

Research, Innovation & Entrepreneurship @ BIT Mesra

C. Jeganathan, PhD

Dean-RIE

BIT, Mesra



Research Strategy

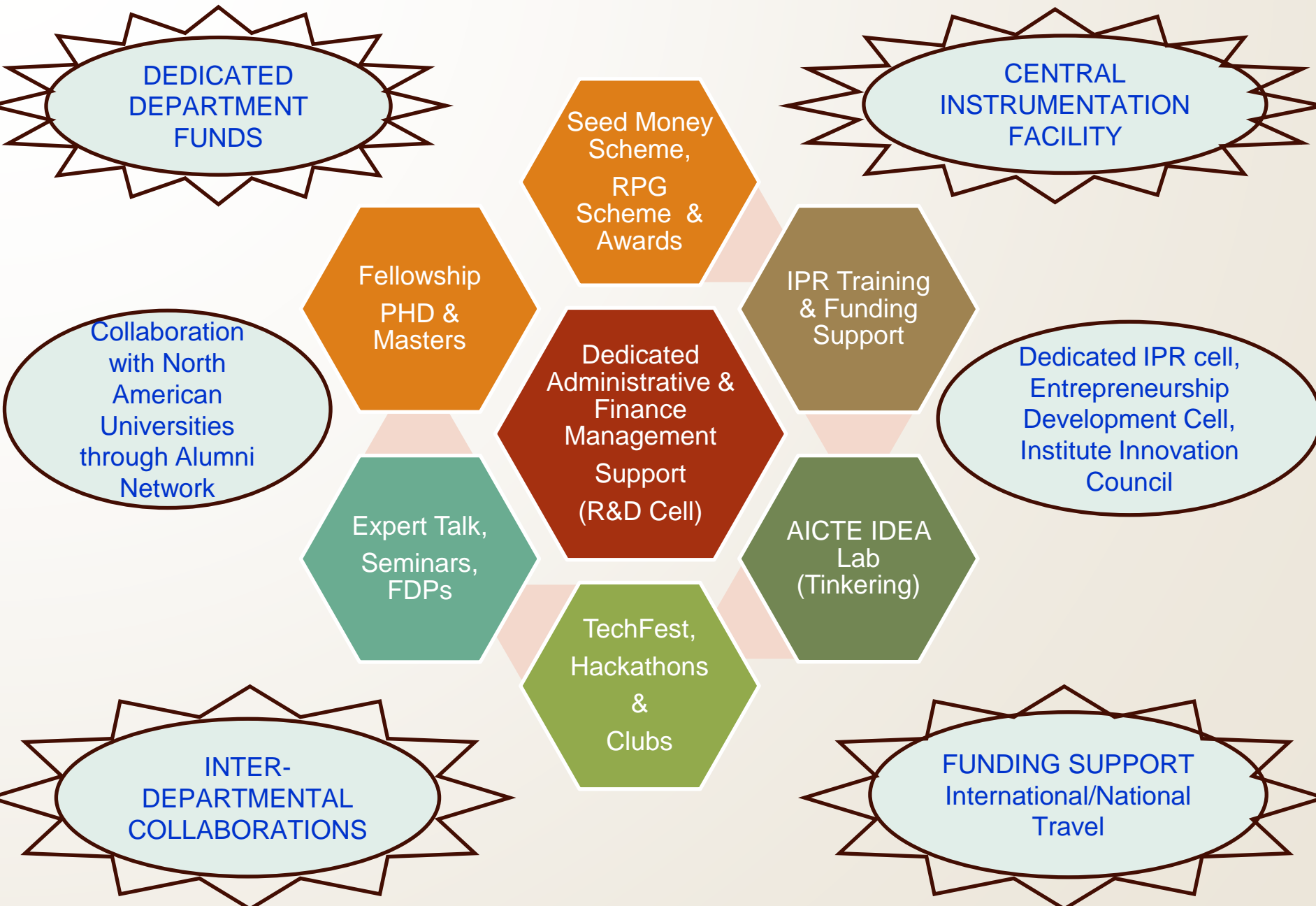
Internal Aspects

- Inculcate mindset towards Quality Research and Ethics amongst Faculty and students.
- Provide State of the art Scientific Infrastructure and Funding Support for carrying out Impactful Research.
- Recruit quality academicians, researchers, technocrats to accelerate research outcome and outreach.

External Aspects

- Integrate Academia-Industry Collaboration for addressing industry related problems, carry out consultancy, and provide sustainable solutions.
- Enhance National and International Collaboration for interdisciplinary research.
- Provide an ecosystem for nurturing innovative idea and entrepreneurship, and to attract funding from external sources.
- Deliver solutions to real-life challenges and societal issues through technological interventions.

Schemes & Policies to enhance & promote research



BIT Fraternity in the top 2% Scientist of the World



Prof. Indranil Manna
Metallurgy, Prod. Engg.



Prof. Pritam Chattaraj
Chemistry



Prof. Ashok Mishra
Mech. Engg.



Dr. Sheela Chandra
BioEngg. & BioTech.



Dr. Prankishore Deb
Pharmacy



Dr. Arup Choudhary
Chem. Engg.



Dr. Chinmay Chakraborty
Electronics & Comm. Engg.



Dr. Bappa Acharya
Production Engg.



Dr. Randhir Singh
Mathematics



Dr. Om Prakash
Mech. Engg.



Dr. Bapi Gorain
Pharmacy



Dr. Lakbir Singh Brar
Mech. Engg.



Dr. Suraj N. Mali
Pharmacy Scholar

Interesting Research @ BIT

CLEAN FUEL: Metal-Free Hydrogen Evolution based on:

- (A) Covalent Organic Polymer for Electro-catalysis of water.
- (B) Solar energy based Photo-electro-chemical (PEC) process.

(Dr. Anirban Pradhan, Chemistry)

Efficient Refrigeration:

- (A) Modification and fabrication of cooling and superheating system (CSS) for refrigerant in refrigeration process
- (B) Cost and Power Efficient Cooling based on Enthalpy Porosity Model.

(Dr. Debosree Ghosh, Chemical Engg.)

NANO-LUBRICANTS:

- (A) Engineered Fluids with nanoparticles for reducing friction and wear.
- (B) Assessment of thermo-physical and tribological properties.

(Dr. Gayatri Paul, Production & Ind. Engg.)

INCREASING FUEL EFFICIENCY: .

- (A) Automobile body ~40% weight
- (B) 10% reduction in body weight may reduce 7% fuel use.
- (C) Creation of Metal-Plastic-Metal based body using laser fusion.
- (D) Reduction of body weight and CO2 Emission, and Increase Fuel Efficiency.

(Dr. Bappa Acharya, Dr. Joyjeet, Production & Indus. Engg.)

Super Piezo-Electric Wearable Devices: .

- (A) Harvesting Bio-Mechanical Energy from Human Motion
- (B) Bio-Eco-friendly Material development.
- (C) Safe, maintenance free and durable Bio-sensing solution.

(Dr. Barnali Dasgupta, Dr. Trishna Bal, Chemistry)

Alternative to Bluetooth & Wi-Fi Technology:

- (A) Button Size Ultra-Wide-Band (UWB) Antenna
- (B) More Accurate for positioning and direction-finding capabilities than Bluetooth and Wi-Fi.
- (C) 3.0 to 17.5 GHz Bandwidth with return loss less than 10 dB with near linear phase characteristics and stable antenna gain.
- (D) data rate of up to 1Gbit/s within a 10-meter radius for wireless personal area communications.

(Dr. Srikant Pal, Electronics & Communication Engg.)

Interesting Research @ BIT

Zero Exhaust Stirling Engine:

- (A) Modification of IC Engine to EC engine.
- (B) 100% Leak Proof Piston Seals.
- (C) Multi-Fuel Capability
- (D) 100% Combustion.

(Dr. Rajeev Kumar, Mechanical Engg.)

Green Propellants for Rockets:

- (A) Synthesis of Hydroxyl Ammonium Nitrate(HAN) Green Propellant with 95% concentration.
- (B) Preparation of the catalyst ignition system for stable combustion of HAN propulsion system

(Dr. Shelly Biswal, Dr. Rajiv Kr., Space Engg. & Rocketry)

IOT based Adaptive Irrigation:

- (A) IOT, AI/ML based Adaptive Decision Support for water, pesticide and Scarecrow control/management.
- (B) Mobile App based real-time monitoring and decision making

(Dr. Debomita Gosh, Dr. T. Ghose, EEE)

EXTRACTING PRECIOUS METALS FROM ELECTRONIC WASTE: .

- (A) Issues: pyrometallurgy and hydrometallurgy involve high temperature, toxic chemicals and harmful to the environment.
- (B) Biometallurgy using microbial strains.
- (C) Reduce E-Waste and Environmental Pollution

(Dr. Muthu Kumar, Dr. V.K. Nigam, Bio-Engg. & Bio-Tech.)

Remediation of Mining Effluents:

- (A) Mining effluents contain a lot of heavy metal ions which need urgent disposal
- (B) Conventional Water treatment fail to address emerging contaminants.
- (C) Polysaccharide integrated Metal-Organic Framework was successfully synthesized with 95% efficiency.
- (D) Re-usable and Recyclable.

(Dr. Sumit Mishra, Dr. Ashoke Sharon, Dr. Naresh, Chemistry & Civil Env. Engg.)

Ultra Low power CMOS for AeroSpace Applications:

- (A) A low power, high accuracy, high performance Complementary Metal Oxide semiconductor (CMOS) temperature sensor
- (B) $<110\mu\text{W}$ power consumption, and operates over -20°C to $+20^{\circ}\text{C}$ as per need of Space Missions.

(Dr. Vijay Nath, Electronics & Communication Engg.)

Interesting Health Research @ BIT

Micro-Nutrient Fortification:

- (A) 55% of Indian Population has Iron Deficiency due to monotonous and imbalanced diet.
- (B) Fabrication of Low-cost Dal fortification technology without disrupting the native structure and physio-chemical properties of Dal.
- (C) Technology Transferred to Industry.

(Dr. Anupam Roy, Chemical Engg.)

Conquering Psoriasis :

- (A) 100 Million individuals are affected by Psoriasis.
- (B) Current treatment is not effect as due to ineffective dose-delivery mechanism at local level.
- (C) Development of Intradermal delivery with polymer based delivery system, where drug Apremilast will be loaded in protein nano-particles laden dissolvable polymeric micro-needles.

(Dr. Monika Dwivedi, Pharmacy)

Bone Tissue Re-Engineering:

- (A) Critical size and complex bone defects rectification through Autocrafts have serious limitation.
- (B) Stimuli-responsive bone substitutes and smart scaffolding for irregular defects are required in orthopaedics
- (C) Fabrication of functionalized organic and inorganic nanomaterials and explored phyto-bioactives for orthopedic applications.
- (D) Injectable bone cement and cryogels was also developed to fit the defect area

(Dr. Sneha Singh, Dr. V.K. Nigam, Bio-Engg. & Bio-Tech.)

Nano-Robotic Drug Delivery (Dr. Koel Mukherjee, BEBT)

Speech-AI system for Parkinson's Disease Prediction (Dr. S.S. Sahu, ECE)

Mitigation of EM-Interference in Wearable IOT devices (Dr. Nisha Gupta, ECE)

IOT & AI/ML based Assistance of Alzheimer Patients (Dr. S.S. Tripathy, ECE)

Low-Cost AI-enabled portable multispectral camera system for plant diseases detection (Dr. R. Poddar, BEBT)

Low-cost, portable, high-speed confocal Scanning Laser Ophthalmoscopy (CSLO) system for imaging of human eye (Dr. R. Poddar, BEBT)

Automatised Body Mass Index (BMI) Measurement System for the Assesment of Malnutrition in Children (Dr. S.S. Solanki, ECE)

Scalable Assembly of Painless Hollow Microneedle Array (Dr. Richa Mishra, ECE)

Intelligent Blockchain techniques for efficient management and storage solutions for E-healthcare (Dr. Shamama Anwar, CSE)

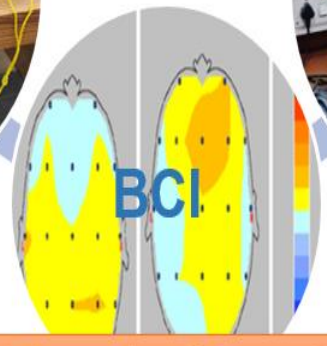
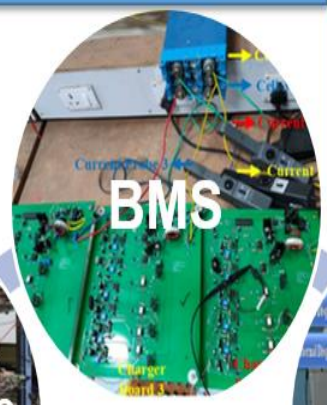
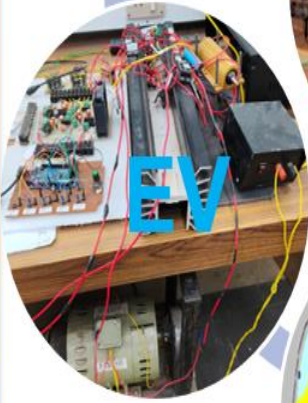
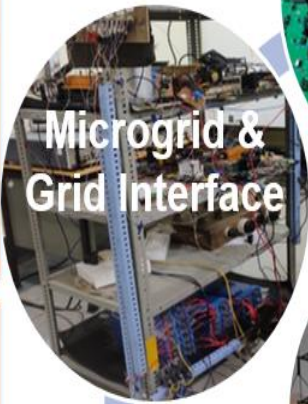
DEPARTMENT OF EEE – RESEARCH AT A GLANCE

1. Microgrid; Analysis & Control
2. Cloud based control Monitoring
3. Solar-Wind-Li Battery Integration
4. Published in peer-review journal
5. Decentralized electricity market using blockchain has been designed in the community microgrid connected with utility DSO.

Faculty: Prof. T. Ghose, Dr. D. Ghosh, Dr. D. Kumar, Dr. P. Mishra

1. Design of PMBLDC, SRM, Induction Motor for EV Traction
2. Design of Power Train for a light commercial vehicle.
3. Design and development of intelligent controller for Autonomous Ground Vehicle
4. Develop AI and IoT-based communication infrastructure for intelligent transportation system

Faculty: Dr. A. Alam, Dr. Shiva Kumar, Dr. M. J. Akhtar, Dr. S. K. Mishra



1. Battery Management System for EV Applications
2. On-board SOC, SOH, and DOD estimation
3. Optimal Charging Configuration for Cells
4. Indian Patent Filed

Faculty: Dr. A. Alam, Dr. S. Shiva Kumar

1. Hardware in Loop Approach for the realization of microgrid using TYPHOON-HIL
2. Energy Management and Enhancement of Distribution System, Resilience Assessment
3. Wide Area Monitoring System

Faculty: Dr. D. Ghosh, Prof. T. Ghose, Prof. R. C. Jha, Dr. P. Prakash

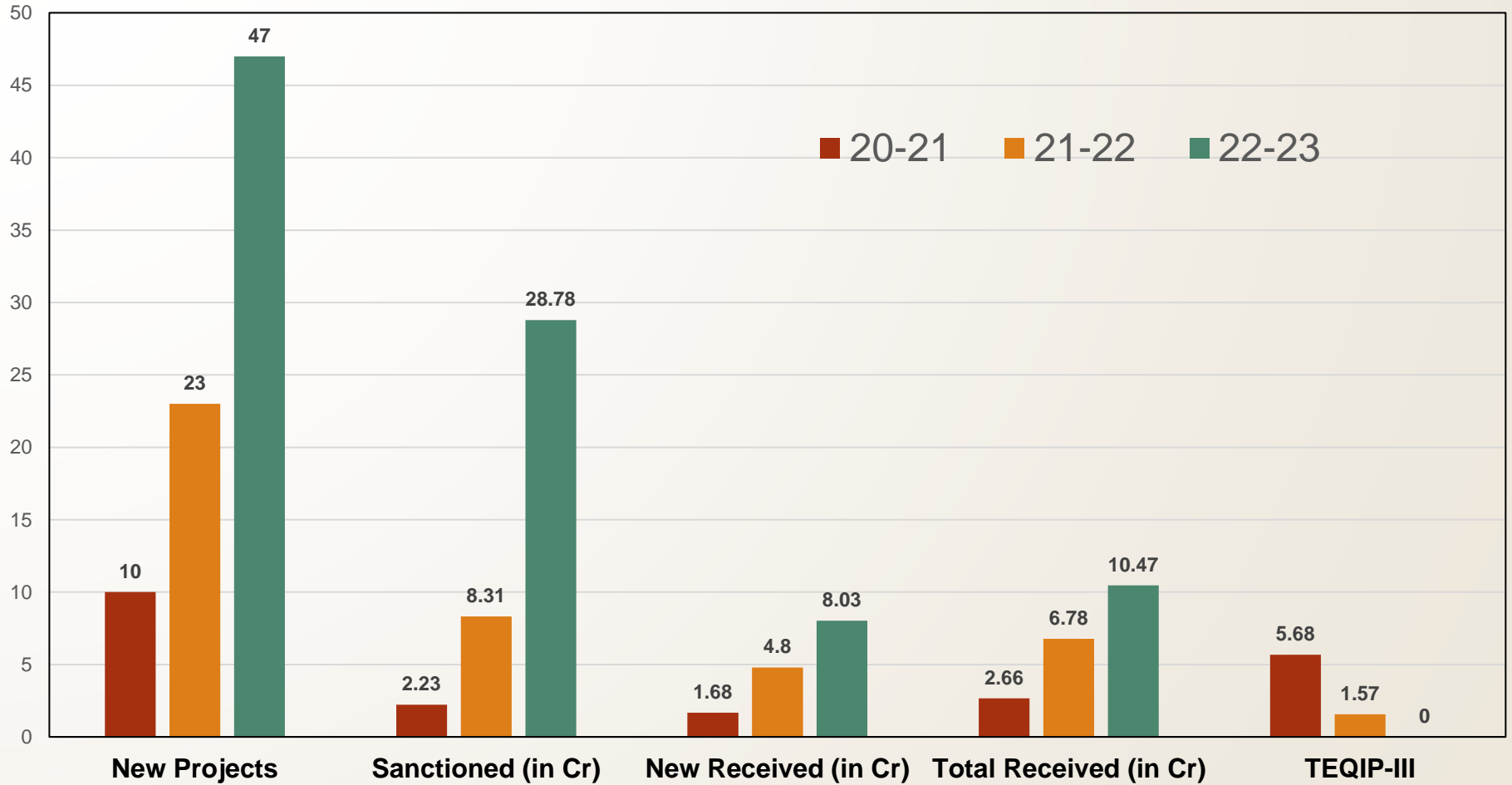
1. Control of Magnetic Levitation System
2. Control Twin Rotor MIMO System
3. Development of Swarm Robotics

Faculty: Prof. V. Laxmi, Dr. D. S. Acharya, Dr. S. Swain, Dr. S. K. Mishra, Dr. S. Kamlu, Mr. B. M. Prasad

1. Brain Signal Processing & forecasting brain disorders.
2. Brain signal classification

Faculty: Dr. P. K. Upadhyay, Dr. S. Kumar, Dr. G. S. Gupta

Trend in Research Grants



FY 20-21

New Projects: 10 (+6)
 Sanctioned Amount: 2.23Cr
 New Fund Received: 1.68Cr
 Total Grant Received: 2.66Cr
 TEQIP-III Grant Received: 5.68Cr

FY 21-22

New Projects: 23 (+13)
 Sanctioned Amount: 8.31Cr
 New Fund Received: 4.80Cr
 Total Grant Received: 6.78Cr
 TEQIP-III Grant Received: 1.57Cr

FY 22-23

New Projects: 47 (+ 21)
 Sanctioned Amount: 28.78*Cr
 New Fund Received: 8.03Cr
 Total Grant Received: 10.47Cr

FY 23-24

New Projects: 35
 Sanctioned Amount: ~8 Cr

*DST FIST (4) + PURSE (1): 14.44Cr

Fund Split: 75:25

Publications, Patents & Consultancy

Publication Details:

Category	20-21	21-22	22-23
Research papers published in refereed journals	331	412	556
Papers in national/international conference-proceedings	27	128	117

Patent Details:

Category	2021	2022	2023
Number of patents published	11	11	35
Total number of patents granted	2	4	3

Consultancy Details:

	2020-21	2021-22	2022-23	
Number of Consultancy Projects	64	56	23	
Total Cost	40.12	24.80	124.53	(in Lakhs)

BIT Support for CIF Use:

External Fund Generated from CIF	9.34	7.24	10.06	(in Lakhs)
Internal Support by CIF	19.25	54.82	91.53	

International Collaborations

Dr. Abhijit Mustafi	Computer Science & Engineering	University of New Brunswick, Saint John, Canada
Dr. Sandeep Kumar Singh	Pharmaceutical Sciences & Technology	Pukyong National University, Busan, South Korea
Dr. Muthu Kumar Sampath	Bioengineering and Biotechnology	University of Arkansas, USA
Dr. Pradip Kar	Chemistry	Universite de Cergy-Pontoise, France
Dr. Syeda Darakhshan Jabeen	Mathematics	University of Valencia, Spain
Dr. Sumit Mishra	Chemistry	SRUC, University of Edinburgh, UK
Dr. Dinesh Prasad	Bioengineering and Biotechnology	University of Padova, Italy; University of Graz, Austria
Prabjot Kaur	Mathematics	The Maldives National University, Maldives
Pawan Kumar Tiwari	Physics	Pohang University of Science and Technology (POSTECH), Republic of Korea
Tanushree Bhattacharya	Civil & Environmental Engineering	University of South Australia
Dr Barij N Sinha	Pharmaceutical Sciences & Technology	Univ of Vienna, Austria, De Montfort University Leicester, UK; Nanyang Technological University, Singapore; Univ of Bonn & Lubeck, Germany
Manik Ghosh	Pharmaceutical Sciences & Technology	Universidad de Santiago de Compostela - USC, Spain
Nisha Gupta	Electronics & Communication Engineering	University Roma Tor Vergata, Italy
Indrajit Roy	Civil & Environmental Engineering	University of Missouri Rolla & Pennsylvania State University(USA) & Kyoto Univ (Japan)
Dr S Shiva Kumar	Electrical & Electronics Engineering	Northeastern University Boston Massachusetts, USA
Dr. C. Jeganathan	Remote Sensing	University of Southampton; University of Lancaster, UK

Department-wise Collaborations

Architecture & Planning	Walt Disney-LA,USA; Fractal Studio Pvt. - India; Google-USA, GreenInfra Pvt. Ltd-India
Bioengg & Biotechnology	IIT Gandhinagar; Central University Gujarat; Central University Rajasthan; Guru Nanak Dev University, Amritsar; Biocon Academy Bangalore; CTR&TI, Ranchi, Jharkahnd; IISER, Pune
Chemical Engg.	IIT-Guwahati; Jadavpur Univ; Tata Steel Ltd.; University of Calcutta; IIT-Delhi; Guwahati Refinery, Indian Oil Corporation Ltd; Amazon-Bangaore; IIM-Bangalore; IIM-Kozhikode
Chemistry	IACS-Kolkata; IIT-Kanpur; IISC-Bangalore; Dr.Reddy's Lab-Hyderabad; Tasmanion-Newzealand; IIT-Kharagpur;
Civil and Environmental Engineering	NHAI-GoI; Virginia Tech-USA; IIT-ISM Dhanbad; NIT-Jamshedpur; IIT-BHU, Varanasi; CMPDI, Ranchi; REDIMIX-Kolkata; Works & Human Settlement Ministry-Bhutan; Douglas Wilder School of Govt. & Public Affairs-USA; MetLife-USA; MECON-Ranchi; NIT-Rourkela
Computer Science & Technology	IIT-Bombay; IIT-Kharagpur; MECON-Ranchi; IIT-Patna; DRDO-Kolkata; JAPIT-Ranchi; Jadavpur Univ; IIT-Roorkee; PWC-India; CDAC-Hyderabad; UBER-South Asia; Annamalai University; Walmart Labs-India; Cognizant Technology - India; Tech Mahindra - India; Oracle-Deloitte-USA; CRPF-CTC-Ranchi;
Electricals and Electronics Engg.	IIT-Kharagpur; SAIL-Ranchi; IIT-Bombay; Calcutta Universit; NIT-Rourkela; IIT-Delhi; Tata Steel - Jamshedpur; MECON-Ranchi; Powertronix Engg. Pvt. Ltd - Kolkata; SIEMONS-Bombay; Columbia University-USA; BirlaSoft-Delhi;
Electronics and Communication Engg.	IIT-Madras; IIT-Kharagpur; IIT-Roorkee; NIT-Rourkela; TEJAS network-India; Silicon Interfaces Pvt. Ltd -India; Knowles Corporation-Bengaluru; Eko India Financial Services Pvt. Ltd. - India; AgroyamHealth Pvt. Ltd - India; Amazon -USA; Brainsmith-India; CRPF-CTC-Ranchi
Hotel Mangement	Hotel Radisson Blu -Ranchi; Jharkhand Tourism Development Corporation-GoJ; Many Hotels in India & Abroad

Department-wise Collaborations

Management	Jharkhand Small Industries Association-Ranchi; Purdue University-USA; Tata Motors-India; IIT-Kharagpur; Mcleod Russel India Ltd.; Google Pay-India; Natural Support Consultanc Services Pvt. Ltd - India; Conserve Info Tech. Pvt. Ltd. -India; Deloitte Touche Tohmatsu LLC-USA; Tata metaliks Ltd. -India; Distict Horizon -India; Mahindra Finance -India; SAIL-Bokaro; Godrej & Boyce-India; Expereal India; Tata AIA Life Insurance -India; Bandhan Bank-India;
Maths	NIT-Rourkela; IIT-Kharagpur;IIT-Mandi; Flipshope-Bengaluru;
Mechanical	IIT-Kharagpur; IIT-Bhubaneswar; NIT-Rourkela; Tata Steel - Jamshedpur; USHA Marti-Ranchi; Tata Metaliks Ltd.-India; SAIL-Ranchi;
Pharmaceutical Sciences & Technology	BITS-Pilani; Jadavpur University-Kolkata; Dr. Reddy's Lab-Hyderabad; NIPER-Chandighar; Bristol Myers Squibb-Bengaluru; Indian Institute of Toxicology Reearch-Lucknow; Drug Controller-Jharkhand; AstraZeneca-USA; Roche-Genentech Pharma Group -USA; Cliantha Research Ltd., -Ahmedabad.
Physics	Jharkhand State Pollution Control Board-Ranchi; IIT-Jodhpur; IIT-ISM Dhanbad
Production & Industrial Engg.	Tata Motors- Bengaluru; NIT-Rourkela; National Institute of Foundry and Forge Technology (NIFFT)-Ranchi; National Engineering Industries Ltd. - Jaipur; Rolling Technology-SAIL-Ranchi; CMPDI-Ranchi; AVTEC Ltd. -Delhi; MECON-Ranchi
Remote Sensing	Lancaster University-UK; Southampton University -UK; Indian Institute of Space Technology (IIST,ISRO)-Trivandrum; IIT-Kharapur; IIT-Bombay; IIT-ISM-Dhanbad; CMPDI-Ranchi; JNU-Delhi; NIT-Raipur; Indian Institute of Remote Sensing (IIRS, ISRO)-Dehradun; NIAS-Bengaluru; IISc-Bengaluru; LeadsConnect Services Pvt. Ltd -Lucknow;K.J. Somaiya Institute of Applied Agricultural Research (KIAAR)-Karnataka;
Space Engg. & Rocketry	IIT-Bombay; IIT-Kharagpur; IIT-Kanpur; IIT-Madras; National Aeronautics Ltd.-Bengaluru; SAIL-Ranchi; MGRERI-Chennai; VSSC-Trivandrun; Grid Dynamics-USA

International Summer Research Experience

2023

S.No	Name of the Institute visited	Total Number of Students Visited	Branch
1	Illinois Institute of Technology, Chicago	11	4 Production and Industrial Engineering 2 Civil and Environmental Engineering 2 Computer Science and Engineering 3 Electronics and Communication Engineering
2	Georgia Institute of Technology, Atlanta	3	1 Production and Industrial Engineering 2 Mechanical Engineering
3	Northeastern University, Boston	1	1 Electronics and Communication Engineering
4	Carnegie Mellon University, Pittsburgh	1	1 Chemical Engineering
5	Columbia University, New York	1	1 Electronics and Communication Engineering

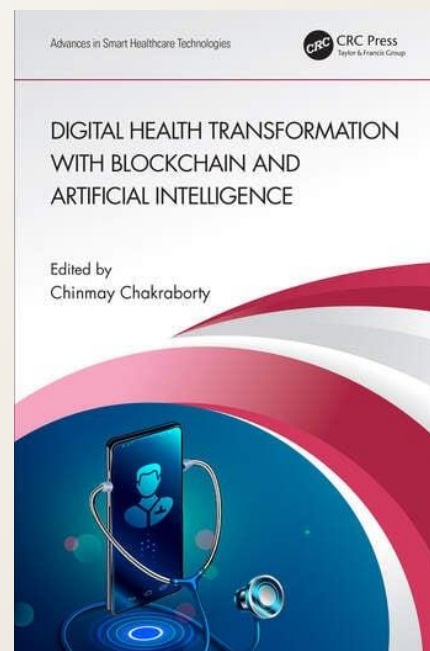
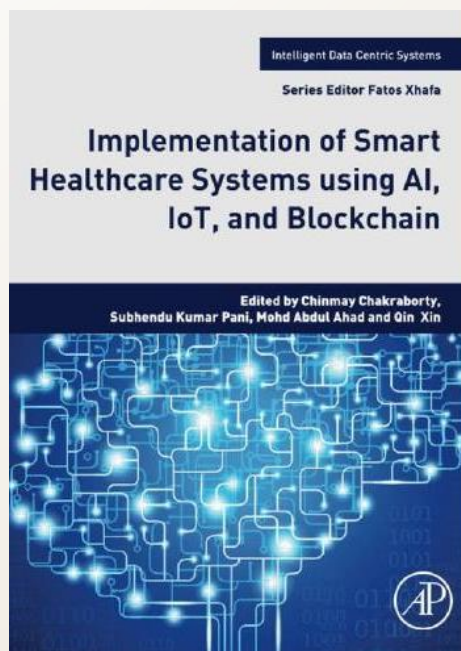
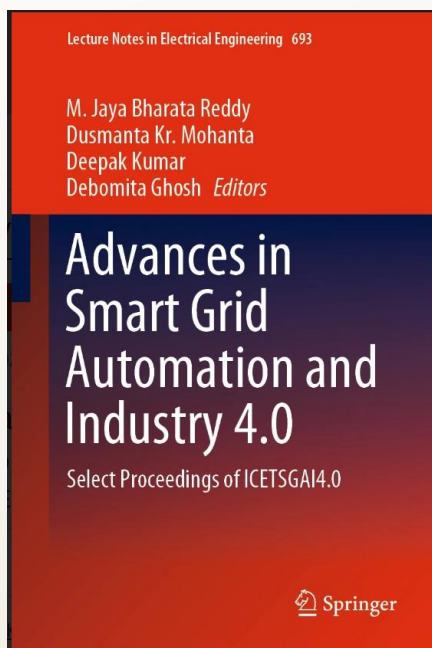
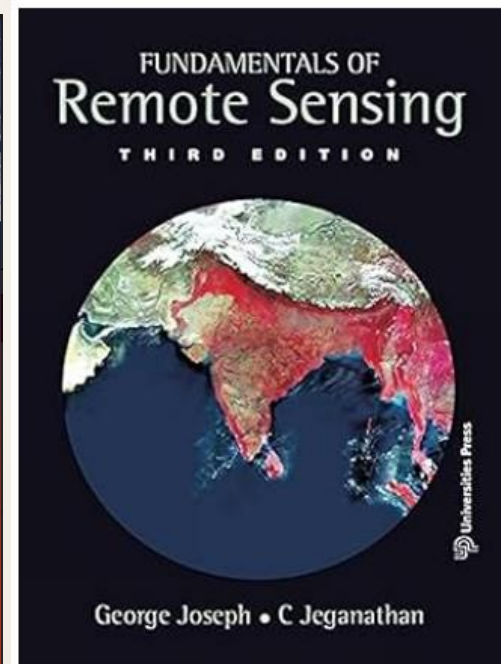
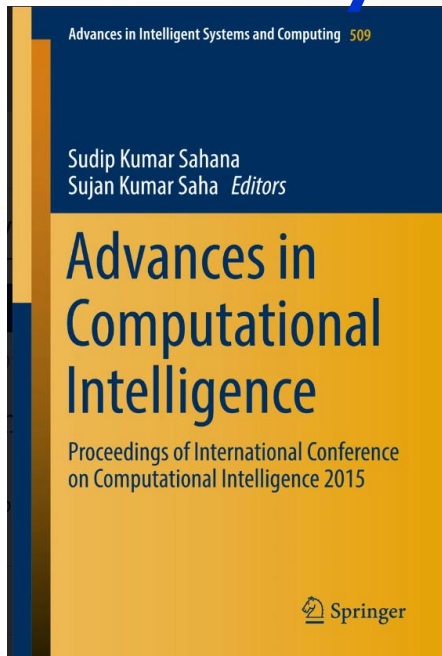
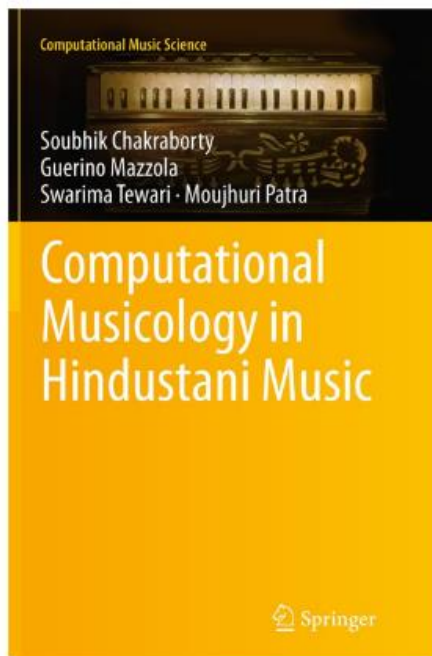
2022

1	Carnegie Mellon University, Pittsburgh	1	1 Chemical Engineering
2	Columbia University, New York	1	1 Electronics and Communication Engineering
3	Carnegie Mellon University, Pittsburgh	1	1 Chemical Engineering

2021

1	Carnegie Mellon University, Pittsburgh	1	1 Chemical Engineering
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Books Published by Faculty



Books Published by Faculty

Soubhik Chakraborty	Computational Musicology in Hindustani Music	Springer
Soubhik Chakraborty	Signal Analysis of Hindustani Classical Music	Springer
Dr. Dinesh Prasad	CRISPR and RNAi Systems; Nanobiotechnology Approaches to Plant Breeding and Protection (Chapter 2 and 15)	Elsevier
Dr. Jeganathan Chockalingam	Fundamentals of Remote Sensing	University Press
PRADIP KAR	Doping in Conjugated Polymers	Scrivener-Wiley
Dr S Konar	Introduction to Non-Kerr Law Optical Solitons	Chapman & Hall,/CRC Press, USA
Dr. Kamta Nath Mishra	Cloud Based M-Health Systems for Veins Image Enhancement and Feature Extraction	IGI Global;
Dr. Kamta Nath Mishra	Cloud-IoT Technologies in Society 5.0	World Scientific
Dr. Sudip Kumar Sahana	Hybrid Ant Colony Optimization Technique : TSP a case study	Scholar's Press, Germany
Dr. Sudip Kumar Sahana	Advances in Computational Intelligence -Proceedings of International Conference on Computational Intelligence 2015	Springer
Dr. Sudip Kumar Sahana	Advances in Computational Intelligence -Proceedings of Second International Conference on Computational Intelligence 2018	Springer
Dr. Sudip Kumar Sahana	Budget Optimization and Allocation: An Evolutionary Computing Based Model	Bentham Science, UAE,
Debomita Ghosh	Advances in Smart Grid Automation and Industry 4.0	Springer
Dr. Anupam Roy	Chapter in a book. Book Title: Defects in two-dimensional materials. Chapter Title: Devices and defects in two-dimensional materials: outlook and perspectives.	Elsevier
Dr. Indrajit Roy	A Monograph on Case Studies of Landslides in Coal and Lignite Mines of India	Anapurna Publishers, 2021
Santosh Kumar Sharma	Fundamentals of automata theory and compiler construction	I K international Pvt. Ltd
Dr. Nisha Gupta	Metamaterials for Microwave and Terahertz Applications: Absorbers, Sensors, and Filters	NOVA SCIENCE PUBLISHER
Dr.Amit Saran	Hotel Business Laws	Excel India Publishers, New Delhi
Dr.Sudipta Kishore Pradhan	Engineering Graphics with Auto-CAD	Foundation publishing house
Dr. Richa Mishra	MEMS based Transdermal Drug Delivery	Taylor & Francis
Soubhik Chakraborty	Outliers: Detection and Analysis	Nova Science Publishers Inc., New York
Soubhik Chakraborty	Hindustani Classical Music: A Historical and Computational Study	Sanctum Books
Soubhik Chakraborty	Statistical Musicology: Embracing Hindustani Ragas	Nova Science Publishers Inc., New York
Soubhik Chakraborty	Outliers: Detection and Analysis	Nova Science Publishers, Inc., New York
Soubhik Chakraborty	Statistical Musicology: Embracing Hindustani Ragas	Nova Science Publishers, Inc., New York
Soubhik Chakraborty	A Guide to Design and Analysis of Algorithms	Nova Science Publishers Inc., N. Y.
Soubhik Chakraborty	Statistical Analysis of Folk Songs of Jharkhand	Sanctum Books
Chinmay Chakraborty	Green Technological Innovation for Sustainable Smart Societies: Post Pandemic Era	Springer
Chinmay Chakraborty	Implementation of Smart Healthcare Systems using AI, IoT, and Blockchain	Elsevier
Chinmay Chakraborty	Intelligent Healthcare: Infrastructure, Algorithms, and Management	Springer
Chinmay Chakraborty	Digital Health Transformation using Blockchain and Artificial Intelligence	CRC Press
Dr.K aushik Kumar	Published 35 Books in the last 3 years.	

Conferences/Short Term Training program /workshop Organized

SL No.	Department Name	2020-21	2021-22	2022-23
1	Architecture and Planning	02	06	02
2	Bioengineering and Biotechnology	03	01	01
3	Chemical Engineering	-	01	01
4	Department of Chemistry	01	03	03
5	Civil and Environmental Engineering	-	03	01
6	Department of Computer Science and Engineering	08	02	-
7	Centre for quantitative economics and data science	-	01	01
8	Department of Electrical and Electronics Engineering	01	01	04
9	Electronics and Communication Engineering	05	03	06
10	Department of Hotel Management and Catering Technology	01	02	02
11	Department Of Management	03	04	03
12	Department of Mathematics	04	-	04
13	Mechanical Engineering	-	01	01
14	Department of Pharmaceutical Sciences and Technology	05	03	01
15	Department of Physics	02	-	04
16	Production and Industrial Engineering	02	01	-
17	Department of Remote Sensing	03	06	02
18	Department of Space Engineering and Rocketry	-	02	31
	Total	39	40	67

Seed Money for New Faculty (2021 to 2023*)

(Seed Fund was 2 Lakhs (till 2020), and 5 Lakhs from 2021 onwards)

Department	2020-21	2021-22	2022-23	2023-24*	Total
ARCHITECTURE & PLANNING	4	1		1	6
BIOENGINEERING AND BIOTECHNOLOGY				1	1
CHEMICAL ENGINEERING		1			1
CQEDS			1		1
CIVIL & ENV. ENGG.	2				2
CHEMICAL ENGINEERING				1	1
CHEMISTRY		2	1		3
ELEC. & ELECTRONICS ENGG.			2	2	4
ELECTRONICS AND COMMUNICATION ENGG		1			1
MATHEMATICS		5			5
MECHINICAL ENGINEERING	4	2	1		7
PHARMACEUTICAL SCI & TECH.		2		1	3
PHYSICS			1	2	3
MANAGEMENT		1			1
PRODUCTION AND INDUSTRIAL ENGINEERING		1			1
Grand Total	10	16	6	8	40

Equipments Purchased (2020 to 2023)

Financial Year	No. of Items	Cost in INR	No. of Items >10 lakh	No. of Items >5 lakh	No. of Items >1 lakh
20-21	25	0.5 Cr	1	2	7
21-22	163	2.6 Cr	5	11	22
22-23	78	3.28 Cr	11	7	24

- 40 MOUs were signed between 2021-23.
- AICTE-IDEA (Idea Development, Evaluation & Application) Lab was established in BIT with the contributory funding (50% AICTE + 50% BIT = 1 Cr). It is running successfully. Positively Utilised the long-time unused space near Polytechnic.
- Digital Innovation Lab is being established at CQEDS with the full funding support (~3.1Cr for 5 yrs) from Adrosonics Pvt. Ltd., Mumbai.

Research & Funding Schemes and Opportunities

- Department of Science and Technology
- All India Council for Technical Education (AICTE)
- University Grant Commission (UGC), ISRO, DRDO & many Ministries
- CSR fund (Companies net worth 500 Crore or turnover 1000 crore or net profit 5crore; 8000+companies 1500crore CSR fund)
- Research and Development | India Science, Technology & Innovation (indiascienceandtechnology.gov.in)

European Science Funding (<https://www.esf.org/>)

National Science Funding- USA <https://www.nsf.gov/>

Canadian Science and Research

<https://www.canada.ca/en/services/science.html>

Germany Research <https://www.research-in-germany.org/en.html>

Australian Research <https://www.arc.gov.au/>

UK-INDIA Education and Research Initiative <http://ukieri.org/>

Indio-US Science and Technology Forum <https://www.iusstf.org/>

Institute Innovation Council – IIC Activities

(as per Ministry of Education & AICTE Mandate)

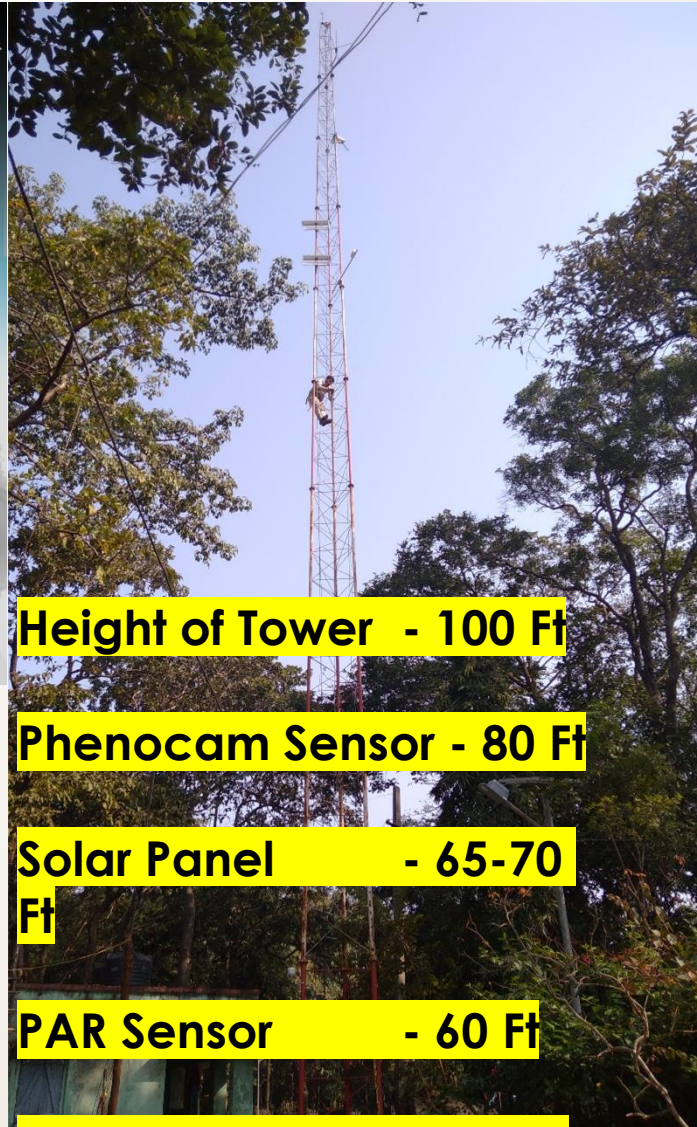
Webinar/ Workshop/ Innovation Competition/ Hackathons

Flagship Events



REAL-TIME Pheno-Met LABORATORY @DALMA FOREST

Monitoring Vegetation Growth Rhythm and its link with Climate



Height of Tower - 100 Ft

Phenocam Sensor - 80 Ft

Solar Panel - 65-70 Ft

PAR Sensor - 60 Ft

R. Humidity Sensor - 8 Ft

1. Soil moisture (at 5cm & 20cm below ground surface)
2. Rain gauge
3. PAR sensor at Canopy Height
4. Air Temperature, Relative Humidity, electric conductivity sensors
5. Phenocam sensor (RGB & IR).
6. Data logger
7. Solar Panels (2 numbers)
8. Battery (15 Days backup without Sunlight, 2 days to full charge)
9. Accessories and components for connecting all the above sensors with data logger.



HIGH-END RESEARCH FACILITIES - I

4"x6" Supersonic Wind Tunnel
Sponsor: ARDB, Designed by BIT-M



Designed by BIT Mesra

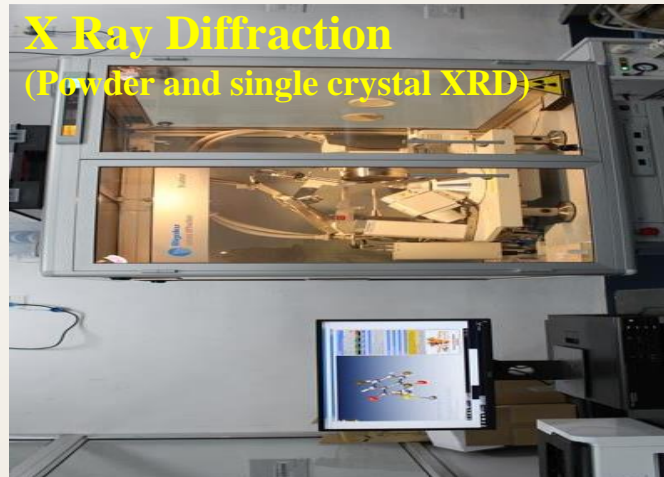


400 MHz NMR



2ft x 2ft Subsonic Wind Tunnel

X Ray Diffraction
(Powder and single crystal XRD)



Fujitsu High Performance Computer (HPC)

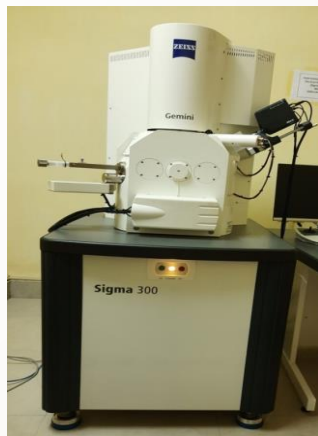


Raman Spectrometer

HIGH-END RESEARCH FACILITIES - II



Powder XRD



FESEM

Spectroscopy

NMR, FTIR, UV-Visible Spectrophotometer, SFP, ICPOES, ICPMS, Particle Size Analyzer, Color measurement system

Microscopy

SEM , FESEM

Thermal Analysis

TGA/DTA, TGA/DSC, DSC, Thermal Conductivity Analyzer



LCMS



UTM

Chromatography

Flash Chromatograph, HPTLC, HPLC, Prep HPLC, IC, GPC, LCMS, HPTLC MS Interface

Static Hybrid Rocket Test facility



IMPORTANT LABORATORY FACILITIES - II



Cyclic triaxial testing machine



Speciation Aersol Smart Sampler



UV Photocatalytic Reactor



Fuel Test Station



Soil Moisture Probe



UAV



Ground Penetrating Radar



Language Laboratory & MOOC

Few Successful Student Startup Supported by IIC- BIT

Ed-Tech; It has raised a seed fund of INR. 25 Lakhs from angel investor

Floxus

Web Services, supported 25+ companies in their tech end.

Psyber Duck

**Infinity
Accord**

Decentralized Finance, AI Blockchain Confluence, Tokenization using Blockchain. Recently received 20 Lakhs Startup seed fund from Gov. of India.

Smart Hybrid Electric Optimistic Bikes” Hybrid EV Cycle-Retro Fitting Model). Selected for Seed Fund support From STPI, Ministry of Electronics and Information Technology, Gov of India.

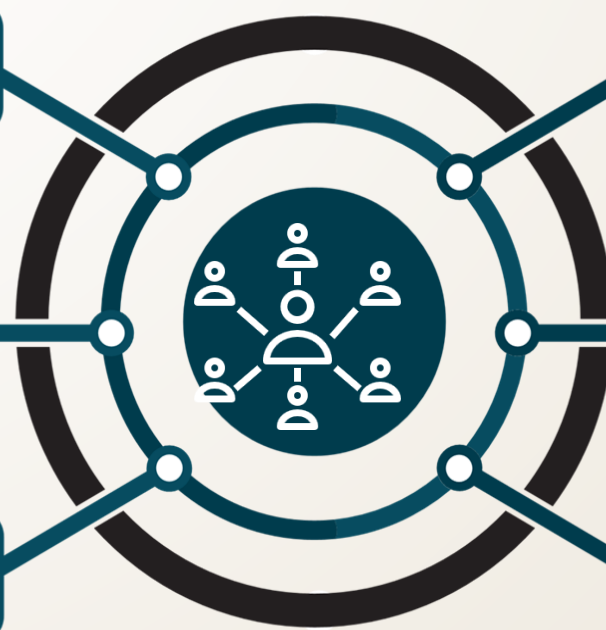
SHEO Bikes

Technical consultant and solution.

A.K.S.P. solution

Rubrix

Content Marketing, Provided content support to more than 20 corporate clients.



INNOVATION & ENTREPRENERUSHIP PROMOTION ACTIVITIES (2020-21)

INSTITUTION'S INNOVATION COUNCIL

INSTITUTION INNOVATION CONNECTS FOR ADDRESSING THE SOCIO-ECONOMIC CHALLENGES OF NATIONS

BY



Dr. Vipin Kumar
Director and Chief Innovation Officer
National Innovation Foundation-India
Autonomous Body of Department of Science and Technology,
Govt. of India

25th Nov 2020 | 11:00 A.M.

Entrepreneurship Development Cell, BIT Mesra
26 Feb •

Entrepreneurship Development Cell BIT Mesra in association with Institution's Innovation Council, brings a workshop on 'Amalgam... See More



WORKSHOP ON AMALGAMATION OF DESIGN AND ENGINEERING
BY NAMRATA DOSHI
(ARCHITECTURAL AND SUSTAINABILITY EXPERT)

27th FEBRUARY MICROSOFT TEAMS 3:00 PM

Entrepreneurship Development Cell, BIT Mesra
18 Nov 2020 •

"Innovation comes out of great human ingenuity and very personal passions."

Entrepreneurship Development Cell, BIT Mesra will... See More

Entrepreneurship & Innovation as a Career

Live Session with

- Nimesha Ujjain**
- Ravi Ranjan**
- Varsha Gupta**

Nov. 21st 6:30 P.M.

2020-21 Events

INSTITUTION'S INNOVATION COUNCIL Presenting



Certificates will be provided

Themes are in description

Team Size 1- 10 Max

Register on bit.ly/Innovation_Contest

Institution's INNOVATION CONTEST 2020

"There's a way to do it better - find it."
-Thomas A. Edison

Contact
Dr. Manish Kumar - 9451173800
Saranika - 9110024998
Utkarsh - 8340235961

Date of Submission 15 Dec 2020 (POC)
Evaluation and result 21 Dec 2020

Entrepreneurship Development Cell, BIT Mesra
17 Jun •

"Entrepreneurship and Innovation are two sides of the same coin."

With a common goal of fostering an inclusive entrepreneur... See More



PIYUSH VERMA
FOUNDER & CEO, MANUSH LABS
FORBES INDIA 30 UNDER 30
MASSACHUSETTS INSTITUTE OF TECHNOLOGY | HARVARD UNIVERSITY

Entrepreneurship Development Cell, BIT Mesra is with **Dharani Deiveegan.**
15 Mar •

When you read new books, you broaden your thinking horizons and enrich your perspectives. Don't limit your bookshelves to just... See More

Esteemed Authors

- Rohini Vohra
- Sandeep Sinha
- Dharani Deiveegan
- Jose Varghese
- Ashwini Srivastav
- Sorajwan Amka
- Nisha Bora

Blue Hill Publications Pvt. Ltd.
PUBLISHING PARTNER, E-SUMMIT '21, BIT, MESRA

Entrepreneurship Development Cell, BIT Mesra
28 Feb •

Entrepreneurship Development Cell, BIT MESRA in association with the Institution's Innovation Council, is organizing a workshop... See More



WORKSHOP ON BUSINESS MODEL CANVAS
BY ANIL KUMAR PERI
(CEO, STRATREPO)

28th FEBRUARY MICROSOFT TEAMS 7:00 PM

नवोदय विद्यालय में लगायी गयी विज्ञान पदश्लो, विद्यार्थियों को मिली अहम जानकारी

बच्चों को इनोवेशन के प्रति प्रेरित किया

लक्ष्मण शिबेर @ रबी



मानव संसाधन एवं विकास मंत्रालय और अहमदाबादी (इन्स्टीट्यूट इन्फोर्मेसन मेसरा) के सहकार्यकर्मियों की अध्यक्षता में नवोदय विद्यालय में एक कार्यक्रम का आयोजन किया गया। इस कार्यक्रम में नवोदय विद्यालय के छात्रों को इनोवेशन के प्रति प्रेरित किया गया। कार्यक्रम में नवोदय विद्यालय के छात्रों को इनोवेशन के प्रति प्रेरित किया गया।

एच.एन.एस. के छात्रों को अहम जानकारी दी। आज वैज्ञानिक डॉ. एच.एन.एस. के छात्रों को इनोवेशन के प्रति प्रेरित किया गया। इस अवसर पर डॉ. एच.एन.एस. के छात्रों को इनोवेशन के प्रति प्रेरित किया गया। इस अवसर पर डॉ. एच.एन.एस. के छात्रों को इनोवेशन के प्रति प्रेरित किया गया।

INNOVATION & ENTREPRENERUSHIP PROMOTION ACTIVITIES (2021-22)

BIT-NISHAN

IIC-BIT initiative to provide seed-funding to the early-stage startups by students and faculty members of Birla Institute of Technology Mesra and its off-campus.

Register here for innovation contest

"No Bright Idea Should Go Unnoticed"

Registration Begins : 18/09/2021
Registration Closes : 10/10/2021

Date Of Event



2021-22 Events

ENIGMA SCIENCE FEST

TEAM SIZE : 2-3
CASH PRIZE UPTO 10K

26th FEBRUARY
1 PM
LECTURE HALL / MS TEAMS

EV

@robolution_bitm @financeclub_bitm



NATIONAL TECHNOLOGY DAY

Organized by INSTITUTE OF INNOVATION COUNCIL, BIT MESRA

Chief Guest
Prof. Rudra Pratap
Vice-Chancellor, Mahatma University
Professor, Mechanical Engineering
Former Deputy Director and Chairman CECRI, Sri Bangalore

Expert Talk
**From Science to Systems:
An Imperative for 21st Century India**

11 MAY 2022



HACKATHON

INTERNAL

OFFICE OF THE DEAN AND DINE, IN ASSOCIATION WITH INNOVATION COUNCIL BIT MESRA

Last date of registration-12 March

14 MARCH 09:00AM TO 05:00PM

LAB-IV DEPT OF CSE



INNOVATION & ENTREPRENERUSH PROMOTION ACTIVITIES (2022-23)

ENIGMA
2ND MARCH
6:00 PM
UNSTOP

ROUND-1 ONLINE QUIZ
ROUND-2 CASE STUDY

PRIZE POOL
1ST - 1000
2ND - 1000
3RD - 1000

PRIZES UPTO 10K

FINANCE CLUB
MANAS: 88093, 2734

2022-23 Events

BIRLA INSTITUTE OF TECHNOLOGY MESRA RANCHI

RESOURCE PERSON

ONE DAY EXPERIENTIAL LEARNING WORKSHOP ON
Bi2i - "BUSINESS IDEATION TO IMPLEMENTATION"

DATE: 25 MARCH 2023
TIME: 10:00 AM ONWARDS
VENUE: SEMINAR HALL-1 R&D BUILDING, BIT MESRA RANCHI

PROF. SUDIPTO BHATTACHARYA
P & TECH IN TEXTILE TECHNOLOGY, IMA, IIT
CO-FOUNDER & CHIEF VISIONARY OFFICER, ICD-PI, INC.
CO-FOUNDER & CHIEF LEARNING OFFICER, SUDIPN
CERTIFIED START-UP PROMOTION BUSINESS SCHOOL
CERTIFIED ENTREPRENEURSHIP COACH FROM IEP, STAMFORD UNIVERSITY

OFFICE OF THE DEAN, RESEARCH, INNOVATION AND ENTREPRENEURSHIP IN ASSOCIATION WITH
Institution Innovation Council BIT Mesra
ORGANISES

INTERNAL HACKATHON FOR KAVACH-2023

कवच KAVACH 2023
साइबर सुरक्षा हैकथॉन
Cybersecurity Hackathon

1-2 APRIL, 2023, CSE-LAB-IV, R&D Building
For Details
(<https://qakavach.mic.gov.in/>)



INSTITUTION'S INNOVATION COUNCIL

BUSINESS PLAN COMPETITION - 2022

"World Entrepreneurs Day"

Cash Prize up to 1.5 lakhs

NOTIFY
REGISTRATION ONLINE
21st & 22nd AUGUST 2022 10 AM

VENUE - CAT HALL

REGISTRATION ONLINE
19th AUGUST 2022

Join Us

Present

BIT NISHAN-22

Innovation Contest
NO BRIGHT IDEA SHOULD GO UNNOTICED

5th Nov 2022
Time: 10:00 AM
R&D Building, Seminar Hall 2, BIT Mesra, Ranchi



INSTITUTION'S INNOVATION COUNCIL

IIC- BIT MESRA Celebrates

National Technology Day

11th May 2023

Prof. Indrani Manna
Vice-Chancellor BIT Mesra, Ranchi

Timing - 9:40 am Onwards
R&D Building, Seminar Hall-I BIT Mesra, Ranchi



ROBOLUTION

ROBOTICS EXHIBITION

- VIDEO DEMONSTRATION (15 MIN)
- HUPVAH POCAL Q&A (15 MIN)
- COORDINATE FOLLOWER BOT
- STRAIN GAINING BOT
- PRIZE: SOLVING BOT
- PRIZE: FOLLOWER BOT
- PRIZE: LINE FOLLOWER BOT

10:00 PM



WEBLINKS RELATED TO VARIOUS RESEARCH PROMOTION ACTIVITIES, POLICIES AND SCHEMES

1. Standard Operating Procedures: https://bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=317
2. Research Promotion Schemes: https://bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=62
3. Seed Money Policy: https://bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=271
4. Seed Money Evaluation Comm: https://bitmesra.ac.in/Show_Other_Department?cid=1&deptid=190
5. Immersive Summer Research : https://www.bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=183&pid=179
6. Startup Policy: https://www.bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=218
7. Innovation and Entrepreneurship Policy: https://www.bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=218
8. Entrepreneurship Development Cell: <https://www.edcbitmesra.in/>
9. Head Talk Series Presentation: https://www.bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=320
10. Forms & Applications: https://www.bitmesra.ac.in/Visit_Other_Department_9910?cid=1&deptid=202&pid=268

THANKS