESH
21.	160108024	MAYANK PATEL
22.	160108025	MOHAN MURARI
23.	160108026	MOHIT CHANDAK
24.	160108027	MUKESH KUMAR MEENA
25.	160108028	NARENDRA PAL
26.	160108029	PALLAVI RANI

Sl. No	Roll No	Name
27.	160108030	PINGILI SAI PRANAY REDDY
28.	160108031	PUSHYA BANSAL
29.	160108032	RAMAVTAR FAROLIYA
30.	160108033	ROHIT VINAYAK DESHMUKH
31.	160108036	SHANTANU KUMAR
32.	160108037	SHIVRAJ SHARMA
33.	160108038	SHREYAS SHUBHAM
34.	160108039	UMESH GOYAL
35.	160108041	VISHESH ARORA
36.	160108042	GAURAV ISRANI
37.	160108043	CHANDAN AGRAWAL
38.	160108044	AVISH KABRA
39.	160108045	PRATEEK MANOCHA
40.	160108046	NISHANT SHEKHAR
41.	160108047	KEVIN JOSE
42.	160108048	AAKASH KUMAR
43.	09010813	KALAPALA VEDA SREE
44.	140108037	SUMIT KUMAR
45.	150108011	DESHMUKH THAKUR KARANSINGH
46.	150108026	RAHUL RAMTEKE

**List of students who have fulfilled the requirements for award of BTech degree in Engineering  
Physics**

Sl. No	Roll No	Name
1.	160121001	ABHIRIKSHMA NANDI
2.	160121003	ADDURI BHANU PRATAP RAJ
3.	160121004	ADITHYA KAADE ARVIND
4.	160121005	AKSHAY RAO
5.	160121006	AL AMEEN.P
6.	160121007	AMBAR DEB BARMA
7.	160121009	ANKUR SANTORIA
8.	160121010	ASHUTOSH KUMAR MANDAL
9.	160121011	DARSHAN RAJENDRA PATIL
10.	160121013	GADDAMANUGU BHUVANA DATTA
11.	160121014	GAURAV JHAMNANI
12.	160121015	GAURAV KHEMKA
13.	160121016	HARSHITH R
14.	160121017	JEEMANI HALOI
15.	160121018	JISHNU CHANDER R
16.	160121020	KARAN YOGI
17.	160121021	KARASANI OMKARA SOWMYA
18.	160121022	KHANIVADEKAR CHIRAG KIRAN
19.	160121024	MOHIT SINHA
20.	160121026	NELAKANTI SHOBITH
21.	160121027	NIKITA TAMBE
22.	160121030	PATIL ANIKET LAXMAN
23.	160121031	PRASHANTH R
24.	160121033	RAGHAV PANDEY
25.	160121034	RAHUL V POOJARI
26.	160121035	RAVINDER BEDI

Sl. No	Roll No	Name
27.	160121036	RIETESH RAJESH AMMINABHAVI
28.	160121037	SHARU GOEL
29.	160121038	SHETH PEARL MILAN
30.	160121039	SHUBHAM SINGH
31.	160121040	T M ABDULKHADER
32.	160121041	ULHE ABHILASH SANJAY
33.	160121043	VISHNU AGRAWAL
34.	160121044	VIVREKAR AVANI NIRANJAN
35.	140121007	ANUPAM JAIN
36.	140121017	DIPAK MAROTI GAWARE
37.	140121019	KAPARAPU AKHIL NAIDU
38.	150121014	HIMANSHU BHAWSAR
39.	150121019	KEELU AKSHIT
40.	150121022	LOVEKUSH KUMAR SAINI
41.	150121038	SAMEER KOTWAL
42.	140121010	B.S. LOHITH KUMAR

**List of students who have fulfilled the requirements for award of BTech degree in Chemical Science and Technology**

Sl. No	Roll No	Name
1.	160122001	AAKASH AGRAWAL
2.	160122002	ADDAGUDURI ANAND
3.	160122003	ADITYA ROSHAN
4.	160122004	AJINKYA PATIL
5.	160122006	ARINDOM SAIKIA
6.	160122007	ARVIND KUMAR NITHARWAL
7.	160122008	BHOOMIKA OJHA
8.	160122009	DEBARGHYA KUNDU
9.	160122010	DEEPA KUMARI
10.	160122011	DEERGHANSHU
11.	160122012	DHARANSH JAIN
12.	160122015	DIKSHANT
13.	160122016	JIGYASA
14.	160122017	KAILA HARSHA VARDHAN REDDY
15.	160122018	KUMAR AURINDAM
16.	160122019	MANOHAR PARALIYA
17.	160122020	MITHILESHWARI BHADE
18.	160122021	MITHLESH KUMAR
19.	160122023	NAYAN JYOTI DAS
20.	160122024	NISARG JADAV
21.	160122025	PANKAJ KUMAR
22.	160122026	POONAM KUMARI
23.	160122028	PURUSHOTTAM
24.	160122029	PURUSHOTTAM KUMAR
25.	160122030	RASHMI REKHA BORAH
26.	160122031	RISHIRAJ BORAH

Sl. No	Roll No	Name
27.	160122032	SANJEEV RANJAN
28.	160122033	SAURAV KUMAR
29.	160122035	SHAIFALI AGRAWAL
30.	160122036	SHAMBHAVI DAS
31.	160122038	SIDDHARTH CHANDAN
32.	160122039	SONU YADAV
33.	160122040	SUMANT KUMAR
34.	160122041	SUYASH TIWARI
35.	160122043	VAISHNAVI BHARDWAJ
36.	160122044	VARUN SINGH
37.	160122045	VIVEK KUMAR
38.	150122045	YOGESHWAR RAJ BHARTI

**List of students who have fulfilled the requirements for award of BTech degree in Mathematics and Computing**

Sl. No	Roll No	Name
1.	160123001	AASHUTOSH AGRAWAL
2.	160123002	ABHISHEK DOGRA
3.	160123003	ANIMESH KUMAR
4.	160123004	ANKAM AMAN SAI
5.	160123005	ANURAG BARFA
6.	160123006	ASHISH RANJAN
7.	160123007	DIVYA KUMARI
8.	160123008	ESWAR MODALA
9.	160123009	GARIKAPATI GANESH
10.	160123010	HARSHIT SINGH
11.	160123011	HIMANSHU RANJAN
12.	160123012	ISHAN AZAD
13.	160123013	KAMANA VISHNU VARDHAN REDDY
14.	160123014	KARTIKEY KANT
15.	160123015	KODALI NAGA SAI ANIRUDH
16.	160123016	KSHITIJ NAYAR
17.	160123017	KULDEEP SHARMA
18.	160123018	MARUPAKA SAI TEJA
19.	160123019	MD ZATIN MERAZ
20.	160123020	MITANSHU MITTAL
21.	160123021	MUSKAN AGARWAL
22.	160123022	NALGONDA GNANESHWAR KUMAR
23.	160123024	NEELABH TIWARI
24.	160123025	NEHA ORAON
25.	160123027	NISHANT JAIN
26.	160123028	PRANAV JANGIR



Sl. No	Roll No	Name
27.	160123029	PRANAV SINGH MUKATI
28.	160123030	RAHUL KUMAR GUPTA
29.	160123031	RAJAN SUKANTH
30.	160123032	RAKSHIT TIWARI
31.	160123035	SATYAM KUMAR
32.	160123036	SHASHWAT JOLLY
33.	160123038	SHREY JAIN
34.	160123039	SHREYA JAIN
35.	160123041	THIRTHALA UDAYASRI
36.	160123043	YASH KUMAR
37.	160123044	YASH KOTHARI
38.	160123045	YERNENA SRINIVAS NAIDU
39.	160123046	RAJAT PALIWAL
40.	160123047	AMDEKAR ATHARVA SHAILESH
41.	160123048	UDDESHYA MATHUR
42.	160123049	HIMANSHU RAJ
43.	160123050	NAVEEN MATHEW
44.	160123051	SAURABH RAI
45.	160123052	SAYANI KUNDU
46.	160123053	M SIVA VENKATA RANGA REDDY
47.	160123054	DEEPAK KUMAR GOUDA
48.	140123027	ROHITH KUMAR PORIKA
49.	150123002	ACHINTYA SINGH
50.	150123008	CHIRANJIV GOYAL
51.	150123011	DEEPANSH GARG
52.	150123014	HEMANT KUMAR JANGIR
53.	150123021	MATCHA NIKHIL

<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
54.	150123025	MOTAPARTHY SAI KRISHNA PRATEEK
55.	150123028	NITESH KERKETTA
56.	150123036	SAMAR SHIVKUMAR DESHMUKH
57.	150123042	TAMBABATHULA VARSHNEYA BHUSHAN

**List of students who have fulfilled the requirements for award of BTech degree in Design**

Sl. No	Roll No	Name
1.	160205001	AADHITYA RAVICHANDRAN
2.	160205002	ABHISHEK GORE
3.	160205003	AGRATA PATEL
4.	160205004	ANGELA MARTHA MATHEWS
5.	160205005	ANUPAM SAI BOLLABOINA
6.	160205006	ARPIT VERMA
7.	160205007	ARRENIUS K
8.	160205008	ATHUL KRISHNA AJAY
9.	160205009	AVIK BISWAS
10.	160205010	BHIM DUTTA CHAURASIA
11.	160205011	CHOUTI EVANGLEEN
12.	160205012	DEEPSHIKHA PEGU
13.	160205013	GREESHMA S. MOHAN
14.	160205014	HARIS BASHEER
15.	160205016	KHYATI PRIYA
16.	160205017	KUNAL CHOUDHURY
17.	160205018	S. LOGESH
18.	160205019	M CHETAN
19.	160205020	MASHAHIB NAWAZ HASSAN
20.	160205021	MAYANK PARAB
21.	160205022	MIDHUN MOHAN
22.	160205023	MOHAMMAD AL KHALID
23.	160205024	MOHD SAIF
24.	160205025	NANG SAPHOI LONGPHAI
25.	160205029	PASUPULETI SRUJAN
26.	160205030	PRANJAL UDAY

Sl. No	Roll No	Name
27.	160205031	PRERNA VIMANIA
28.	160205034	RUPAL PATEL
29.	160205035	SAKTHI S
30.	160205036	SAMADRITA GHOSH
31.	160205037	SANJEET GADKARI
32.	160205038	SENTHUR BALAJI P S
33.	160205039	SIDHARTH P
34.	160205040	SREE MAHIT MUNAKALA
35.	160205041	SRISHTI MALAVIYA
36.	160205044	SURENDRA SINGH
37.	160205045	TAJANYA MOHAN
38.	160205046	TEJAS PATIL
39.	120205025	MANISH KUMAR
40.	140205029	PRASHANTH VANAM
41.	150205007	ASHISH KAILAS KHANDALIKAR
42.	150205022	NEKURI ANUDEEP VEERAN BABU
43.	150205026	PRABODH SHARMA
44.	150205029	PRITOM BAROI
45.	150205032	RETINDER SINGH BANSAL
46.	150205046	YASH MANDHANA

**List of students who have fulfilled the requirements for award of Master of Arts in Development Studies**

Sl. No	Roll No	Name
1.	182241001	ABRAR AHMAD
2.	182241003	ALBIN T JOHN
3.	182241004	ANKIT PAL
4.	182241005	AVINASH KUMAR
5.	182241006	AYUSHI CHAUHAN
6.	182241007	BHUVNESH PANDEY
7.	182241008	BIKASH KUMAR PASWAN
8.	182241009	CHAYAN PODDAR
9.	182241010	DEBASMITA BEJ
10.	182241011	DHARITRI BORA
11.	182241013	JITHIN SABU
12.	182241015	MEGNATH CHAKMA
13.	182241016	MILU MARIA JOSE
14.	182241017	MIMIKA MUKHERJEE
15.	182241019	MOKSH DINESH NAIDU
16.	182241020	NAVNATH DINKAR PHADATARE
17.	182241022	PRADEEP
18.	182241024	RAJAT TIWARI
19.	182241025	REVATI S PATIL
20.	182241026	SANGITA BARMAN
21.	182241027	SAPTADIPA MALLICK
22.	182241028	SARTHAK KUMAR DAS
23.	182241029	SATYAWAN HARESH RAMTEKE
24.	182241030	SYED MOHAMMAD AKRAMA ALI RIZVI
25.	182241031	UTKARSH
26.	182241032	VAISHNAV MISHRA

Sl. No	Roll No	Name
27.	182241033	VISHAL SINGH

**List of students who have fulfilled the requirements for award of Master of Science in Physics**

Sl. No	Roll No	Name
1.	182121001	ABHIK KHAN
2.	182121002	ABHISEK TAMANG
3.	182121003	ABHISHEK YADAV
4.	182121004	AMIT KUMAR ROY
5.	182121005	ANANGA MOHAN DATTA
6.	182121006	ANIRUP BISWAS
7.	182121008	ARNAB MONDAL
8.	182121009	ASISH KUMAR BEHERA
9.	182121010	AYAN CHAKRABORTY
10.	182121011	BISWAJIT PAUL
11.	182121012	CHANDRADIP KHAMRAI
12.	182121013	CHINMAYA DAS
13.	182121014	DEEPAK KUMAR BIND
14.	182121015	DIBYENDU MONDAL
15.	182121016	DIGVIJAY SINGH BISHT
16.	182121017	HIMANI
17.	182121018	JAY SHANKAR KUMAWAT
18.	182121019	JAYDEEP MANDAL
19.	182121020	KRIT KUMAR TIWARI
20.	182121021	MAINAK HALDER
21.	182121022	MANIK KAPIL
22.	182121023	MANISHA BANSAL
23.	182121024	MANISHA MAHATO
24.	182121026	MENDHE ARPIT BHOJRAJ
25.	182121028	NILOY MONDAL
26.	182121029	PRANABJYOTI PATAR

Sl. No	Roll No	Name
27.	182121033	PRIYA GHOSH
28.	182121034	RAJESHKUMAR MISHRA
29.	182121035	RUPAM SAMANTA
30.	182121036	SABYA SACHI MUKHERJEE
31.	182121037	SAPTARSHI BISWAS
32.	182121038	SAYAK DUTTA
33.	182121039	SHAILESH OHLYAN
34.	182121040	SHALINI KUSHWAHA
35.	182121041	SHUBHA SINGH
36.	182121042	SHUBHAM KASHYAP
37.	182121044	SUJEET
38.	182121045	TANOY KANTI KONAR
39.	182121046	TONMOY KALITA
40.	182121047	UMESH KUMAR SAINI
41.	182121048	VYAS NISARG ASHWINKUMAR
42.	172121005	ANSHUL SINGH
43.	172121012	DIMPAL BORO
44.	172121015	JAYANTA DAS
45.	172121033	PRAVEEN SHARMA
46.	172121043	SOMNATH PARAMANICK



**List of students who have fulfilled the requirements for award of Master of Science in  
Chemistry**

Sl. No	Roll No	Name
1.	182122001	AMRITA HAZRA
2.	182122002	ANKUR GUPTA
3.	182122003	ANUSHREE MONDAL
4.	182122004	BHAVESH KANDPAL
5.	182122005	CHUNARAM HEMBRAM
6.	182122006	DANISH
7.	182122007	DEEPAK KUMAR SAINI
8.	182122008	DEEPANSHU KATYAL
9.	182122009	DHIMAN ROY
10.	182122010	DIPAN DAS
11.	182122011	DIPANJAN MAJUMDER
12.	182122012	DISHANI
13.	182122013	EENA BARMAN
14.	182122014	GOUTAM SINHA
15.	182122015	HIMANSHU RAO
16.	182122016	JYOTISH BARMAN
17.	182122017	KESHAV PRASAD SAHU
18.	182122018	KRITARATHA DEORI
19.	182122019	LOKESH BANGARWA
20.	182122020	MAHANANDA SAMANTA
21.	182122021	NANTU KUMAR DAS
22.	182122022	POULOMI MUKHERJEE
23.	182122023	PRACHI SHARMA
24.	182122024	PRASHANT KUMAR
25.	182122025	PRIYABRATA HATI
26.	182122026	PRIYAM DAS

Sl. No	Roll No	Name
27.	182122027	RAKESH KUMAR YADAV
28.	182122028	RANJIT MURMU
29.	182122029	ROHAN YADAV
30.	182122031	SAHAJ SHARMA
31.	182122032	SAIKAT GHOSH
32.	182122033	SANDEEP YADAV
33.	182122034	SAURABH SETH
34.	182122035	SAYAN BANERJEE
35.	182122036	SHASHI KUMAR
36.	182122037	SHILPA
37.	182122038	SHIPRA SUMAN
38.	182122039	SHIVALI RASTOGI
39.	182122040	SHUBASIS ROY
40.	182122041	SIDDHARTH SINGH
41.	182122042	SUBHAJIT MAJHI
42.	182122043	SUJAN SINGHA
43.	182122044	SUKANTA SAHA
44.	182122045	SUKHPREET
45.	182122046	SUMAN MAJI
46.	182122047	SUMAN PATRA
47.	182122048	SURASHREE GOSWAMI
48.	182122049	SUTIRTHA PANDA
49.	182122050	TANUSHREE MONDAL

**List of students who have fulfilled the requirements for award of Master of Science in  
Mathematics and Computing**

Sl. No	Roll No	Name
1.	182123002	AISHWARYA JAISWAL
2.	182123003	AJAY KUMAR GUPTA
3.	182123004	ANCHIT SRIVASTAVA
4.	182123005	ANSHIKA JAIN
5.	182123006	ANURADHA KUMARI
6.	182123008	ARNAB PAL
7.	182123009	ASHISH SAXENA
8.	182123011	BRITI SUNDAR GHATAK
9.	182123013	CHINMOY MONDAL
10.	182123014	DELCIN MARIA KOILRAJ
11.	182123016	DIPANJAN MITRA
12.	182123017	DIPANKAR POREY
13.	182123018	ETISHA GARG
14.	182123019	H.LAXMI
15.	182123023	JOSHI RIDDHI SUMANT
16.	182123024	KOMAL
17.	182123027	MANSI SAINI
18.	182123028	MUKUL DWIVEDI
19.	182123030	PRATIM DEY
20.	182123031	PRERANA CHAUDHARY
21.	182123032	PRIYA
22.	182123033	PRIYANKA BHARATI
23.	182123034	RAJESWAR KANTI ROY
24.	182123035	RAJNI CHOUDHARY
25.	182123036	RAVI PARKASH
26.	182123037	ROHIT KUMAR

Sl. No	Roll No	Name
27.	182123038	SAJID ALI
28.	182123040	SHREYA JAIN
29.	182123041	SULAKASHNA
30.	182123042	SUNIT GHOSH
31.	182123043	SURAJ PANIGRAHY
32.	182123044	VIKRAM SINGH
33.	182123045	VIMPY
34.	182123046	VISHAL TIWARI
35.	182123047	VIVEK SAHU
36.	182123048	YOGESH KUMAR JANGIR
37.	172123004	ANOOP KUMAR
38.	172123006	ARINDAM MANDAL
39.	172123014	KEKHRIEPUTUONUO KUOTSU
40.	172123016	LALHMINGSANGI FAMHAWITE
41.	172123017	MAHESH KUMAR SONI
42.	172123020	NAVNEET
43.	172123022	PADUM SAIKIA
44.	172123026	PRAMOD SINGH
45.	172123029	RAGHAV MISHRA
46.	172123032	RANJAN KUMAR RAM
47.	172123041	SUDAM BIN
48.	172123042	SUMAN DAS
49.	172123044	TAMNNA YADAV
50.	172123045	TUSHAR DAS
51.	172123046	VINOD KUMAR RAIGAR

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**List of students who have fulfilled the requirements for award of Master of Technology in  
Computer Science and Engineering**

Sl. No	Roll No	Name
1.	184101001	ABHIJEET PANDEY
2.	184101002	ABHISHEK KUMAR
3.	184101005	ANKIT
4.	184101007	ARVIND KUMAR AGARWAL
5.	184101008	AYASHA AGRAWAL
6.	184101009	AYUSH SANJAY JAISWAL
7.	184101010	BAL KRISHNA D
8.	184101012	BHANGALE VISHAL SHALIK
9.	184101013	BORGE ABHISHEK JAIPRAKASH
10.	184101015	DHARANKAR DHANANJAY ANIL
11.	184101016	DHARMENDRA MAURYA
12.	184101017	GURJIT SINGH
13.	184101018	K KAVITHA
14.	184101019	KODATI KANAKA CHIRANJEEVI
15.	184101020	KUSHAL KUMAR DEY
16.	184101021	MANIK BALASAHEB BHOSLE
17.	184101023	MAYANK CHOKSEY
18.	184101024	MEGHA JAIN
19.	184101025	MOHD ZEESHAN SIDDIQUI
20.	184101026	MONIKA KHANDELWAL
21.	184101027	OZA JAY MUKESHKUMAR
22.	184101028	POOJA SINGH
23.	184101029	SANJANA AGRAWAL
24.	184101030	SATYAM ANKUR
25.	184101031	SAYANTAN BASU
26.	184101032	SHASWAT H VAIDYA

Sl. No	Roll No	Name
27.	184101033	SHAVI GUPTA
28.	184101034	SHIVA VERMA
29.	184101035	SHUBHAM JAIN
30.	184101036	SUNIL NOMESHWAR NAIK
31.	184101037	SUSHANT YADAV
32.	184101038	SUSRITA SAHA
33.	184101039	TUSHAR GEETAY
34.	184101041	VAIBHAV PANDEY
35.	184101043	YOM NIGAM
36.	184101045	ASHUTOSH KUMAR SINGH
37.	184101046	ABANISH CHAUDHARY
38.	184101047	RATHI SALONI DEEPAK
39.	184101049	KULKARNI ASHWIN ARVIND
40.	184101050	RAJAT SINGH
41.	184101051	HARSH MEHTA
42.	184101052	ATUL BHANDARI
43.	184101053	ABHISHEK CHAWDA MALI
44.	174101001	PRASANTA ROY
45.	174101002	DIVYAM KUMAR LAMIYAN
46.	174101005	MOIRANGTHEM KRISHNANANDA SINGH
47.	174101008	ASHISH RAJORIYA
48.	174101009	SHUBHAM JAISWAL
49.	174101010	SHUBHAM BARUA
50.	174101013	ANKUR GARG
51.	174101014	PAMMI SAI RAM
52.	174101021	AKANKSHA SINGH
53.	174101022	NEELKAMAL

Sl. No	Roll No	Name
54.	174101036	RODRIGUES RODNEY STEPHEN ROCKY
55.	174101037	VIVEK KUMAR
56.	174101039	KHUSHBOO TAK
57.	174101045	PUNEET RAJ RAIPURIA
58.	174101047	PRIYA BADCHARIYA
59.	174101051	RONAK GOYAL

**List of students who have fulfilled the requirements for award of Master of Technology in  
Electronics and Electrical Engineering**

Sl. No	Roll No	Name
1.	184102001	ABHIJITH KRISHNAN C V
2.	184102002	ABHISHEK RAJ
3.	184102004	ASHISH SINGH PATEL
4.	184102005	BALAMURUGAN C
5.	184102007	KETHA SIVA
6.	184102008	P ANANTHA SAI RAM
7.	184102009	PRATIK GOSWAMI
8.	184102010	SAMAR GUPTA
9.	184102011	SHANI KUMAR KESHARWANI
10.	184102013	SUPREET KUMAR SHARMA
11.	184102015	VENTRAPRAGADA SRIKANTH
12.	184102017	YERRA RAJESH
13.	184102018	MAJ P K DWIVEDI
14.	184102019	MAJ SUNIL KUMAR PANWAR
15.	184102020	MAJ BALJIT SINGH BHINDER
16.	184102021	MAJ RENGARAJAN G
17.	184102022	SQN LDR S K MISHRA
18.	184102024	SAURABH KUMAR
19.	184102025	VIVEK SHARMA
20.	184102102	ANIMESH UPADHYAY
21.	184102103	ANKIT VISHWAY
22.	184102104	CHAMPANERI YASH RAJESHKUMAR
23.	184102106	MAKWANA AVINASH SURESHBHAJ
24.	184102108	MOHIT SHEKHAR CHAUDHARI
25.	184102110	SWAPNIL BABURAO THORAT
26.	184102201	ABHISHEK SUNDRANI



Sl. No	Roll No	Name
27.	184102202	MANISH
28.	184102204	MAYANK SHARMA
29.	184102206	SUMIT DASH
30.	184102207	VEERAPURAM SUMANTH
31.	184102209	PRITAM KUMAR ROY
32.	184102301	AVINASH PAUL
33.	184102302	BIMAL DEBANGAN
34.	184102303	BISHAL KUMAR SHAW
35.	184102304	PIYUSH AGNIHOTRI
36.	184102306	PRATYUSH ROY
37.	184102309	ROHIT KUMAR
38.	184102310	SHANI VISHWAKARMA
39.	184102311	SOMALI MAJUMDER
40.	184102312	SUGYANI KUMARI BASANTIA
41.	184102313	SUNIL KUMAR
42.	184102314	VISHAL GOYAL
43.	184102316	VIVEK SINGH CHOUHAN
44.	184102317	SHASHANK SHEKHAR
45.	184102319	PULUGU THARUN RAM KUMAR
46.	184102320	V KAVYASREE
47.	184102321	YAMASANI MANOJ KUMAR REDDY
48.	184102401	ABHI AHMED
49.	184102402	ABHIMANYU JHAJHRIA
50.	184102404	ANKIT RAGHUWANSHI
51.	184102405	MD ASFANI
52.	184102406	MOHIT VERMA
53.	184102407	RAVI KUMAR

Sl. No	Roll No	Name
54.	184102408	VIKRANT NAYAK
55.	184102409	ROCKY INGTI
56.	184102410	RAKESH KUMAR
57.	164102112	CHIRANJIB HAZARIKA
58.	174102011	ALANKAR CHATURVEDI
59.	174102012	LOHAKARE NAINISH BHASKAR
60.	174102013	AKSHAY SATI
61.	174102015	BHARAT SEHGAL
62.	174102016	ASHISH KUMAR SHARMA
63.	174102017	GAURAV SINGH BHATI
64.	174102018	ANUBHAB CHOWDHURY
65.	174102019	SOUMENDU GHOSH
66.	174102020	ASIF RASHEED. P. M
67.	174102021	RITAJ CHANDRA DEY
68.	174102023	PRERNA PUSHPA
69.	174102026	ANIK BATABYAL
70.	174102027	SAURABH SHARMA
71.	174102030	RAVI PRAKASH
72.	174102036	ANKIT MISHRA
73.	174102038	JITHIN BAL. P. M
74.	174102042	VIJAY KUMAR GARG
75.	174102045	SANCHIT SOOD
76.	174102047	HIMANGSHU SINGH
77.	174102048	RISHI CHANDRA
78.	174102049	CHAUDHARI PRASHANT MANIKCHAND
79.	174102051	RANJAN ALI
80.	174102058	PRABHANSHU PURWAR

<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
81.	174102060	DEEPAK KUMAR SAHOO
82.	174102061	SHUBHAM SAHU
83.	174102062	DINO MONI SINGHA
84.	174102063	ROHIT JHARIA

**List of students who have fulfilled the requirements for award of Master of Technology in  
Mechanical Engineering**

Sl. No	Roll No	Name
1.	184103002	ARJUN M A
2.	184103003	BABLU DAS
3.	184103004	MADHAB BASUMATARY
4.	184103005	NARENDRA SINGH
5.	184103007	SATNAM PRAJAPATI
6.	184103011	CHIRANJIB BARUAH
7.	184103012	KUSHAGRA PARDHI
8.	184103013	MD JAMANUR ISLAM
9.	184103101	AMIT KUMAR MANGOLIWALA
10.	184103102	AMIT KUMAR SINGH
11.	184103104	BHUPENDRA CHANDRA
12.	184103106	RAHUL KUMAR YADAV
13.	184103107	RISHAV SHAW
14.	184103108	SALEENDRA HARI BABU
15.	184103110	TUSAR JIT MEDHI
16.	184103111	JAYANTA GOGOI
17.	184103112	PURUSHOTTAM GUPTA
18.	184103113	MORE ADITYA RAMDAS
19.	184103204	AYUSHMAN SINGH BHADOURIYA
20.	184103205	BAIBHAV KUMAR
21.	184103206	CHAUDHARY SUKETABEN AMRUTBHAI
22.	184103207	GAURAV GARG
23.	184103208	KUNAL SINGH
24.	184103209	MAHANUBHAV BORTHAKUR
25.	184103210	MITHINGA BASUMATARY
26.	184103212	PANKAJ KUMAR PAL

Sl. No	Roll No	Name
27.	184103213	SACHIN SINGH
28.	184103214	SAKSHAM JANGIR
29.	184103215	SHENDE SNEHAL ARUN
30.	184103216	SHOBHIT TIWARI
31.	184103217	VEERAMREDDY RAJA MOHAN
32.	184103218	ARRAJJUGARI MOHANBABU
33.	184103219	VIPUL KUMAR
34.	184103220	ROKALLA DINESH KUMAR
35.	184103221	SUNIL KUMAR
36.	184103222	VIKASH DAHIYA
37.	184103301	ABHISHEK PARIDA
38.	184103302	AKASH RANJAN PRASAD
39.	184103303	AKASH VASANTRAO DONGRE
40.	184103305	ANUJ JAIN
41.	184103306	ATUL KUMAR BHARDWAJ
42.	184103307	DANTLA SOMASEKHAR REDDY
43.	184103308	DEEPAK SINGH
44.	184103314	MD SARFRAZ AHMAD
45.	184103315	MOHD KASHAN
46.	184103316	MOHD SAKIB HUSSAIN
47.	184103317	MUKESH GUPTA
48.	184103319	PABAN KUMBANG
49.	184103320	PENURKAR ANIL BHIMRAO
50.	184103321	PRAVEEN THAKUR
51.	184103322	RAHUL KUMAR BHARTI
52.	184103324	RAHUL SUKLABAIIDYA
53.	184103326	RISHABH KANT KULSHRESHTHA

Sl. No	Roll No	Name
54.	184103327	RITURAJ NATH
55.	184103328	SAFEERUL AMEEN EK
56.	184103329	SANJAYA KUMAR MEHER
57.	184103330	SAURAV KUMAR SUMAN
58.	184103331	SHAKTI SINGH
59.	184103332	SOUMITRA SAMAI
60.	184103334	SWAPNIL KUMAR SAHOO
61.	184103335	UIKEY ASHISH HANUMANTRAO
62.	184103336	UTTARAN SONOWAL
63.	184103337	VISHNU KUMAR
64.	184103338	KANSAGARA DIVYESHKUMAR DILIPBHAI
65.	184103339	AKULA HARISH
66.	184103340	ANIL KUMAR REDDY DESIREDDY
67.	184103341	MUKUL TYAGI
68.	184103343	VIVEK KUMAR KUSHWAHA
69.	184103401	AMIT CHANDRA DEKA
70.	184103402	ANKUR KUMAR
71.	184103403	ARSHAD QUAMAR KHAN
72.	184103404	CHENNA SAI KRISHNA CHAITHANYA
73.	184103407	JAKKALA ROOPESH KUMAR
74.	184103408	KUMMURU SRIKANTH
75.	184103410	MESHARAM ABHIJEET BHAGWAT
76.	184103411	NADUPURU VENKATESH RAMBABU
77.	184103413	OREPALLI ASHOK
78.	184103414	PARMODH KUMAR
79.	184103416	POTKAR AJINKYA SHYAM
80.	184103417	PRADIPTA KUMAR BURAGOHAIN

Sl. No	Roll No	Name
81.	184103418	PRASANT MISHRA
82.	184103421	RAVI KANT
83.	184103422	ROHIT KUMAR
84.	184103423	SACHIN V
85.	184103424	SANJU YADAV
86.	184103429	VAIBHAV RAMAN PRATAP
87.	184103430	VISHNU N NAIK
88.	184103431	YASHWANT KUMAR
89.	184103432	ANSUMAN SAHOO
90.	184103433	DIPTANSHU JAIN
91.	184103434	MD SAIF AHMAD
92.	184103435	NITHIN P
93.	174103001	VISHAL KUMAR SISODIA
94.	174103002	DEEPAK HOJAI
95.	174103005	AYAZUR RAHMAN KHAN
96.	174103006	BOYI NAGA DURGA PRASAD
97.	174103008	SANDIPAN BARUAH
98.	174103009	KANHAI KUMAR DAS
99.	174103013	SOURABH BHARDWAJ
100.	174103015	NIBIR SAHA
101.	174103021	KRISHNENDU BALA
102.	174103023	DWIVEDI KRISHNA SHANKHDHAR KIRAN
103.	174103025	CEBY M S
104.	174103026	LANKIPALLI HARSHA
105.	174103030	MULLAPUDI JOSHI
106.	174103034	MANASH JYOTI BAISHYA
107.	174103039	YADAV DIPAK VASUDEV

Sl. No	Roll No	Name
108.	174103040	NILUTPAL DEORI
109.	174103042	GAURAV KUMAR
110.	174103045	KISHAN KUMAR SINGH
111.	174103046	SUSHANT MAURYA
112.	174103054	AAKASH DEWANGAN
113.	174103058	SIDDHARTH VIKRAM
114.	174103068	AVNEESH KUMAR
115.	174103070	NAYANJYOTI SARMA
116.	174103071	SAYEDUR RAHMAN ANCHARI
117.	174103072	SHOBHIT TOMAR
118.	174103073	HIMANSHU VERMA
119.	174103074	ARUP MAHAPATRA
120.	174103075	SUBHRA SAHU
121.	174103076	EHTESHAM HUSSAIN
122.	174103077	PROMIT DUTTA
123.	174103078	SHAHAPURE VIJAY BABURAO
124.	174103079	MANJUL KUMAR MISHRA
125.	174103080	ANKIT AGRAWAL
126.	174103081	SAURABH KUMAR SINGH
127.	174103084	PRATEEK CHANDRAKAR
128.	174103085	ABHAY KUMAR SHUKLA
129.	174103086	RAJNISH KUMAR
130.	174103087	SUMAN BASAK
131.	174103088	SHASHIKANT KUMAR VERMA
132.	174103089	ANURAG JAIN
133.	174103091	AKASH VERMA
134.	174103092	DEEPAK KUMAR VERMA



Sl. No	Roll No	Name
135.	174103094	PUSHKAR VERMA
136.	174103096	SAURABH KUMAR
137.	174103097	RAM KRISHNA YADAV
138.	174103098	AKASH RANA
139.	174103099	ANUJ SINGH YADAV
140.	174103100	RAHUL RAY
141.	174103102	SUPATRA SHANKHDHAR
142.	174103105	NITESH SINGH
143.	174103106	MURCHANA BARUAH
144.	174103107	PALAGIRI JAYANTH KUMAR REDDY
145.	174103108	RAJESH GUPTA
146.	174103111	KULDEEP DEWANGAN
147.	174103112	AUNDHAKAR VIVEK VIJAY
148.	174103113	PIYUSH BARFA
149.	174103114	ARVIND SINGH
150.	174103116	SACHIN SINGH SOLANKI
151.	174103117	SAWARKAR PRATIK SHRIKRISHNA
152.	174103119	ABHISHEK KUMAR GUPTA
153.	174103120	MAHESH TULSHIRAM JUNGADDE
154.	174103121	CHAUHAN SURJEETSINGH RAMSHAKAL
155.	174103124	ANIRBAN BASUMATARY
156.	174103125	SHYAM KUTUM
157.	174103126	VIPUL KUMAR RANJAN
158.	174103128	RANIT ROY
159.	174103129	KAPIL KUMAR
160.	174103130	LALIT KUMAR
161.	174103131	AMIT KUMAR

<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
162.	174103132	SONDKAR PRATIK SURESH
163.	174103133	SAURAV KUMAR
164.	174103134	PANKAJ KUMAR
165.	174103135	NIKHIL KUMAR SINGH
166.	174103137	VIKASH KUMAR
167.	174103138	SAURABH KUMAR NISHAD
168.	174103139	DINESH RAY

**List of students who have fulfilled the requirements for award of Master of Technology in Civil Engineering**

Sl. No	Roll No	Name
1.	184104001	AMIT KUMAR SINGH
2.	184104002	IMRADUL ISLAM
3.	184104004	MANOJKUMAR M
4.	184104005	MOHIT JOSHI
5.	184104006	NIRDESH KUMAR SHARMA
6.	184104007	RISHAV RAJ
7.	184104008	SHAILESH KUMAR YADAV
8.	184104009	TAPASH MAZUMDAR
9.	184104101	AGNIBHA MAITY
10.	184104102	ANANT ROY
11.	184104103	ANURAG CHAKRABORTY
12.	184104104	BABUSONA DAS
13.	184104105	D SHEKHAR RAO
14.	184104106	G SREEKANTH YADAV
15.	184104107	HRITEN GHOSH
16.	184104108	NIMITHA C
17.	184104109	PURU MITTAL
18.	184104110	PURUSHOTTAM KUMAR
19.	184104111	RAJALA VARAPRASAD REDDY
20.	184104112	RAJARSHI SHARMA
21.	184104113	RANJIT CHAKMA
22.	184104114	RISHABH GUPTA
23.	184104115	SUBHRAJIT BHATTA
24.	184104116	SUSHANTA ROY
25.	184104201	ABHISHEK KUMAR JHA
26.	184104202	AMIT DAS

Sl. No	Roll No	Name
27.	184104203	ARGHA BISWAS
28.	184104204	ARUN KUMAR PATEL
29.	184104206	ASHUTOSH SINGH
30.	184104207	CHEJARLA VENKATA SAI GIRIDHAR
31.	184104208	DILEEP KUMAR CHAUDHARY
32.	184104209	HIRAK TALUKDAR
33.	184104210	KAUSTAV CHATTERJEE
34.	184104211	LOVEKANT CHAUHAN
35.	184104212	MANDEEP SINGH
36.	184104215	PRASHANT KUMAR
37.	184104218	SHAH ALAM
38.	184104301	CHINMOY HANDIQUE
39.	184104302	NARESH KUMAR VISHNOI
40.	184104303	PRIYANKSHU PROTIM DEORI
41.	184104304	SALIK NOMANI
42.	184104305	SULIPTA SARKAR
43.	184104306	TANMAY ASHOK HIVRAYE
44.	184104307	VIJAY MUNSHILAL MAURYA
45.	184104401	AJAY KUMAR
46.	184104402	AJAY RAJAURIYA
47.	184104403	AMARJIT KUMAR
48.	184104404	ANKUSH GOGOI
49.	184104405	BIKRAMJIT DEB
50.	184104407	CHAUDHARI MARUT MEGHRAJBHAI
51.	184104409	DEVASISH LAHKAR
52.	184104411	G SHEKAR
53.	184104419	SUSHIL KUMAR GUPTA

Sl. No	Roll No	Name
54.	184104420	VAIBHAV CHANDRAKAR
55.	184104421	VIVEK JHA
56.	184104422	ABHISEK PATTANAİK
57.	184104501	ABU OMAR FARUK
58.	184104502	DAVE KEDARBHAI RAJESHBHAI
59.	184104503	DIWAKAR DAS
60.	184104504	HARISH N
61.	184104505	KIRAN P GEORGE
62.	184104507	NIRMAL PANDEY
63.	184104509	PREM PRAKASH TUDU
64.	184104510	RAJNEESH KUMAR
65.	184104511	RAVURI VEERA SAI AMARNATH
66.	184104512	SAJAD MAQBOOL
67.	184104513	SHAIKHUL ISLAM PRODHANI
68.	184104515	VISHAL KUMAR
69.	184104601	ABHIJIT DAS
70.	184104602	ANIRUDDHA SINGHA
71.	184104603	ANKUSH KAUNDAL
72.	184104604	CHANDRAMOULI KILLI
73.	184104605	DAMODAR SHARMA
74.	184104606	DHIRAJ KUMAR
75.	184104607	DILJIT DUTTA
76.	184104608	FAISAL JAWED
77.	184104609	HIRAK ROY
78.	184104610	JABIN SULTAN
79.	184104611	NADEEM KHAN
80.	184104613	SUBHAPRAKASH RATH

Sl. No	Roll No	Name
81.	184104614	SUKHJEET ARORA
82.	184104615	TSERING NORBU
83.	184104616	VIJENDRA KUMAR SINGH
84.	174104005	NAVNEETH KARMACHANDRAN
85.	174104006	NIPUN JAIN
86.	174104011	ARUNDEEP SINGH PANWAR
87.	174104012	MOHAMED ASLAM M U B
88.	174104016	SMITOM SWAPNA BORAH
89.	174104018	BIBEK SAHA
90.	174104019	TYMPANGIKA C SUNGOH
91.	174104023	SATYAK GARG
92.	174104024	ANN SHERYL MATHEW
93.	174104025	M.KRISHNA CHAITANYA
94.	174104026	SUMANT KUSHWAHA
95.	174104027	MANISHA DAS
96.	174104029	TAPAS TRIPURA
97.	174104030	QAMAR ZIA
98.	174104034	POOJA PATEL
99.	174104037	REJIL R NATH
100.	174104039	MEGHA CHAUHAN
101.	174104040	BAISTHAKUR SHUBHAM SHANKARSINGH
102.	174104045	TUSSHAR SHARMA
103.	174104050	DEEPAK KUMAR
104.	174104051	OKESH CHAUHAN
105.	174104052	ANIRBAN DAS
106.	174104056	GALLI KIRAN KUMAR
107.	174104058	S SETHULEKSHMI

Sl. No	Roll No	Name
108.	174104060	CHANDRA SEKHAR SOYAL
109.	174104061	MRIDUL CHITRANSHI
110.	174104062	MUHAMMED SHABEEB EK
111.	174104065	SALEEQ V P
112.	174104080	DISHANT AGRAWAL
113.	174104081	ABHISHEK KUMAR
114.	174104083	ARPITA GHOSH
115.	174104086	SAMSUZ ZAMAN
116.	174104087	SAPAN TIWARI
117.	174104088	UNDELA NAGARJUNA REDDY
118.	174104089	DHANA BHAGAYLAKSHMI M N
119.	174104090	SURENDRA CHOUDHARY
120.	174104091	INDRANIL HAZARIKA
121.	174104092	PUBALI NAZIR
122.	174104094	MRIGANABH CHOUDHURY
123.	174104096	NIKHIL IMMADI
124.	174104097	RAKESH SAHOO
125.	174104098	AVINASH KUMAR
126.	174104100	SUJATA DAS
127.	174104101	BIPIN KUMAR GAUTAM
128.	174104102	SALUNKE SANJEET BAPURAO
129.	174104103	AVINASH PANDA
130.	174104107	ABI ABRAHAM
131.	174104108	PARAMITA SAHA
132.	174104109	DANIEL PAPANG
133.	174104110	SUBHRA SEKHAR MAITY
134.	174104112	VED PRAKASH

Sl. No	Roll No	Name
135.	174104113	HARSHIT MISHRA
136.	174104114	VIDUR KUMAR
137.	174104115	SAUBHIK DAS
138.	174104116	MAYANK RAJWAR
139.	174104117	APOORVA SINGH
140.	174104118	ABHIMANYU PRASAD TRIPATHI
141.	174104119	FIROZ AHMED
142.	174104121	JYOTIRMOY BARMAN
143.	174104122	AMIT SIDDHARTH
144.	174104123	PRABHAKAR CHOUDHARY
145.	174104124	VIJAY MEENA
146.	174104125	CHAKKA NAGENDRA SUBRAHMANYAM
147.	174104126	SREEJITH MURALIDHAR
148.	174104127	SIDDHARTHA PAUL
149.	174104129	SUBHRADIP PAL
150.	174104130	TIRUKKOVALURI SNEHASREE
151.	174104131	SANJIB DAS
152.	174104132	TANUSHREE KUMARI DEKA
153.	174104133	KATRE SHREYA SHRIKANT
154.	174104134	VISHNU SINGH
155.	174104135	RITURAJ DEVRANI
156.	174104137	PATEL RAJ RAMANBHAI
157.	174104138	PROMIT KUMAR BHAUMIK
158.	174104139	DHRITILEKHA DEKA
159.	174104140	LAHIT MUSHAHARY
160.	174104141	MICHAEL SAMUEL PREETHAM RAJ



**List of students who have fulfilled the requirements for award of Master of Technology in  
Biotechnology**

Sl. No	Roll No	Name
1.	184106001	AAKASH SHARMA
2.	184106002	AMAY SANJAY REDKAR
3.	184106004	ANKITA KHANNA
4.	184106005	ARUNSAIKIRAN S
5.	184106006	BIBHUTI BHUSAN DAS
6.	184106007	DHEERENDRA KANKANE
7.	184106008	DIVYA
8.	184106009	GADICHERLA HARIKRISHNA
9.	184106010	GOPIKAA V
10.	184106011	JAIDEEP SINGH BHARDWAJ
11.	184106012	KRUTHI M
12.	184106013	KUMAR SHIVENDRA PRATAP
13.	184106014	M SANJEEVAKUMAR
14.	184106015	MADHURIMA CHOUDHURY
15.	184106016	MOHAMED MADHAR FAZIL S
16.	184106017	MOHIT KUMAR
17.	184106018	MOUMITA NANDI
18.	184106019	NAVEEN KUMAR
19.	184106020	NISHU NEHRA
20.	184106021	NITEESH KUMAR
21.	184106022	NITESH THAKUR
22.	184106023	PARUL JAKHWAL
23.	184106024	POONAM LAMBA
24.	184106025	PRADEEP KUMAR S
25.	184106026	RAHUL KUMAR
26.	184106027	RASHID USMANI

Sl. No	Roll No	Name
27.	184106028	RISHABH GUPTA
28.	184106031	SAMEER SUBHASH KAMBLE
29.	184106032	SANJUCTA ADAK
30.	184106033	SAPTARSHI BISWAS
31.	184106034	SHREYA L B
32.	184106035	SMRITI SUDHA
33.	184106036	SRIHARI MADHAVAN
34.	184106037	SUNANDAN NAHA
35.	184106038	SUNETRA MONDAL
36.	184106039	TERENCE INFANT W L
37.	184106040	TIASHA ADHIKARY
38.	184106041	UMED PRATAP SINGH
39.	184106042	ARABINDU DEBBARMA
40.	184106043	VIVIAN FELEACEA KHARCHANDY
41.	184106044	BOUDHNATH BIRAZEE
42.	174106004	JYOTIRMOY SETHY
43.	174106006	MEDISETTI RAJ MOHAN NAIDU
44.	174106008	VIVEK SHARMA
45.	174106014	PRATAP NARAYAN ROY
46.	174106016	M. SANJAY
47.	174106030	RAVI
48.	174106033	FRANKLIN P M
49.	174106034	UMESH
50.	174106045	VIVEK GUPTA
51.	174106047	ABHEEK SENGUPTA
52.	174106051	PERWEZ BAKHT
53.	174106052	DISHANT GOYAL

Sl. No	Roll No	Name
54.	174106058	VISHNU K
55.	174106059	SHIKHA JHA

**List of students who have fulfilled the requirements for award of Master of Technology in  
Chemical Engineering**

Sl. No	Roll No	Name
1.	184107001	ANAMIKA MAURYA
2.	184107002	ANKIT VIJAYSHANKAR TIWARI
3.	184107003	ANURAG
4.	184107005	ASHUTOSH SINGH
5.	184107006	BABBAN LAL MAURYA
6.	184107007	BISWAJIT BHATTACHARJYA
7.	184107008	BONITA YUREMBAM
8.	184107009	DHAVAL YASHAVANTRAY ANTALA
9.	184107010	DIKSHA RAWAT
10.	184107011	GAUTAM SAIKIA
11.	184107012	KANIKE CHIRANJEEVI
12.	184107015	MOUSUMI DAS
13.	184107017	PALLETI VISHNU RAJA REDDY
14.	184107018	POORVA MISHRA
15.	184107019	PRAGYA MANRAL
16.	184107020	PRITAM CHAKRABORTY
17.	184107021	RAJESH KUMAR MAHATO
18.	184107022	SAKSHI SAHU
19.	184107023	SEERA SAI DILEEP KUMAR
20.	184107024	SOLANKE MADHAV BHAGWAN
21.	184107026	UPASANA SARMA
22.	184107027	URVASHI SINGH
23.	184107101	ABHISHEK KUMAR
24.	184107102	ADUPA VASISTA
25.	184107103	AISHWARYA S
26.	184107105	ANGIREKULA VENU KONDALA RAO

Sl. No	Roll No	Name
27.	184107107	ASHWANI SAHU
28.	184107108	DASARI BHARATHI
29.	184107110	GAURAV SINGH
30.	184107111	JAGANNATH PRASAD PATTANAYAK
31.	184107112	KARNATI SAIKRISHNA
32.	184107113	MAHNKALA SANDEEP KUMAR
33.	184107114	NIKAM RISHABH MANIKRAO
34.	184107116	PANKAJ PARMAR
35.	184107118	PRIYA
36.	184107119	SADRANI JAY YOGESHKUMAR
37.	184107120	SAMBITA CHOUDHURY
38.	184107121	SANDEEP PRAJAPATI
39.	184107122	SHAHNAWAZ ALAM
40.	184107123	SHAIMPU BABU
41.	184107125	SIRSAK BANERJEE
42.	184107126	SOMASHREE MONDAL
43.	184107127	SOMBIR PANNU
44.	184107128	SUSHMITA SUMAN
45.	174107001	VAIBHAV SONI
46.	174107014	VIKASH KUMAR YADAV
47.	174107015	RAVI PATIDAR
48.	174107016	JYOTI RANI
49.	174107019	CHANDARANA TARANG JAYESHBHAI
50.	174107022	MANISH RAJPUT
51.	174107026	SATANAND PRASAD
52.	174107027	BHUPATHI HARISH KUMAR
53.	174107030	ANIL KUMAR

Sl. No	Roll No	Name
54.	174107032	BONDA HAMENDRA PRADEEP KUMAR
55.	174107033	MARUNGSHA SWRANG BRAHMA
56.	174107034	RAHUL SINGH
57.	174107035	MANDEEP SINGH
58.	174107037	PANKAJ KUMAR
59.	174107041	ANURAG GUHA
60.	174107042	VICTOR KUMAR SHARMA
61.	174107043	HIMANSHU RATURI
62.	174107044	VARANASI VENKATA RADHA SAI BHAVANA
63.	174107045	NIPU KUMAR DAS
64.	174107046	SALMA KHATOON
65.	174107047	AMAN KUMAR
66.	174107048	ABHISHEK SINGH
67.	174107049	GUNOLLA NAGENDRA PRASAD
68.	174107050	SATTI VENU GOPALA KUMARI
69.	174107051	SOUMAVO GHOSH
70.	174107052	ASHVINI KUMAR UPADHYAY
71.	174107053	CHANDRA BHAN
72.	174107054	AVITI KATARE
73.	174107055	MONIKA RAGHUWANSHI
74.	174107056	KAMAKHYA DEVI
75.	174107057	KONERU ADITYA
76.	174107058	PRADEEP

**List of students who have fulfilled the requirements for award of Master of Technology in Rural Technology**

<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
1.	184154002	AMLAN AOICHOIRRYA BURAGOHAIN
2.	184154003	ANKITA DATTA
3.	184154004	ANUJ KUMAR
4.	184154005	DIBOJIT PATHAK
5.	184154006	JYOTI
6.	184154007	MONIYA PUSHKAR KULKARNI
7.	184154008	NABANEEROJ SAIKIA
8.	184154009	URBASHI BORDOLOI
9.	174154001	ALANKRITA SAIKIA
10.	174154004	PALEM MOHAMMED YUNUS
11.	174154005	PRAKASH SINGH
12.	174154006	PUNDARIKAKSHA NATH
13.	174154010	VINNY KOHLI

**List of students who have fulfilled the requirements for award of Master of Design**

Sl. No	Roll No	Name
1.	184205001	ABHISHEK KUNJAPPAN
2.	184205002	ADITI CHAURASIA
3.	184205003	ADRITA BANERJEE
4.	184205004	ANANDI
5.	184205005	ANIL KAPSE
6.	184205006	ANKITA RAMBHAUJI KHANTE
7.	184205007	ARZOO KHARE
8.	184205008	BACHASPATIMAYUM SEVADAS SHARMA
9.	184205009	BIKRAMJEET MRIDHA
10.	184205010	GURUPRASAD S
11.	184205011	KABIRUDDIN SIRCAR
12.	184205012	MINAKHI DAS
13.	184205013	MOHANKAR AKSHAY SHIRISH
14.	184205014	NAMRATA MITRA
15.	184205015	NINAD SURENDRA GAWDE
16.	184205016	PRAGATI SARAF
17.	184205017	RACHANA MANDAL
18.	184205018	RIYA ANNU ALLEN
19.	184205019	ROHAN PRAVIN AJAGEKAR
20.	184205020	SAISH SURENDRA GOSAVI
21.	184205021	SHOBHIT THAKUR
22.	184205022	SOUMITRA KEMKAR
23.	184205023	SOUMYA M
24.	184205024	SREEKANTH S
25.	184205025	UPASNA SEHJI
26.	184205026	WAKADE SANKET EKNATH



Sl. No	Roll No	Name
27.	134205021	JYOTIRMOY PATHAK

**List of students who have fulfilled the requirements for award of Master of Science by  
Research in Energy**

<b>Sl. No</b>	<b>Roll No</b>	<b>Name</b>
1.	184351001	AKASH DILIP KAMBLE
2.	184351002	ANKIT KUMAR GUPTA
3.	184351003	ANKIT KUMAR SINGH
4.	184351006	DEBANGSU KASHYAP
5.	184351007	JEET KUMAR BRAHMA
6.	184351008	NABAJYOTI KALITA
7.	184351009	OMKAR VIVEK DESAI
8.	184351012	PUJA KOCH
9.	184351013	SHUBHAM JAIN
10.	184351014	SIDDHANT JAIN
11.	174351001	MANE AZADKUMAR MOHAN
12.	174351002	C ASWIN KARTHIK
13.	174351003	RATHOD UMANG HARSHADBHAI
14.	174351007	SUDIPTA BIJOY SARMAH
15.	174351008	PATIL RAVICHANDRA CHANDRAKANT
16.	174351009	SHIVANG KHARE
17.	174351010	AKASH K C
18.	174351012	DIPANWITA BHATTACHARJEE

**List of students who have fulfilled the requirements for award of Dual Degree (MTech + PhD)**

<b>Sl. No.</b>	<b>Roll No.</b>	<b>Name</b>	<b>Department</b>
1.	Abhishek	146201004	Computer Science and Engineering
2.	Rakesh Pandey	136201001	Computer Science and Engineering
3.	Sandeep Vidyapu	136201004	Computer Science and Engineering

**List of students who have fulfilled the requirements for the award of Ph. D. degree**

<b>Sl. No.</b>	<b>Name</b>	<b>Roll No</b>	<b>Department</b>
1.	Himanshu Sharma	11610608	Biosciences and Bioengineering
2.	Naveen Kumar Singh	136106035	Biosciences and Bioengineering
3.	Nitin Kumar	11610613	Biosciences and Bioengineering
4.	Karabi Saikia	126106010	Biosciences and Bioengineering
5.	Sajitha Sasidharan	126106011	Biosciences and Bioengineering
6.	Dibakar Gohain	136106009	Biosciences and Bioengineering
7.	Gaurav Pandey	136106024	Biosciences and Bioengineering
8.	Kuldeep Mahato	156106049	Biosciences and Bioengineering
9.	Saumya Ahlawat	126106021	Biosciences and Bioengineering
10.	Adarsh Kumar Chiranjivi	146106019	Biosciences and Bioengineering
11.	Dimple Chouhan	136106012	Biosciences and Bioengineering
12.	Papori Buragohain	136106006	Biosciences and Bioengineering
13.	Katla Srikanth	126106006	Biosciences and Bioengineering
14.	Hasnahana Chetia	136106032	Biosciences and Bioengineering
15.	Bidkar Anil Parsram	146106024	Biosciences and Bioengineering
16.	Dhanasingh M	136106005	Biosciences and Bioengineering
17.	Poulami Dutta	136106015	Biosciences and Bioengineering
18.	Rajulapati Vikky	136106031	Biosciences and Bioengineering
19.	Moushume Das	136106033	Biosciences and Bioengineering
20.	Krishan Kumar	146106035	Biosciences and Bioengineering
21.	M M Tejas Namboodiri	146106016	Biosciences and Bioengineering
22.	Shrutidhara Biswas	11610609	Biosciences and Bioengineering
23.	Amrendra Kumar	136106010	Biosciences and Bioengineering
24.	Abhishek Ajmani	146106015	Biosciences and Bioengineering
25.	Poulomi Dey	146106018	Biosciences and Bioengineering
26.	Priyanka Nath	146106042	Biosciences and Bioengineering
27.	Balwant Singh	126106032	Biosciences and Bioengineering
28.	Shweta Singh	146106034	Biosciences and Bioengineering
29.	Amit Kumar	146106013	Biosciences and Bioengineering
30.	Naresh L M	136106029	Biosciences and Bioengineering
31.	Gaurav Jerath	126106019	Biosciences and Bioengineering
32.	Prerana Gogoi	126106035	Biosciences and Bioengineering
33.	Kedar Sharma	146106031	Biosciences and Bioengineering
34.	Gundappa Saha	146106039	Biosciences and Bioengineering
35.	Debika Datta	136106018	Biosciences and Bioengineering
36.	Karukriti Kaushik Ghosh	136106014	Biosciences and Bioengineering
37.	Dipti Yadav	136151006	Centre for Energy
38.	Sumitha Banu J	136151003	Centre for Energy
39.	Vigneshwaran K	146151002	Centre for Energy
40.	Mrinal Kumar Sarma	11615101	Centre for Energy
41.	Sanchari Deb	166151006	Centre for Energy
42.	Madhumita Das	146153008	Centre for Nanotechnology
43.	Namami Goswami	136153002	Centre for Nanotechnology
44.	Shatrudhan Palsaniya	146153010	Centre for Nanotechnology
45.	Tamanna Bhuyan	146153006	Centre for Nanotechnology
46.	Nilanjan Mandal	126153001	Centre for Nanotechnology
47.	Jyoti Kainthola	166152003	Centre for the Environment
48.	Kamalesh Verma	146152009	Centre for the Environment
49.	Papu Kumar Naik	146152006	Centre for the Environment
50.	Niva Rana Mahanta	136152002	Centre for the Environment
51.	Lipika Kalo	126107002	Chemical Engineering

52.	Debashis Kundu	156107001	Chemical Engineering
53.	Monika	136107017	Chemical Engineering
54.	M. Mallikarjuna Reddy	136107010	Chemical Engineering
55.	Mridusmita Barooah	136107039	Chemical Engineering
56.	Pankaj Jha	146107012	Chemical Engineering
57.	Nagireddi Srinu	146107039	Chemical Engineering
58.	Gourhari Chakraborty	136107009	Chemical Engineering
59.	Vishal Kumar Verma	146107021	Chemical Engineering
60.	Shirsendu Mitra	146107009	Chemical Engineering
61.	Narendren S	136107026	Chemical Engineering
62.	Siddharth Mohan Bhasney	136107024	Chemical Engineering
63.	Anirban Dey	146107017	Chemical Engineering
64.	Rajashree Borgohain	146107016	Chemical Engineering
65.	Ranjan Phukan	126107015	Chemical Engineering
66.	Supriyo Kumar Mondal	126107003	Chemical Engineering
67.	Goshika Bharath Kumar	136107021	Chemical Engineering
68.	Amit Hukumchand Batghare	146107019	Chemical Engineering
69.	Shailesh Ravi Varade	146107014	Chemical Engineering
70.	Manish Kumar Dhiman	146107040	Chemical Engineering
71.	Yedla Santosh Kumar	146107018	Chemical Engineering
72.	Pallab Das	136107016	Chemical Engineering
73.	Sohan Bir Singh	146107026	Chemical engineering
74.	Avishek Banik	136122021	Chemistry
75.	Vanaparathi Satheesh	136122023	Chemistry
76.	Bapan Pramanik	146122005	Chemistry
77.	Hiranya Gogoi	126122016	Chemistry
78.	Gaurangi Gogoi	136122031	Chemistry
79.	Rashmi Jyoti Das	136122033	Chemistry
80.	Soumi Das	146122025	Chemistry
81.	Debabrata Singha	126122008	Chemistry
82.	Subhra Kanti Roy	136122018	Chemistry
83.	Titli Ghosh	136122012	Chemistry
84.	Subas Chandra Sahoo	146122003	Chemistry
85.	Kalicharan Das	156122008	Chemistry
86.	Ngangbam Renubala Devi	146122011	Chemistry
87.	Upasana Borthakur	146122019	Chemistry
88.	Tanmay Mondal	136122010	Chemistry
89.	Chirantan Gayen	166122102	Chemistry
90.	Baishakhi Mandal	146122029	Chemistry
91.	Sourav Pradhan	146122016	Chemistry
92.	Rajat Subhra Giri	146122015	Chemistry
93.	Sumana Mondal	136122038	Chemistry
94.	Vijay M	126122010	Chemistry
95.	Soumita Dwari	136122020	Chemistry
96.	Rupinder Singh	146122033	Chemistry
97.	Dillip Kumar Sahu	146122008	Chemistry
98.	Jugal bori	126122043	Chemistry
99.	Mohammad Adil Afroz	136122028	Chemistry
100.	Aniruddha Das	156122006	Chemistry
101.	Bilal Ahmad Mir	146122034	Chemistry
102.	Nilotpai Singha	146122001	Chemistry

103.	Adil Majeed Rather	156122047	Chemistry
104.	Niranjan Meher	146122018	Chemistry
105.	Mostakim Sk	146122017	Chemistry
106.	Uday Narayan Pan	126122042	Chemistry
107.	Ayan Pal	146122026	Chemistry
108.	Gourab Mukherjee	146122021	Chemistry
109.	Raj Kumar Gogoi	156122012	Chemistry
110.	Pinaki Bhusan De	146122020	Chemistry
111.	R. Someswaran	09610411	Civil Engineering
112.	Debraj Biswas	11610412	Civil Engineering
113.	Sanandam Bordoloi	156104017	Civil Engineering
114.	Sritam Swapnadarshi Sahu	146104007	Civil Engineering
115.	Chinumani Choudhury	136104006	Civil Engineering
116.	Swarup Mahato	136104010	Civil Engineering
117.	Sandip Sampatrao Sathe	126104022	Civil Engineering
118.	Subrat Kumar Mallick	136104021	Civil Engineering
119.	Deepjyoti Baglari	136104024	Civil Engineering
120.	Gilbert Hinge	156104016	Civil Engineering
121.	Ashutosh Sharma	166104015	Civil Engineering
122.	Dammala Pradeep Kumar	146104002	Civil Engineering
123.	Tekcham Gishan Singh	146104036	Civil Engineering
124.	Janarul Shaikh	146104004	Civil Engineering
125.	Lavish Gobind Pamwani	156104003	Civil Engineering
126.	Ricky Lalthazuala	166104042	Civil Engineering
127.	Biplab Ghosh	126104016	Civil Engineering
128.	Krishanu Mukherjee	146104001	Civil Engineering
129.	Garaga Rajyalakshmi	156104006	Civil Engineering
130.	Sanasam Vipej Devi	166104041	Civil Engineering
131.	Chiranjib Prasad Sarma	126104035	Civil Engineering
132.	Dolla Tharun	146104027	Civil Engineering
133.	Kamaliyoti Nath	136104014	Civil Engineering
134.	Gangolu Jaswanth	146104042	Civil Engineering
135.	N. Sukumar Singh	126104038	Civil Engineering
136.	Nzanthung Ngullie	126104023	Civil Engineering
137.	Patil Gundopant Rajaram	10610421	Civil Engineering
138.	Vinay Kumar Gadi	156104019	Civil Engineering
139.	Harinarayan N H	146104031	Civil Engineering
140.	Suman Kumar Padhee	136104017	Civil Engineering
141.	Anupoju Rajeev	146104035	Civil Engineering
142.	Priyanka Talukdar	146104025	Civil Engineering
143.	Sanhita Das	156104008	Civil Engineering
144.	Sachin Kumar Tomar	11610419	Civil Engineering
145.	Laveti N. V. Satish	136104028	Civil Engineering
146.	Chembolu Vinay	156104034	Civil Engineering
147.	Ranjan Maity	146101023	Computer Science and Engineering
148.	Sonia	146101008	Computer Science and Engineering
149.	Akash Anil	146101015	Computer Science and Engineering
150.	Mousum Handique	11610109	Computer Science and Engineering
151.	Sukarn Agarwal	146101004	Computer Science and Engineering
152.	Sanjay Moulik	136101018	Computer Science and Engineering
153.	Saptarshi Pyne	146101005	Computer Science and Engineering

154.	Sathisha Basavaraju	156101004	Computer Science and Engineering
155.	Mrityunjoy Singh	10610108	Computer Science and Engineering
156.	Vasudevan M. S	136101012	Computer Science and Engineering
157.	Madhusudan Paul	10610111	Computer Science and Engineering
158.	Pallabi Saikia	146101011	Computer Science and Engineering
159.	Ramanuj Chouksey	136101001	Computer Science and Engineering
160.	Shilpa Budhkar	10610102	Computer Science and Engineering
161.	Piyosh P	146101001	Computer Science and Engineering
162.	Charu Monga	146105002	Design
163.	Amrita Bhattacharjee	156105003	Design
164.	Deepshikha	166105003	Design
165.	Ganesh S. Jadhav	156105018	Design
166.	Brajesh Dhiman	156105014	Design
167.	Sai Prasad Ojha	126105001	Design
168.	Sukanya Bor Saikia	156105001	Design
169.	Susmita Nath	156105008	Design
170.	Shiva Ji	146105015	Design
171.	Pallavi Rani	146105006	Design
172.	Bhaskar Saha	156105004	Design
173.	Wanrisa Bok Kharkongor	156105011	Design
174.	Raman Saxena	146105003	Design
175.	Ravi Mahamuni	156105006	Design
176.	Shashank Dwivedi	10610211	Electronics and Electrical Engineering
177.	Vikram C.M.	146102045	Electronics and Electrical Engineering
178.	Vivek Lukose	10610225	Electronics and Electrical Engineering
179.	Amit Vishwakarma	146102014	Electronics and Electrical Engineering
180.	Subhasis Mandal	136102002	Electronics and Electrical Engineering
181.	Shubh Lakshmi	156102013	Electronics and Electrical Engineering
182.	Sanjib Das	06610214	Electronics and Electrical Engineering
183.	Ramesh Kumar Bhukya	126102001	Electronics and Electrical Engineering
184.	Sishir Kalita	146102012	Electronics and Electrical Engineering
185.	Amit Kumar Baghel	146102021	Electronics and Electrical Engineering
186.	Nagendra Kumar	146102018	Electronics and Electrical Engineering
187.	C. Upendra Reddy	136102013	Electronics and Electrical Engineering
188.	Parveen Malik	10610222	Electronics and Electrical Engineering
189.	Mridul Kanti Malakar	10610217	Electronics and Electrical Engineering
190.	Gaurav Kumar	126102004	Electronics and Electrical Engineering
191.	Kannao Raghavendra Dhirendra	126102022	Electronics and Electrical Engineering
192.	Gargi Baruah	126102007	Electronics and Electrical Engineering
193.	Anirban Bhowal	156102008	Electronics and Electrical Engineering
194.	Ramanand Sagar Sangam	146102015	Electronics and Electrical Engineering
195.	Kashyap Kumar Prabhakar	126102034	Electronics and Electrical Engineering
196.	Brijesh Kumar Kushwaha	126102029	Electronics and Electrical Engineering
197.	Krishna Pavan Inala	126102006	Electronics and Electrical Engineering
198.	Akhilesh Kumar Dubey	146102013	Electronics and Electrical Engineering
199.	Mohd. Tasleem Khan	136102022	Electronics and Electrical Engineering
200.	Niladri Das	136102023	Electronics and Electrical Engineering
201.	Sandeep R.	10610228	Electronics and Electrical Engineering
202.	Kulen Chandra Das	11614110	Humanities and Social Sciences
203.	Karabi Das	11614102	Humanities and Social Sciences
204.	Pallavi Gogoi	126141017	Humanities and Social Sciences
205.	Violenka Deka	136141003	Humanities and Social Sciences
206.	Neel Harit Kausik	136141005	Humanities and Social Sciences

207.	Namrata Sharma	136141004	Humanities and Social Sciences
208.	Pankaj Kumar Kalita	126141015	Humanities and Social Sciences
209.	Rahul Shukla	146141008	Humanities and Social Sciences
210.	Dibya Jyoti Borah	11614114	Humanities and Social Sciences
211.	Rekhamoni Devi	146141017	Humanities and Social Sciences
212.	Priyanka Tamta	126141018	Humanities and Social Sciences
213.	Prarthana Acharyya	136141007	Humanities and Social Sciences
214.	Rama Devi	146141007	Humanities and Social Sciences
215.	Arindam Dey	11612312	Mathematics
216.	Ananda Chandra Nayak	136123006	Mathematics
217.	Biswajit Das	136123016	Mathematics
218.	Sonjoy Pan	146123007	Mathematics
219.	Devanand	136123014	Mathematics
220.	Debasish Pattanayak	146123003	Mathematics
221.	Ranjan Kumar Das	136123004	Mathematics
222.	Rasmi Ranjan Behera	126103003	Mechanical Engineering
223.	Shuvayan Brahmachary	126103045	Mechanical Engineering
224.	Mantulal Basumatary	11610320	Mechanical Engineering
225.	Achinta Sarkar	126103042	Mechanical Engineering
226.	Parag Kamal Talukdar	136103039	Mechanical Engineering
227.	D Sam Dayala Dev	146103034	Mechanical Engineering
228.	Anupam Alok	136103033	Mechanical Engineering
229.	Arbind Prasad	136103034	Mechanical Engineering
230.	Arvind K. Agrawal	136103008	Mechanical Engineering
231.	Rituraj Saikia	11610335	Mechanical Engineering
232.	Debabrata Gayen	136103017	Mechanical Engineering
233.	Md. Nur Alom	166103030	Mechanical Engineering
234.	Getu Tilahun Areda	146103039	Mechanical Engineering
235.	Raushan Kumar	11610301	Mechanical Engineering
236.	Agyapal Singh	146103022	Mechanical Engineering
237.	N. Sivaramakrishan	10610323	Mechanical Engineering
238.	Lav Kumar Kaushik	146103031	Mechanical Engineering
239.	Jasinta Poonam Ekka	156103050	Mechanical Engineering
240.	S. Pandian	156103021	Mechanical Engineering
241.	Rajkumar Shufen	156103005	Mechanical Engineering
242.	Mukesh Kumar	11610305	Mechanical Engineering
243.	Abinash Mahapatro	146103025	Mechanical Engineering
244.	Sangjukta Devi	146103006	Mechanical Engineering
245.	Vikash Kumar	156103027	Mechanical Engineering
246.	Rajesh Kumar Ojha	126103015	Mechanical Engineering
247.	Ashutosh Kumar	156103024	Mechanical Engineering
248.	Gorthi Rameshwara Srinivas	146103045	Mechanical Engineering
249.	Arnab Chanda	11610325	Mechanical Engineering
250.	Sanasam Sunderlal Singh	136103012	Mechanical Engineering
251.	Dhrubajyoti Kashyap	11610308	Mechanical Engineering
252.	Anshul Garg	126103011	Mechanical Engineering
253.	Sridhar P.V.S.S.	10610309	Mechanical Engineering
254.	S. Sajith	11610333	Mechanical Engineering
255.	R. Vignesh Babu	136103035	Mechanical Engineering
256.	Gaurav Kumar	126103028	Mechanical Engineering
257.	Srikant Prasad	10610320	Mechanical Engineering
258.	Ashif Iqbal	11610331	Mechanical Engineering
259.	Tinu P Saju	146103019	Mechanical Engineering



260.	Manish Kumar Dubey	136103010	Mechanical Engineering
261.	Shibananda Sahoo	126121016	Physics
262.	Srikrishna Ghosh	136121006	Physics
263.	Koijam Monika Devi	146121002	Physics
264.	Robin T. George	146121015	Physics
265.	Prahlad Kumar Baruah	126121027	Physics
266.	Santanu Konwar	136121029	Physics
267.	Deepanjali Goswami	136121013	Physics
268.	Purusottam Ghosh	146121003	Physics
269.	Pratap Behera	136121023	Physics
270.	Eshita Mal	136121022	Physics
271.	S. Jagan Mohan Rao	146121032	Physics
272.	Subhadeep Chakraborty	146121061	Physics
273.	Indu Kalpa Dihingia	146121005	Physics
274.	Aakansha	146121022	Physics
275.	Prativa Pramanik	156121022	Physics
276.	Nawaz Sarif Mallick	146121007	Physics
277.	Ranjan Kalita	146121029	Physics
278.	Srinivas Pattipaka	146121017	Physics
279.	Krishnakanta Bhattacharya	156121009	Physics
280.	Aneeta Manjari Padhan	146121018	Physics
281.	Jyoti Prasad Deka	146121031	Physics
282.	Joy Prakash Das	146121021	Physics
283.	Rahul Kesarwani	126121002	Physics
284.	Subhasish Behera	136121005	Physics
285.	Sunayana Dutta	146121028	Physics

**PROGRESS OF CONSTRUCTION WORKS**

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical progress		Total progress upto 31.03.2021		Remarks
			Up to 31.03.2020	During 2020-2021	Physical	Financial (₹ in lakhs)	This Year
1.	Hostel Building						
	Boys' Hostel 11 (1144 capacity with 34785 sqm floor area)	9665.00 Revised 12719.00	85%	10%	95%	10428.76	580 rooms are completed and under occupation. Kitchen and dining hall work completed in March 2021 and has been operational. Remaining works is expected to be completed by May2021.
2.	Academic Complex						
a)	(Phase – V) DoD, CSE, Physics, Chemical Engg, HSS, Mathematics, And Centre for Nano Technology. (19045 sqm floor area)	6944.74 Revised 8575.50	98%	1%	99%	6992.74	Due to fund crunch & Covit 19 the work was stopped from June 2019. The work has resumed and will be completed shortly.
b).	Academic Phase VI (CET building) (6559.00 sqm)	3272.00	5%	13%	18%	579.16	100% piling work completed .and 90% pile cap completed.
3.	Residential Building						
a)	F-Type (Phase-V) (5186.08 Sqm floor area)	13686.00	23%	5%	28%	3809.00	Tower 1: Foundation work completed, superstructure up to G+5 floor completed. Sample flat construction is almost completed. Tower 2: Foundation work completed, superstructure up to G+2 floor completed.

							Tower 3: Foundation work completed, superstructure up to G+5 floor completed. Tower 4: Foundation work completed, superstructure up to G+1 floor completed.
4.	Boundary wall Phase-V (3.9 Km)	2340.79	90%	10%	100%	2171.49	The work has been completed December 2020.
5.	Dormitory for Guest House (2155 sqm floor area)	488.86	95%	5%	100%	402.70	The construction works are completed on March'2021 and handing over is under process.
6 .	Research Park(19663 sqm floor area)	7500.00	25%	15%	40%	2669.41	The RCC structural framework upto G+6 level has been completed. The scheduled date of completion of the work is December 2022. Effort is made to complete at least two floors of the Research block ready by January 2022.

## SUMMARY OF INSTITUTE ACCOUNTS

**BALANCE SHEET AS AT 31ST MARCH 2021**

[Amount in `]

SOURCES OF FUNDS	Schedule	Current Year	Previous Year
<b>CORPUS/CAPITAL FUND</b>	1	12,76,16,21,038	12,93,62,80,254
<b>DESIGNATED/ EARMARKED / ENDOWMENT FUNDS</b>	2	1,74,46,53,770	1,59,66,49,620
<b>CURRENT LIABILITIES &amp; PROVISIONS</b>	3	6,25,16,39,715	4,94,85,21,850
<b>TOTAL</b>		<b>20,75,79,14,523</b>	<b>19,48,14,51,723</b>

APPLICATION OF FUNDS	Schedule	Current Year	Previous Year
<b>FIXED ASSETS</b>	4		
<b>Tangible Assets</b>		12,12,23,22,270	12,33,43,85,989
<b>Intangible Assets</b>		9,84,19,020	8,70,64,128
<b>Capital Works-In-Progress</b>		2,62,08,10,292	2,13,86,30,488
<b>INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS</b>	5		
<b>Long Term</b>		88,64,40,847	70,07,53,075
<b>Short Term</b>		-	-
<b>INVESTMENTS - OTHERS</b>	6	46,88,34,698	62,32,07,345
<b>CURRENT ASSETS</b>	7	3,71,85,79,974	2,98,98,52,092
<b>LOANS, ADVANCES &amp; DEPOSITS</b>	8	84,25,07,422	60,75,58,605
<b>TOTAL</b>		<b>20,75,79,14,523</b>	<b>19,48,14,51,723</b>

**INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2021**

[Amount in `]

Particulars	Schedule	Current Year	Previous Year
<b>INCOME</b>			
Academic Receipts	9	44,75,86,250	45,22,31,549
Grants / Subsidies	10	3,16,80,75,150	3,65,19,31,792
Income from investments	11	8,27,84,290	10,32,49,834
Interest earned	12	4,19,42,199	1,83,94,487
Other Income	13	6,44,19,860	10,04,46,956

Prior Period Income	14	5,97,911	9,91,852
<b>TOTAL (A)</b>		<b>3,80,54,05,660</b>	<b>4,32,72,46,470</b>
<b>EXPENDITURE</b>			
Staff Payments & Benefits (Establishment expenses)	15	1,80,38,11,408	2,06,90,34,768
Academic Expenses	16	88,72,96,515	94,58,25,696
Administrative and General Expenses	17	20,31,15,651	47,59,49,047
Transportation Expenses	18	1,64,71,450	2,40,93,450
Repairs & Maintenance	19	50,58,53,031	62,04,42,204
Finance costs	20	16,00,780	26,08,663
Depreciation	4	69,89,85,375	67,65,24,673
Other Expenses	21	-	-
Prior Period Expenses	22	7,36,76,883	5,93,78,293
<b>TOTAL (B)</b>		<b>4,19,08,11,093</b>	<b>4,75,51,00,210</b>
<b>Balance being excess of Income over Expenditure (A-B)</b>		<b>(38,54,05,433)</b>	<b>(42,78,53,740)</b>
<b>Transfer to / from Designated Fund</b>			
Earmarked / Endowment Funds		(12,28,49,289)	-10,41,56,156.24
Interest earned on Govt. Grants transferred to Current Liabilities		(1,47,13,945)	-
Capital Fund		3,15,00,000	2,00,00,000.00
Utilization OF IRG (HEFA and others)		(35,43,90,232)	-24,83,77,543.00
<b>Balance Being Surplus / (Deficit) Carried to Capital Fund</b>		<b>(84,58,58,898)</b>	<b>(76,03,87,439)</b>

**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
GUWAHATI - 781039, ASSAM**

**RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2021**

[Amount in `]

<b>RECEIPTS</b>		<b>Current Year</b>	<b>Previous Year</b>	<b>PAYMENTS</b>		<b>Current Year</b>	<b>Previous Year</b>
I.	Opening Balance			I.	Expenses		
	a) Cash Balances	2,54,000	2,55,000		a) Establishment Expenses	1,68,23,34,585	1,75,90,28,545
	b) Bank Balance	-			b) Academic Expenses	72,26,70,654	78,03,41,509
	i. In Current accounts	1,27,55,22,615	65,87,07,158		c) Administrative Expenses	2,57,43,548	2,62,45,474
	ii. In Savings accounts	1,64,14,63,359	1,78,02,63,892		d) Transportation Expenses	7,82,153	12,45,541
	iii. In Deposit accounts	7,26,12,118	-		e) Repairs & Maintenance	5,47,850	5,64,200
II.	Grants Received	-			f) Prior period expenses	6,04,21,237	17,455
	a) From Government of India	3,60,97,26,411	4,20,33,97,652		g) Finance Cost	57,547	32,857
	b) From State Government	-	-	II.	Payments against Earmarked/ Endowment Funds	8,16,68,628	6,16,11,367
	c) From others	-	-	III.	Payments against Sponsored Projects/Schemes	60,07,93,202	1,69,42,46,091

	d) Grants in aid receivable for 16-17 received during the year	-	-		IV. Payments against Sponsored Fellowships/Scholarships	2,08,62,987	3,15,67,489
		-			V. Investments and Deposits made	-	
III.	Academic Receipts	52,80,74,690	69,48,48,407		a) Out of Earmarked/Endowments funds	-	3,05,68,097
IV.	Receipts against Earmarked/Endowment Funds	9,59,74,218	11,35,60,164		b) Out of own funds (Investments- Others}	3,05,49,144	-
V.	Receipts against Sponsored Projects/Schemes	1,30,80,44,762	1,53,58,68,582	VI.	Term Deposits with Scheduled Banks		2,79,41,000
VI.	Receipts against sponsored Fellowships and Scholarships	2,71,73,575	3,59,24,630	VII.	Expenditure on Fixed Assets and Capital Works - in-Progress	-	-
VII.	Income on Investments from		-		a) Fixed Assets	4,05,56,896	11,82,844
	a) Earmarked/Endowment funds	79,68,052	1,24,04,661		b) Capital Works- in-Progress	-	-
	b) Other investments	1,50,64,334	5,92,72,589	VIII.	Other Payments including statutory payments	1,16,24,67,660	1,24,31,29,278
VIII.	Interest received on		-			-	-
	a) Bank Deposits		-	IX.	Refunds of Grants	-	-

	b) Loans and Advances	-	78,865	X.	Deposits and Advances	1,84,21,44,555	1,88,57,33,487
	c) Savings Bank Accounts	4,18,46,867	1,82,29,094	XI.	Other Payments	78,21,665	71,41,407
IX.	Investments encashed	4,00,00,000	27,79,53,544	XII.	Closing balances	-	
X.	Term Deposits with Scheduled Banks encashed		3,27,08,432		a) Cash in hand	2,63,000	2,54,000
XI.	Other income (including Prior Period Income)	1,80,40,855	37,440		b) Bank balances	-	
XII.	Deposits and Advances	29,21,17,115	14,89,67,137		In Current Accounts	1,18,14,73,607	1,27,55,22,615
XIII.	Miscellaneous Receipts including Statutory Receipts	97,35,81,259	83,88,24,373		In Savings Accounts	2,48,27,10,834	1,64,14,63,359
XIV	Any Other Receipts - Fixed Asstes/ Direct-Indirect expenses	5,05,38,054	5,65,34,995		In Deposit Accounts	5,41,32,533	-
	<b>TOTAL</b>	<b>9,99,80,02,284</b>	<b>10,46,78,36,614</b>		<b>TOTAL</b>	<b>9,99,80,02,284</b>	<b>10,46,78,36,614</b>



