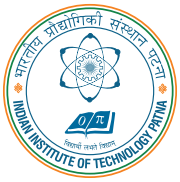
वार्षिक प्रतिवेदन

ANNUAL REPORT

2018-2019



भारतीय प्रौद्योगिकी संस्थान पटना

INDIAN INSTITUTE OF TECHNOLOGY PATNA

Contents

From the Director

Indian Institute of Technology Patna is an Institution of National Importance and was established by an act of parliament in 2008. Since 2015, the institute is operating from its permanent home at Bihta on a sprawling campus of about 500 acres.

As an institute of excellence, IIT Patna continues its high quality teaching and research. There are sixengineering disciplines- Chemical and Biochemical Engineering, Civil and Environmental Engineering, Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, and Materials and Metallurgical Engineering. Then there are Physics, Chemistry, Mathematics and Humanities and Social Sciences Departments. The total student strength is approximately 1600, faculty strength approximately 120 and staff strength approximately 100. The institute has extensive plan of expanding to about 2000 students and 200 faculties by 2021. New programs like BS in Economics, MBA, BS in Maths and Computing areon the anvil. In NIRF 2018 ranking, IIT Patna was placed 22nd in "Engineering" Category and 58th in the "Overall Category".

There are a number of Centers in the institute which focuses on specialized research, e.g., the Center for Earthquake Engineering which was set up using the MPLADS grant of Hon'ble MP Shri Harivansh. Considering the fact that Bihar is in zone IV and V of seismic activity, CEER is a highly relevant entity. Center for Artificial Intelligence which is a virtual set up now, was founded this year answering to the need of current times.

A considerable amount of energy and attention of the institute is devoted now to creating infrastructure and facilities. World class academic complexes, housing, hostel, sports facilities etc. worth more than Rs 500 Cr are being added to the already existing top standard infrastructure. The institute is grateful to its parent Ministry- MHRD- for its continuous patronage. It is also thankful to the Govt. of Bihar for all its help.

Annual report is the documentation of an institute's priorities, enterprise and vision. The annual report of 2018-19 of IIT Patna is no exception. With its very dynamic and committed faculty, staff and student, IIT Patna is poised to attain great heights.

विश्वकामुकुटमणिआईआईटीपटना
सदातत्परसदाजाग्रतपीछेनाजानेहटना ॥

Jai Hind.

Organization

The Board of Governors

Prof. Pushpak Bhattacharyya Director, IIT Patna	Chairman (In-Charge)
Prof. Pushpak Bhattacharyya Director, IIT Patna	Ex-Officio Member
Additional Secretary/ Joint Secretary MHRD, Government of India	Member
Principal Secretary Department of Science & Technology, Government of Bihar	Member
Principal Secretary Department of Science & Technology, Government of Jharkhand	Member
Prof. Kailash Chandra Sharma Vice-Chancellor, Kurukshetra University, Kurukshetra, Haryana	Member
Prof. Yogesh Singh Vice-Chancellor Delhi Technological University (Formerly Delhi College of Engineering), Delhi	Member
Dr. Mangesh V. Joshi Managing Director, Sanrachna Structrual Stenthening Pvt. Ltd, Thane (W).	Member
Dr. Mayank Tiwari Associate Professor Department of Mechanical Engineering, IIT Patna	Member
Dr. Preetam Kumar Associate Professor Department of Electrical Engineering, IIT Patna	Member
Mr. Vishwa Ranjan Registrar, Indian Institute of Technology Patna	Secretary

The Finance Committee

Prof. Pushpak Bhattacharyya Director, IIT Patna	Chairman (In-Charge)
Prof. Pushpak Bhattacharyya Director, IIT Patna	Ex-Officio Member
Mr. Sukhbir Singh Sandhu Additional Secretary (TE), Ministry of HRD	Member
Smt. Darshana M Dabral JS & FA, Ministry of HRD	Member
Dr. Mayank Tiwari Associate Professor Department of Mechanical Engineering, IIT Patna	Member (Board Nominee)
Dr. Preetam Kumar Associate Professor Department of Electrical Engineering, IIT Patna	Member (Board Nominee)
Mr. Vishwa Ranjan Registrar, Indian Institute of Technology Patna	Secretary

The Building & Woks Committee

Prof. Pushpak Bhattacharyya Director, IIT Patna	Chairman (Ex-Officio)
Mr. Sushant Baliga (Retd.) Additional Director General CPWD, Traininig Institute, New Delhi and Advisor Civil Works, IIT Patna	Member
Mr. S. Ramanujam Consultant, Ex-Director, DCSEM, Dept. of Atomic Energy	Member
Mr. Biwajit Kumar President & Chief Project Officer, Raheja Universal Private Ltd., Mumbai	Member
Mr. Rajiv Garg Superintending Engineer, IIT Kanpur	Member
Mr. B. K. Sahoo Superintending Engineer (Electrical), IIT Kharagpur	Member
Mr. Vishwa Ranjan Registrar, Indian Institute of Technology Patna	Secretary

Administrative Heads

Prof. Pushpak Bhattacharyya
Director, Indian Institute of Technology Patna

Sh. Vishwa Ranjan
Registrar, Indian Institute of Technology Patna

Dr. Subrata Kumar
Associate Dean (Academic)

Dr. Kailash Chandra Ray
Associate Dean (Administration)

Dr. Karali Patra
Associate Dean (Faculty Affairs)

Dr. Sriparna Saha
Associate Dean (Research and Development)

Dr. Sumanta Gupta
Associate Dean (Resource)

Dr. Manoranjan Kar
Associate Dean (Student Affairs)

Senate

Prof. Pushpak Bhattacharyya
Director, IIT Patna

Mr. Vishwa Ranjan
Registrar, Indian Institute of Technology Patna

Prof. S.D. Sharma
Ex-Head and Professor,
Aerospace Engineering Department
IIT Bombay

Prof. Pankaj Kumar
Professor, HRM and Organizational Behavior,
IIM Lucknow

Dr. Lipika Dey
Principal Scientist, Innovation Lab, TCS Ltd.

Dr. Subrata Kumar
Associate Dean (Academic)

Dr. Kailash Chandra Ray
Associate Dean (Administration)

Dr. Karali Patra
Associate Dean (Faculty Affairs)

Dr. Sriparna Saha
Associate Dean
(Research and Development)

Dr. Sumanta Gupta
Associate Dean (Resource)

Dr. Manoranjan Kar
Associate Dean (Student Affairs)

Dr. Nitin Dutt Chaturvedi
HoD, Chemical and Biochemical Engineering

Dr. Ramakrishna Bag
HoD, Civil and Environment Engineering

Dr. Sahid Hussain
HoD, Chemistry

Dr. Jimson Mathew
HoD, Computer Science and Engineering

Dr. Ahmad Ali
HoD, Electrical Engineering

Dr. Nalin Bharti
HoD, Humnities and Social Sciences

Dr. Om Prakash
HoD, Mathematics

Dr. Mohd. Kaleem Khan
HoD, Mechanical Engineering

Dr. Anup Kumar Keshri
HoD, Metallurgical and Matrials Engineering

Dr. V.R. Dantham
HoD, Physics

Dr. Saurabh Kumar Pandey
Warden, Boys Hostel (A & B block)

Dr. Sourav Kumar Dandapat
Warden, Boys Hostel (C & D block)

Dr. Nehakritkumar Sah
Warden, Girls Hostel

All Associate Professors

Event of Significant Importance

Recruitment of Employees at IIT Patna during 2018-19

Teaching Staff Members

Name	Post & Department	Date of Joining
Dr. Devinder Yadav	Assistant Professor Gr.-II Department of Metallurgical and Materials Engineering	04.04.2018(FN)
Dr. Neha Kiritkumar Shah	Assistant Professor Gr.-I Department of Physics	11.07.2018(FN)
Dr. Mayank Agarwal	Assistant Professor Gr.-II Department of Computer Science and Engineering	11.07.2018(FN)
Dr. Jose Varghese Parambil	Assistant Professor Gr.-II Department of Chemical and Biochemical Engineering	23.07.2018(FN)
Dr. Prakash Parida	Assistant Professor Gr.-I Department of Physics	24.07.2018(FN)
Dr. Anoop Kumar Gupta	Assistant Professor Gr.-II Department of Chemical and Biochemical Engineering	01.08.2018(FN)
Dr. Sudhir Varma	Assistant Professor Gr.-I Department of Civil Engineering	02.08.2018(FN)
Dr. Arghya Choudhury	Assistant Professor Gr.-I Department of Physics	03.09.2018(FN)
Dr. Subrata Kumar	Associate Professor Department of Mechanical Engineering	10.07.2018(AN)
Dr. Ahmad Ali	Associate Professor Department of Electrical Engineering	10.07.2018(AN)
Dr. Kailash Chandra Ray	Associate Professor Department of Electrical Engineering	10.07.2018(AN)
Dr. Yatendra Kumar Singh	Associate Professor Department of Electrical Engineering	10.07.2018(AN)
Dr. Rajib Kumar Jha	Associate Professor Department of Electrical Engineering	10.07.2018(AN)
Dr. Prashant Kumar Srivastava	Associate Professor Department of Mathematics	10.07.2018(AN)
Dr. Sudhan Majhi	Associate Professor Department of Electrical Engineering	10.07.2018(AN)
Dr. Sriparna Saha	Associate Professor Department of Computer Science and Engineering	24.07.2018(FN)

Non-Teaching Staff Members

Name	Post	Date of Joining
Md. Afroz	Audit Officer	02.04.2018(FN)
Mr. Rakesh Kushwaha	Physical Training Instructor	18.07.2018(FN)
Ms. Kiran	Physical Training Instructor	18.07.2018(FN)
Dr. Rashmi Raj	Medical Officer	24.07.2018(FN)
Ms. Annu Kumari	Junior Assistant	25.07.2018(FN)
Md. Tarique Anwar	Junior Assistant	30.07.2018(FN)
Mr. Abhay Kumar	Junior Assistant	30.07.2018(FN)
Mr. Shivanand Chanchal	Junior Assistant	03.08.2018(FN)
Mr. Bimlesh Kumar	Junior Assistant	27.08.2018(FN)
Mr. Murali B.	Junior Technical Superintendent	19.09.2018(FN)
Mr. Salesh Shah	Junior Assistant	01.10.2018(FN)
Mr. Arun Murari	Junior Technical Superintendent	08.10.2018(FN)
Mr. Santosh Kumar	Assistant Registrar	12.10.2018(FN)
Mr. Anup Das	Senior Library Information Assistant	15.11.2018(FN)
Ms. Nishita Singh	Junior Assistant	15.11.2018(FN)
Mr. Ranjeet Kumar	Junior Technician	28.12.2018(FN)
Mr. Vishal Tiwari	Junior Mechanic	01.01.2019(FN)
Mr. Sonu Kumar Kashyap	Junior Mechanic	07.01.2019(FN)

All India Rank [2019] of IIT Patna

NIRF Ranking of IIT Patna for 2019 is 22 in engineering and at 58 overall. IIT Patna improved its ranking this year by two levels from 24 to 22.

In the BRICS 2019 ranking, published by QS Word University Ranking, IIT Patna is ranked at 141.

Chemical and Biochemical Engineering

Faculty Members

Dr. Prolay Das Associate Professor	DNA self assembly for production of 3-dimensional functional Nanostructures. Clustered DNA damage and DNA repair mechanism in Nucleosome core particle
Dr. Sujoy Kumar Samanta Assistant Professor	Microwave Assisted Material Processing, Chemical Reaction Engineering, Modeling and Simulation, Renewable Energy Sources and Their Applications
Dr. Nitin Dutt Chaturvedi Assistant Professor	Modeling and Simulation of Chemical processes; Process system engineering; Process Integration; Pinch Analysis; Industrial Energy Conservation
Dr. Sandip Khan Assistant Professor	Molecular Modeling and Simulation, Statistical Thermodynamics, Equilibrium, Dynamic and Interfacial Properties of Complex fluids, Development of Novel Materials like super-hydrophobic, super-oleophobic, anti-fouling, anti-icing surfaces etc.; Self-Assembled Monolayer in application of chemical sensor, Thermo-physical properties of actinides compounds in application of nuclear fuel.
Dr. Sushant Kumar Assistant Professor	Clean Hydrogen Production Methods, Hydrogen Storage using metal hydrides, CO2 Utilization and Capture, Catalysts for clean energy applications
Dr. Sanjeev Kumar Assistant Professor	Biochemical Engineering (Environmental Biotechnology & Bioenergy)
Dr. Ashwini Kumar Sharma Assistant Professor	Mathematical modeling ; Transport phenomena (e.g., fluid mechanics, heat and mass transfer); Energy systems; Electrochemical energy storage; Fuel cells; Batteries; Flow batteries

Academic Programmes

- B.Tech. in Chemical Engineering
- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. Priyanshu Verma and Sujoy Kumar Samanta , A direct method to determine the adsorbed dyes on adsorbent via processing of diffuse reflectance spectroscopy data, Materials Research Express, 6(1), 015505 (2019).
2. Rakesh Kumar Sinha, Nitin Dutt Chaturvedi , A graphical dual objective approach for minimizing energy consumption and carbon emission in production planning, Journal of cleaner production , 171, 312-321 (2018).
3. S. K. Murthy, A. K. Sharma, C. Choo, E. Birgersson , Analysis of concentration overpotential in an all-vanadium redox flow battery , Journal of the Electrochemical Society, 165 (2018).
4. A.K. Gupta, S.B. Chen, Liya Yu, A. Prhashanna, D. Katoshevski , CFD study of particle grouping under an oscillatory flow in a wavy duct , Separation and Purification Technology, 213, 303-313 (2019).
5. N. Dasgupta, R. Borah, P. Mishra, A.K. Gupta, R.P. Chhabra , Combined effects of blockage and yield stress on drag and heat transfer from an in-line array of three spheres , Journal of Dispersion Science and Technology, in press (2018).
6. Verma, P. Samanta, S.K. , Continuous ultrasonic stimulation based direct green synthesis of pure anatase-TiO2 nanoparticles with better separability and reusability for photocatalytic water decontamination , Materials Research Express, 5(6), 065049 (2018).
7. Vidya Sagar, S. Patel, A.K. Gupta, R.P. Chhabra , Effect of confinement and yield stress on heat transfer from an isothermal sphere , Journal of Chemical Engineering of Japan, 899-908 (2018).
8. Kumar, P, Prajapati, S.K*, Malik, A, Vijay V.K , Evaluation of biomethane potential of waste algal biomass collected from eutrophied lake: effect of source of inocula, co-substrate, and VS loading , J. Applied Phycology, 31 (2019).
9. Thawani, M, Hans, N, Samuchiwal, S, Prajapati, S.K , Improved methane yield from wastewater grown algal biomass , Water science and Technology, 78 (2018).
10. Pranay Ranjan, Priyanshu Verma, Shweta Agrawal, T. Rajagopala Rao, Sujoy Kumar Samanta, Ajay D. Thakur, , Inducing Dye-Selectivity in Graphene Oxide for Cationic Dye Separation Applications , Materials Chemistry and Physics, 226, 350–355 (2019).

11. Verma, P. Samanta, S.K. , Microwave-enhanced advanced oxidation processes for the degradation of dyes in water , Environmental Chemistry Letters, 16(3), 969–1007 (2018).
12. C. Sasmal, A.K. Gupta, R.P. Chhabra , Natural convection heat transfer in a power-law fluid from a heated rotating cylinder , International Journal of Heat and Mass Transfer, 129, 975-996 (2019).
13. Nitin Dutt Chaturvedi , Targeting Intermediate Fluid Flow in Batch Heat Exchanger Networks , Process Integration and Optimization for Sustainability, (0).
14. Parambil, Jose V., Sendhil K. Poornachary, Jerry YY Heng, and Reginald BH Tan. "Template-induced nucleation for controlling crystal polymorphism: from molecular mechanisms to applications in pharmaceuticals processing." CrystEngComm (2019).

Papers Presented in Conferences

1. Nitin Dutt Chaturvedi, A Linear Mathematical Formulation to Minimize Intermediate Fluid Flow in Batch Heat Exchanger Networks, PRES 2018, (2018).
2. A.K. Gupta, S.B. Chen, Liya Yu , CFD-DEM study of particle grouping and agglomeration in aerosols , Chemcon (International conference, IIChE sponsored) , NIT Jalandhar (2018).
3. Verma, P., Samanta, S.K. , Comparative Study on Different UV-based Homogeneous Advanced Oxidation Processes for Wastewater Treatment, Industrial Water-2018, DECHEMA-Haus, Frankfurt am Main, Germany (2018).
4. Mishra S., Kumar P., and Samanta S.K., Microwave Catalysis by Nanoferrites, Catalysis and Chemical Science-2019 , Magnus Group, 1 Netheravon Rd, Singapore (2019).
5. Rakesh Kumar Sinha, Nitin Dutt Chaturvedi , Pinch Analysis Approach to Determine In-Between Carbon Emission Caps in Production Planning , PRES 2018 , Prague (2018).
6. Sanchari Bhattacharjee, Sandip khan, , Study of Wetting Behavior of Imidazolium Based Ionic Liquids on graphite surface Using Molecular Dynamics Simulations, , 27th Conference on Molten Salts and Ion , Lisbon, Portugal (2018).

Sponsored Research Projects

1. A coupled process for simultaneous ethanol and methane production from enzymatically pretreated algal biomass (SERB, Rs.23.50 Lakhs) (PI : Dr. Sanjeev Kumar)
2. Continuous Polymorphic Crystallisation of Active Pharmaceutical Ingredients in a Slug-Flow-Cooling-Crystalliser (SERB, Rs.32.07 Lakhs) (PI : Jose V Parambil)
3. Design and optimization of systems containing microencapsulated PCMs for efficient thermal energy storage and heat transfer (Department of Science and Technology (DST), Rs.35.00 Lakhs) (PI : Anoop Kumar Gupta)
4. Low pressure ammonia synthesis using nitrides as catalyst (SERB-DST, Rs.33.00 Lakhs) (PI : Sushant Kumar)
5. Photocatalytic CO2 conversion to valuable fuels (DAE-BRNS, Rs.0.00 Lakhs) (PI : Sushant Kumar)
6. Planning of process industries production to minimize carbon emissions and energy consumption (SERB, Rs.22.36 Lakhs) (PI : Dr. Nitin Dutt Chaturvedi)
7. Wetting behavior of Ionic Liquids on different surfaces: Insight from Molecular Dynamic Simulation. (SERB, Rs.33.30 Lakhs) (PI : Sandip Khan)

Other Activities

Member - Professional Bodies

1. Jose Varghese Parambil (2017) Indian Institute of Chemical Engineers
2. Jose Varghese Parambil (2017) Institute of Engineers, India
3. Nitin Dutt Chaturvedi (2018) The Institution of Engineers (India)
4. Sujoy Kumar Samanta (2018) IWA (The International Water Association)

Awards & Honours

1. Anoop Kumar Gupta (2018) *DST INSPIRE Faculty Award (2018-2023)*
2. Anoop Kumar Gupta (2019) Best Researcher Award 2019 by DKIRF
3. Sujoy Kumar Samanta (2018) *Excellence in Education Award 2018 by Sukrishna Commerce Academy (P) Ltd., Patna.*
4. Sanjeev Kumar (2018) *IUBS GRANT FOR YOUNG SCIENTISTS*
5. Nitin Dutt Chaturvedi (2019) *Early Career Research Award*
6. Sanjeev Kumar (2019) *Young Faculty Award -2019 (VIF)*
7. Sandip Khan (2019) *Young Scientist Award (SERB)*
8. Sushant Kumar (2019) *Early Career Research Award*
9. Nitin Dutt Chaturvedi (2018) *Young Scientist in Chemical Engineering (VIF)*
10. Nitin Dutt Chaturvedi (2018) *Bharat Vikas Award* (ISR)

Invited Lectures by Faculty Members

1. Monte Carlo method in different ensembles by Sandip Khan (IIT Kanpur)
2. Self-Motivation for Life Skill Development cum Mananagement. by Sujoy Kumar Samanta (IIT Patna)
3. Time Management by Sujoy Kumar Samanta (IIT Patna)

Chemistry

Faculty Members

Dr. Debabrata Seth Associate Professor	Photophysics, Chemical Dynamics, Ionic liquids
Dr. Md. Lokman Hakim Choudhury Associate professor	Diversity Oriented Synthesis (DOS) using multicomponent reactions (MCRs), the discovery and development of new synthetic methods with particular interest in heterocyclic chemistry and total synthesis of various biologically active natural products and structural analogues
Dr. Neeladri Das Associate Professor	Self-assembly and Supramolecular Chemistry, Organic Synthesis, Inorganicorganic hybrid material synthesis, Coordination polymers / Metal organic framework (MOF), Polymer Chemistry - syntheses/characterization/ applications
Dr. Prolay Das Associate Professor	DNA self assembly for production of 3-dimensional functional Nanostructures; Clustered DNA damage and DNA repair mechanism in Nucleosome core particles
Dr. Ranganathan Subramanian Associate Professor	Spectroscopy, Computational, Instrumentation development, Physical Chemistry
Dr. Sahid Hussain Associate Professor	Nano-scale Materials, Green Chemistry and Synthetic Organic Methodologies
Dr. Amit Kumar Assistant Professor	Synthesis of modified sugar, glycosyltransferase inhibitors, Oligosaccharides and Chiral catalyst; Application of Metal catalysis in the synthesis of natural products and Medicinal useful Pharmacophores
Dr. T. Rajagopala Rao Assistant Professor	Quantum reactive scattering of gas phase bi-molecular reactions, non-adiabatic coupling effects, geometric phase effects, nuclear spin symmetry effects, isotopic effects, spectral attributes of quasi-bound states, construction of potential energy surfaces.
Dr. Snehasis Daschakraborty Assistant Professor	Studies of reaction and relaxation processes in complex chemical and biological systems using theory and computer simulation technique
Dr. Debajit Sarma Assistant Professor	Coordination polymer, solid state chemistry, Chalcogenide and chalcogel based materials, oxide materials, energy conversion and catalysis.
Dr. Subrata Chattopadhyay Assistant Professor	Polymer chemistry (sustainable/Green synthesis), nanomaterials and surface engineering.

Academic Programmes

- B.Tech. in Chemical Science and Technology
- M.Sc. in Chemistry
- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. Yogesh Jaiswal, Yogesh Kumar, Jagannath Pal, Ranga Subramanian, Amit Kumar, Rapid Synthesis of PolysubstitutedPhenanthridines from Simple Aliphatic/Aromatic Nitriles and IodoArenes via Pd(II) Catalyzed Domino C-C/C-C/C-N Bonds Formation , Chemical Communication, 10.1039/C8CC03556C (2018).
2. Bharti Mohan, Achintya Jana, Neeladri Das, S. Bharti, M. Choudhary, S. Muhammad, Santosh Kumar, A. G.Al-Sehemi, H. Algarni, A dual approach to study the key features of nickel (II) and copper (II) coordination complexes: Synthesis, crystal structure, optical and nonlinear properties , Inorg. ChimicaActa, 484, pg 148-159 (2019).
3. PranayRanjan, Shweta Agarwal, Apurva Sinha, T. Rajagopala Rao, Jayakumar Balakrishnan, Ajay D. Thakur, A Low-Cost Non-explosive Synthesis of Graphene Oxide for Scalable Applications, Scientific Reports, 8, 12007 (2018).
4. Y. Kumar, Y. Jaiswal, R. Thakur and Amit Kumar, A Straightforward Synthesis of α-Amino Diaryl Ketones from (Hetero)

Arylacetonitriles Promoted by N-Bromosuccinimide, Chemistry Select, 3, 5614 (2018).

5. Km Akanksha Dubey, Shweta Agrawal, T. RajagopalaRao,andJobin Jose , A theoretical investigation of elastic scattering of H Atom by C60 and Kr@C60 , Journal of Physics B: Atomic, Molecular and Optical Physics, 52, 035203 (201).
6. SugataGoswami, JayakrushnaSahoo, T. Rajagopala Rao, B. Bussery-Honvault, Pascal Honvault and S. Mahapatra , A theoretical study on the C + OH reaction dynamics and product energy disposal with vibrationally excited reagent , The European Physical Journal D, 72, 225 (2018).
7. Chattopadhyay S., Van Damme J., Berg O. V. D, Du Prez F.* , Anthracene-based colloidal polymer nanoparticles - their photochemical ligation and waterborne coating applications , Particle & Particle Systems Characterization, 35, 1800030 (2018).
8. Samiyara Begum and Ranga Subramanian , Bonding and Spectroscopic analysis of N2O-CS2 and N2O-OCS heterodimer complexes and its atmospheric consequences , PCCP, 19(38)26412-26422 (2017).
9. AniruddhaMolla, SubhamRanjan, MugadaSugunakara Rao, Arif Hassan Dar, MousumiShyam, VenkatesanJayaprakash, Sahid Hussain , Borax Catalysed Domino Synthesis of Highly FunctionalisedSpirooxidation and Chromenopyridine Derivatives: X-ray structure, Hirshfeld Surface Analysis and Molecular Docking Studies , Chemistry Select , 3, 8669 – 8677 (2018).
10. SonamKumari, Seema Singh and ProlayDas , Carbon Dots As a Nanotool For Integrated Photodynamic Therapy and Chemotherapy , Indian Journal of Chemistry, , 57B, 265-270 (2018).
11. NazrulHsan, P.K. Dutta, Santosh Kumar, RanajitBera and NeeladriDas , Chitosan grafted graphene oxide aerogel: Synthesis, characterization and carbon dioxide capture study , International Journal of Biological Macromolecules, 125, pg 300–306 (2019).
12. BhaviniKumari, Kislay K. Sinha and Prolay Das, Complex interplay of lesion-specific DNA repair enzyme on bistranded clustered DNA damage harboring Tg:G mismatch in nucleosome core particles , Journal of Biosciences, 43, 575-583 (2018).
13. KUMARI, SONAMSolanki, ApurvMandal, SaptarshiSubramanyam, Deepa Das, Prolay, Creation of Linear Carbon Dot Array with Improved Optical Properties through Controlled Covalent Conjugation with DNA , Bioconjugate Chemistry, 29, 1500-1504 (2018).
14. Khushwant Singh, Ankit Gangrade, Achintya Jana, Biman B. Mandal, and Neeladri Das, Design, Synthesis, Characterization, and Antiproliferative Activity of Organoplatinum Compounds Bearing a 1,2,3-Triazole Ring , ACS Omega , ,, 4, pg 835-841 (2019).
15. JeevanreddyMiryala, Anuj Tripathi, ChettiPrabhakar, DebajitSarma, SomeshwarPola and Battu Satyanarayana, Eco-friendly synthesis, crystal structures, photophysical properties and DFT studies of new N-arylthiazole-5-carboxamides, J. Mol. Struct., 1184, 193-199 (2019).
16. Mei-Ling Feng, DebajitSarma, Yu-Jie Gao, Xing-Hui Qi, Wei-An Li, Xiao-Ying Huang, and MercouriG.Kanatzidis, , Efficient Removal of [UO2]2+, Cs+, and Sr2+ Ions by Radiation-Resistant Gallium Thioantimonates , J. Am. Chem. Soc. , 140, 11133-11140 (2018).
17. M. Shaw, R. Thakur, Amit Kumar , Gold(III)-Catalyzed Glycosylation using Phenyl Propiolate Glycosides (PPGs): Phenylpropiolic Acid An Easily Separable and Reusable Leaving Group , J.Org.Chem., 84, 589 (2019).
18. Achintya Jana, Saptarshi Mandal, Khushwant Singh, Prolay Das, and Neeladri Das, Heterobimetallic (FeII/PtII)-Based Supramolecular Coordination Complexes Using 1,1′-Ferrocene Dicarboxylate: Self-Assembly and Interaction with Carbon Dots , Inorganic Chemistry, (2019), 58 (3), 2042–2053.
19. Li Wang, Huan Pei, DebajitSarma, Xian-Ming Zhang, Keith MacRenaris, Christos D. Malliakas and MercouriG.Kanatzidis, , Highly Selective Radioactive 137Cs+ Capture in an Open-Framework Oxysulfide Based on Supertetrahedral Cluster , Chem. Mater., 31, 1628-1634 (2019).
20. S Daschakraborty , How do glycerol and dimethyl sulphoxide affect local tetrahedral structure of water around a nonpolar solute at low temperature? Importance of preferential interaction , J. Chem. Phys., 148, 134501 (2018).
21. V Dubey, N Kumar, S Daschakraborty , Importance of Solvents' Translational–Rotational Coupling for Translational Jump of a Small Hydrophobic Solute in Supercooled Water , J. Phys. Chem. B, 122 (7569).
22. Sayeed Ashique Ahmed, Soma Seth Duley, Rajesh Kumar Gautam, Debabrata Seth, Inclusion of a Coumarin Derivative inside the Macrocyclic Hosts: A Spectroscopic, Thermodynamic and Theoretical Investigation , Journal of Molecular Liquids, 264, 550-562 (2018).
23. R. Nigam, K. R. Babu, T. Ghosh, BhaviniKumari, D. Akula, S. N. Rath, Prolay Das, Roy Anindya, F. A. Khan , Indenone derivatives as inhibitor of human DNA dealkylation repair enzyme AlkBH3 , Bioorganic and Medicinal Chemistry, 26, 4100-4112 (2018).
24. PranayRanjan, PriyanshuVerma, Shweta Agrawal, T Rajagopala Rao, Sujoy Kumar Samanta, Ajay D Thakur , Inducing dye-selectivity in graphene oxide for cationic dye separation applications , Materials Chemistry and Physics, 226, 350 (2019).
25. V Dubey, S Daschakraborty , Influence of glycerol on the cooling effect of pair hydrophobicity in water: relevance to proteins' stabilization at low temperature , J. Phys. Chem. B, 21, 800 (2019).
26. Sayeed Ashique Ahmed, Utkarsh Singh, DebabrataSeth , Interaction of a Red Emitting Dye with Pluronic Surfactants: A Spectroscopic Study , Journal of Photochemistry and Photobiology A: Chemistry, 376, 247-254 (2019).
27. ArghaSaha, Asim Jana and Lokman H. Choudhury* , Lemon juice mediated multicomponent reactions for the synthesis of fused imidazoles , New Journal of Chemistry, 42, 17909-17922 (2018).

28. MugadaSugunakara Rao, Subhankar Sarkar, and SahidHussain , Microwave-assisted synthesis of 3-aminoarylquinolines from 2-nitrobenzaldehyde and indole via SnCl2-mediated reduction and facile indole ring opening , Tetrahedron Letters, In press (2019).

29. SonamKumari, Mayank Tiwari and Prolay Das , Multi Format Compatible Visual and Fluorometric Detection of SEB Toxin in nanogram range by Carbon Dot-DNA and Acriflavine Nano-assembly , Sensors and Actuators B: Chemical, 279,393-399 (2019).

30. RanajitBera, Mosim Ansari, Akhtar Alam and Neeladri Das , Nanoporous azo polymers (NAPs) for selective CO2 uptake , Journal of CO2 Utilization, Volume 28, December 2018, , Vol. 28, Pg 385-392 (2018).

31. S Indra, S Daschakraborty , Nonpolar solvation dynamics for a nonpolar solute in room temperature ionic liquid: a nonequilibrium molecular dynamics simulation study , Journal of Chemical Society, 130, 3 (2018).

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33. Afaq Ahmad Khan, SunitaKumari, Arif Chowdhury and SahidHussain , Phase Tuned Originated Dual Properties of Cobalt Sulfide Nanostructures as Photocatalyst and Adsorbent for Removal of Dye Pollutants , ACS Appl. Nano Mater, 1, 3474-3485 (2018).

34. RajkumarSahoo, Rabindranath Jana, Debabrata Seth , Photophysical Study of an Alkaloid Harmaline in 1,4-Dioxane-Water Mixtures , Chemical Physics Letters, 706,158-163 (2018).

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36. Rajesh Kumar Gautam, Aninda Chatterjee, Debabrata Seth , Photophysics, Rotational Dynamics and Fluorescence Lifetime Imaging Study of Coumarin Dyes in Deep Eutectic Solvent , Journal of Molecular Liquids, 280, 399-409 (2019).

37. R Paul, A Arya, R Laha, VR Dantham, Sahid Hussain , Plasmon-enhanced fluorescence in nanomolar dye solution using combination of core-shell nanostructures of various shell thicknesses , Journal of Luminescence, 205, 451-456 (2019).

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40. Y. Jaiswal, Y. Kumar, J. Pal, R. Subramanian and Amit Kumar , Rapid Synthesis of PolysubstitutedPhenanthridines from Simple Aliphatic/Aromatic Nitriles and IodoArenes via Pd(II) Catalyzed Domino C-C/C-C/C-N Bonds Formation , Chem.Commun, 57, 7207 (2018).

41. Khushwant Singh, SonamKumari, Achintya Jana, SouravBhowmick, Prolay Das and Neeladri Das , Self-Assembled Neutral [2 + 2] Platinacycles Showing Minimal DNA Interactions , Polyhedron , 157, 267-275 (2019).

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44. Arif Chowdhury, Afaq Ahmad Khan, SunitaKumari and Sahid Hussain , Superadsorbent Ni-Co-S/SDS nanocomposites for Ultrahigh Removal of Cationic, Anionic Organic Dyes and Toxic Metal Ions: Kinetics, Isotherm and Adsorption Mechanism , ACS Sustainable Chemistry & Engineering, 7, 4165-4176 (2019).

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46. Bharti Mohan, Achintya Jana, Neeladri Das, Sulakshna Bharti, Mukesh Choudhary, Syntheses, crystal structures, antioxidant SOD-like properties and in-vitro antimicrobial studies of Cu(II) and Ni (II) complexes with 2-((E)-(4-bromo-2-chlorophenylimino) methyl)-6-bromo-4-nitrophenol and (E)-1-(3, 5-dichloro-2-hydroxybenzylidene)-4 , Journal of Molecular Structure, Volume 1171, 94-109 (2018).

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48. Richa Mishra, Asim Jana, Anoop Kumar Panday and Lokman H. Choudhury* , Synthesis of fused pyrroles containing 4-hydroxycoumarins by regioselective metal-free multicomponent reactions , Organic & Biomolecular Chemistry, 16, 3289–3302 (2018).

49. Richa Mishra, Asim Jana, AnoopPanday and Lokman H Choudhury* , Synthesis of spirooxindoles fused with pyrazolo-tetrahydropyridinone and coumarin-dihydropyridine-pyrazoletetracycles by reaction medium dependent isatin-based multicomponent reactions , New Journal of Chemistry, 43, 2920-2932 (2019).

50. Jagannath Pal, Ranga Subramanian , Theoretical investigation of N (2 D) + HOX (Cl, Br) reaction , Molecular Physics, 10.1080/00268976.201 (2018).

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52. Mosim Ansari, Samapika Mallik, SnehasishMondal, RanajitBera, Achintya Jana, AlpanaNayak and Neeladri Das , Triptycene Based Fluorescent Polymers with Pendant Alkyl Chains: Interaction with Fullerene and Morphology of Thin Films , Polymer International, (2018).
53. BhaviniKumari, Pravin Jha, Kislay Sinha and ProlayDas , Vicinal abasic site impaired processing of a Tg:G mismatch and 8-oxoguanine lesions in three component bistranded clustered DNA damage , RSC Advances, 8, 17921-17926 (2018).
54. Y. Kumar, Y. Jaiswal and Amit Kumar , Visible-Light-Mediated Remote γ-C(sp3)-H Functionalization of Alkylimidates: Synthesis of 4-Iodo-3,4-Dihydropyrrole Derivatives. , Org.Lett. , 20, 4964 (2018).
55. Seema Singh, Manoj K. Singh and Prolay Das , Visual detection of cyclobutane pyrimidine dimer DNA damage lesions by Hg2+ and carbon dots , AnalyticaChimicaActa, 1016, 49-58 (2018).
56. BhaviniKumari, RekhaKumari, and ProlayDas, Visual detection of G-quadruplex with mushroom derived highly fluorescent carbon quantum dots , Journal of Pharmaceutical and Biomedical Analysis, 157, 137-144. (2018).

Sponsored Research Projects

1. Development of Carbon-Dot and DNA-Aptamer Based Nano-biosensors for Concurrent Visual Detection of Food Toxins in Solution Phase and Microfluidic Chip (DBT RA program, Rs.5.49 Lakhs) (PI : Prolay Das)
2. Exploration of Multicomponent Reactions (MCRs) Towards Green Synthesis of Novel functionalized & Sequence Regulated Macromolecules (SERB, DST, Govt. of India, Rs.40.95 Lakhs) (PI : Dr.Md. Lokman Hakim Choudhury)
3. Graphene/conducting polymer nanocomposite based enzymetic biosensors for the detection of biomolecules (DST, Rs.19.20 Lakhs) (PI : Chandramika Bora)
4. Mechanism of Hydroxide Ion Transfer through Anion Exchange Membrane in Anion Exchange Membrane Fuel Cell: Investigation using Molecular Dynamics Simul (SERB-ECRA, Rs.23.65 Lakhs) (PI : Dr. SnehasisDaschakraborty)
5. Quantum dynamical studies on bimolecular reactions of practical and fundamental interest. (DST (INSPIRE), Rs.30.00 Lakhs) (PI : T. Rajagopala Rao)
6. Rational Design and Synthesis of Functionalized "Metal-organic Frameworks/gels for Biomimetic Heterogeneous Catalysis (Science & Engineering Research Board (SERB), Rs.24.31 Lakhs) (PI : Dr. DebajitSarma)
7. Theoretical investigation of intermolecular forces and optical properties of atmospheric aerosols (CSIR, Rs.0.00 Lakhs) (PI : Ranganathan Subramanian)

Other Activities

Member - Professional Bodies

1. Amit Kumar (2016) Indian Science Congress
2. Amit Kumar (2015) Chemical Reserach Society of India
3. Amit Kumar (2015) Association of carbohydrate chemist and technologist India
4. Md. Lokman Hakim Choudhury (2014) Chemical Research Society of India
5. Neeladri Das (2018) American Chemical Society
6. Ranganathan Subramanian (2018) American Chemical Society
7. Ranganathan Subramanian (2018) Chemical Research Society of India

Member - Editorial Board

1. Md. Lokman Hakim Choudhury (2018) Editorial Board Member - American Journal of Organic Chemistry

Awards & Honours

1. Neeladri Das (2018) *"Research Stays" (Forschungsaufenthalte) Fellowship by DeutscherAkademischerAustauschDienst (DAAD) German Academic Exchange Service*
2. Debabrata Seth (2018) *Best Poster Award for "Pool Boiling with Aqueous Ionic Liquid Solution" during the 10th International Conference on Boiling and Condensation Heat Transfer (ICBCHT2018) held from 12-15 March, 2018 in Nagasaki, Japan.*
3. DebajitSarma (2019) *Science & Engineering Research Board (SERB) Early Career Research Award*
4. SnehasisDaschakraborty (2018) *SERB Early Career Research Award*

Visits Abroad by Faculty Members

1. Neeladri Das - To avail "Research Stays" (Forschungsaufenthalte) Fellowship- DAAD, Germany, initiate collaboration (Technical University (TU) Braunschweig, Germany,) 82 days
2. TAMMINENI Rajagopala Rao - Visiting Researcher (University of Coimbra, Coimbra, Portugal,) 16th May 2018 - 12th July 2018

Invited Lectures by Faculty Members

1. Imidates: A Versatile Synthon for Organic Chemists *by* Amit Kumar (25th ISCB International Conference (ISCBC-2019) from12th-14th January, 2019, Lucknow)

2. Metal chalcogenides with tunable phase, bandgap and surface properties for removal of organic dyes *by* Sahid Hussain (Aligarh Muslim University)
3. Nanoscale Materials for Biomedical, Photocatalytic and Adsorption Applications: A Greener Prospectiv *by* Sahid Hussain (Mahatma Gandhi Central University Bihar, Motihari)
4. Imidates: A Versatile Synthon for Organic Chemists *by* Amit Kumar (National Bioorganic Chemistry Conference (NBCC) 22-24th December-2018, NISER Bhubaneswar)
5. New Tools for Green Chemistry *by* Amit Kumar (International Seminar on Green Chemistry: Synthesis, Processing & Devices April 6-7th , 2018, Department of Chemistry VKS University, Ara)
6. Decoupling of Self Diffusion from Viscosity of Supercooled Water: Role of Translational Jump-diffusi *by* SnehasisDaschakraborty (Bits Pilani)
7. Decoupling of Self Diffusion from Viscosity of Supercooled Water: Role of Translational Jump-diffusi *by* SnehasisDaschakraborty (IIT Delhi)
8. Checking Compatibility of Different Models of Water with a United Atom Model of Lipid *by* SnehasisDaschakraborty (IISER Kolkata)
9. Sequestration of Heavy Metal Ions and Radio Nuclides using Sulfide Ion Exchangers *by* DebajitSarma (1st International Conferences on "Crystal Engineering: From Molecule to Crystal" (CE-FMC-2019), NIT Raipur)
10. Metal Sulfide Ion-exchangers: Heavy Metal Ions to Radio Nuclides in Spent Nuclear Fuel *by* DebajitSarma (Advanced Functional Materials , IISER TVM, Trivandrum, India)
11. SYMMETRY, SPACE GROUP AND TOPOLOGY *by* DebajitSarma (National workshop on "Theory and Applications of Single Crystal X-ray Diffraction" IIT Patna)
12. Quantum dynamical Quantum dynamical studies on bimolecular reactions *by* TAMMINENI Rajagopala Rao (Instituto de Física Fundamental, CSIC, Madrid, Spain).

Civil and Environmental Engineering

Faculty Members

Dr. Pradipta Chakrabortty Assistant Professor	Soil Dynamics and Geotechnical Earthquake Engineering, Soil Heterogeneity, Finite Element Analysis in Geotechnical Engineering, Ground Improvement, Probabilistic Methods in Engineering, Low Cost Housing
Dr. Subrata Hait Assistant Professor	Water and Wastewater Treatment, Solid and Hazardous Waste Management, Organic Waste Management by Composting and Vermicomposting, Conventional and Ecological Sanitation
Dr. Syed K. K. Hussaini Assistant Professor	Rail Track Geotechnology; Cyclic Behavior of Granular Media under High-Frequency Cyclic Loading; The Role of Geosynthetics in Improving the Rail Track Performance; Ground Improvement
Dr. Avik Samanta Assistant Professor	Structural Engineering, Structural Dynamics, Performance Based Earthquake Engineering
Dr. Om Prakash Assistant Professor	Water Resource Systems Engineering; Hydrological and Hydro-Geological Modelling; Numerical Modelling of Groundwater Flow and Solute Transport; Water Resources Management; Optimization based solutions for Groundwater and Water Resource Management Problems
Dr. Koushik Roy Assistant Professor	Structural Damage Detection; Vibration Control; System Identification; Earthquake Engineering; Structural Dynamics; Soil-Structure Interaction
Dr. Vaibhav Singhal Assistant Professor	Seismic behavior of reinforced concrete and masonry structures; Small-scale modeling of structural systems for real time dynamic testing; Seismic evaluation and rehabilitation of structures; Earthquake damage surveys
Dr. Amarnath Hegde Assistant Professor	Geotechnical Engineering; Ground Improvement; Computational Geotechnics; Geosynthetics; Rock mechanics and Tunneling
Dr. Trishikhi Raychoudhury Assistant Professor	Environmental Engineering (Colloid Filtration, Solute fate and transport, Water treatment using novel material Environmental implication of nanotechnology).
Dr. Ramakrishna Bag Assistant Professor	Toxic waste disposal; Unsaturated soil mechanics; Geo-energy; Geoenvironmental Engineering
Dr. Ritwik Ghoshal Assistant Professor	Shock waves, Computational mechanics, Fluid-structure interaction, Composites and non-linear dynamics.
Dr. Vishal Deshpande Assistant Professor	Open channel hydraulics; Sediment transport; Turbulent flows; Flash floods; Surface hydrology

Academic Programmes

- B.Tech. in Civil Engineering
- M.Tech. in Civil and Infrastructure Engineering
- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. Sitharam T.G. and HegdeA.M., A Case Study of Probabilistic Seismic Slope Stability Analysis of Rock Fill Tailing Dam., International Journal of Geotechnical Earthquake Engineering, 10(2), 43-60 (2019).
2. Hussaini SK.K., IndraratnaBand Vinod J. S., A Critical R eview of the Performance of Geosynthetic-Reinforced Railroad Ballast, Geotechnical Engineering Journal of the SEAGS &AGSSEA, 49 (4), 31-41 (2018).
3. KumarK. Priya A,ArunA,HaitS, and Chowdhury A., Antibacterial and natural room-light driven photocatalytic activities of CuOnanorods, Materials Chemistry and Physics, 226, 106-112 (2019).
4. Inanya, M. and Raychoudhury, T, Application of activated carbon–metal composite for fluoride removal from contaminated groundwater in India, International Journal of Environmental Science and Technology, 7, 1:10 (2018).

5. Sweta, K. Hussaini SKK, Behavior evaluation of geogrid-reinforced ballast-subballast interface under shear condition, Geotextiles and Geomembranes, 47 (1), 23-31 (2019).
6. Singhal V and Rai D C, Behavior of Confined Masonry Walls with Openings under In-Plane and Out-of-Plane Loads, Earthquake Spectra, 34(2), 817-841 (2018).
7. VermaAand HaitS, Chelating extraction of metals from e-waste using diethylenetriaminepentaaceticacid, Process Safety and Environmental Protection, 121, 1–11 (2019).
8. GundupalliS.P., HaitS. and Thakur A., Classification of metallic and non-metallic fractions of e-waste using thermal imaging-based technique, Process Safety and Environmental Protection, 118, 32–39 (2018).
9. TripathyD and SinghalV, Estimation of in-plane shear capacity of confined masonry walls with and without openings using strut-and-tie analysis, Engineering Structures, In print (2019).
10. Sitharam, T.G. and Hegde, A., Geotechnical Investigations for Evaluating the Performance of the Misaligned MSE Wall: a Case Study., Transportation Infrastructure Geotechnology, 5 (4), 332-348. (2018).
11. LalitSagarS., SinghalV& Rai D C., In-plane and Out-of-plane Behavior of Masonry Infilled RC Frames Strengthened with Fabric Reinforced Cementitious Matrix, Journal of Composites for Construction, 23(1), 04018073-1-14 (2019).
12. Venkateswarlu, H., Ujjawal, K.N and Hegde, A, Laboratory and Numerical Investigation of Machine Foundations Reinforced with Geogrids and Geocells., Geotextiles and Geomembranes., 46 (6),882-896 (2018).
13. Venkateswarlu, H and Hegde, A, Numerical Analysis of Machine Foundation Resting on the Geocell Reinforced Soil Beds., Geotechnical Engineering, 49(4), 55-62 (2018).
14. GundavaramD, Hussaini SKK, Polyurethane-based stabilization of railroad ballast–a critical review, International Journal of Rail Transportation, 1-22 (2019).
15. SamantaA, Swain A, Seismic Response and Vulnerability Assessment of Representative Low, Medium and High-rise Buildings in Patna, India, Structures, 19 (2019).
16. Ujjawal, K.N., Venkateswarlu, H. and Hegde, A, Vibration Isolation using 3D Cellular Confinement System: A Numerical Investigation, Soil Dynamics and Earthquake Engineering, 119, 220-234 (2019).

Papers Presented in Conferences

1. Das T. and HegdeA., A Comparative Deterministic and Probabilistic Stability Analysis of Rock-fill Tailing Dam., Symposium of the International Association for Computer Methods and Advances in Geomechanics (IACMAG), IIT Gandhinagar, India (2019)
2. KumarP., and Chakrabortty P., A Simple Analytical equation for bamboo reinforced slope using ordinary Method of Slices, Indian Geotechnical Conference, IGC 2018, IISC Bangaluru (2018)
3. BorahB, SinghalV, Kaushik H B, A Simplified Approach to Analytical Modeling of Confined Masonry Buildings, 16th Symposium on Earthquake Engineering,Roorkee (2018)
4. AnjneyaKand Roy K, Application of response surface-based model updating in damage identification using dynamic responses, eleventh Structural engineering convention 2018 (SEC2018),Jadavpur University, India – 700032 (2018)
5. BorahB, SinghalV, Kaushik H B, Assessment of Important Parameters for Seismic Analysis and Design of Confined Masonry Buildings, National Conference on Advances in Structural Technologies,Silchar, Assam (2019).
6. Sweta, K. Hussaini SKK, Behavior of soil fouled ballast-geogrid interfaces at different rates of shearing, Indian Geotechnical Conference-2018, Indian Institute of Science, Bangalore (2018).
7. Venkateswarlu H, and Hegde A, Block Resonance Test on Geosynthetic Reinforced Foundation Beds., Eighth International Conference on Case Histories in Geotechnical Engineering (Geo-Congress 2019), Philadelphia, PA, USA (2019).
8. HalfiE, DeshpandeV, JohnsonJPL, KatoshevskiD, ReidI, Storz-PeretzYand Laronne J B, Characterization of bedload discharge in bores and very unsteady flows in an ephemeral channel, River Flow 2018 - Ninth International Conference on Fluvial Hydraulics, France (2018).
9. Dibyanshu and Raychoudhury, T, Co-transport of zno nanoparticles in the presence of other enps through natural sediment, International Conference on Water (ICW)-Pollution to Purification, MGU, Kottyam, Kerala, India (2018).
10. FaridiA, Roy K and Singhal V, Damage Detection in a Simply Supported Beam: Comparing Modal Curvature of Undamaged and Damage Beam, 16th Symposium on Earthquake Engineering,Roorkee (2018).
11. KantL, Samanta A and SumanS, Dynamic Interaction of SMRF Building Structures on Raft Foundation., The 7th Asia Conference on Earthquake Engineering, Bangkok, Thailand. (2018).
12. Bag R, Jadda K, Srikanth R N, Effect of sand ratio on Swelling pressure and Hydraulic conductivity of an Indian bentonite-sand mixture, 7th International Conference on Unsaturated soil, HKUST, Hong Kong (2018).
13. ChakraborttyP., DasA., andAnil, Effect of Soil Grain Size on Liquefaction Strength of Sandy Soil, Indian Geotechnical Conference, IGC 2018, IISC Bangaluru (2018).
14. Trivedi A. and Hait S., Efficacy of metal extraction from discarded printed circuit board using Aspergillus tubingensis, 8th International Conference on Sustainable Waste Management (8th IconSWM 2018), Vijayawada, Andhra Pradesh (2018).
15. NilayN., and Chakrabortty P., Evolution in Liquefaction Strength of Ganga River Sand Due to the Intrusion of Non-Plastic Silt, Indian Geotechnical Conference, IGC 2018, IISC Bangaluru (2018).

16. VermaA., Trivedi A. and Hait S., Extraction of selected metals from high-grade waste printed circuit board using diethylene triamine penta-acetic acid, 8th International Conference on Sustainable Waste Management (8th IconSWM 2018), Vijayawada, Andhra Pradesh (2018).
17. Venkateswarlu, H., Ujjawal, K.N and Hegde, A., FLAC based 3D numerical analysis of machine foundations resting on geosynthetics reinforced soil bed, Proceedings of the 11th International Conference on Geosynthetics, (11ICG), Seoul, Republic of Korea, (2018).
18. TripathyDand Singhal V, Formulation of Strut-and-Tie Model for Estimating the Shear Capacity of Confined Masonry Walls, 11th National Conference in Earthquake Engineering, Los Angeles, CA (2018).
19. Mandal, K.K, Tiwari, M and Raychoudhury,T , In-situ synthesis of iron-sulfide within the porous media for immobilization of arsenic , International Conference on Water (ICW)-Pollution to Purification , MGU, Kottyam, Kerala, India (2018).
20. ChakraborttyP., and. Das A, Liquefaction Strength Assessment of Cohesionless Soil in IIT Patna Campus, 2nd International Conference on Advances in Concrete, Structural and Geotechnical Engineering, BITS Pilani (2018).
21. Ujjawal, K.N and Hegde, A., Machine Induced Vibration Isolation using Geocell reinforcement., Proceedings of Indian Geotechnical Conference-2018, Bengaluru, (2018).
22. Roy, R. Venkateswarlu, H and Hegde, A., Numerical Study on Cyclic Shear Behavior of Soil-Geosynthetics Interface., Proceedings of International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018), New Delhi (2018).
23. SwetaK, Hussaini SKK, Performance Evaluation of Ballast-Subballast Interface Stabilized with Geogrids, China-Europe Conference on Geotechnical Engineering, 1738-1741, (2018)
24. Mahipal and Raychoudhury, T, Removal of fluoride from contaminated groundwater by metal-impregnated activated carbon composite, International Conference on Water (ICW)-Pollution to Purification, MGU, Kottyam, Kerala, India (2018).
25. SumanSand Samanta A, Review of Fragility Curves for Seismic Risk Assessment of Buildings in India, The 16th Symposium on Earthquake Engineering (16SEE), IIT Roorkee (2018).
26. Sweta K and Hussaini SK.K., Shear behaviour of geosynthetic-reinforced ballast based on large-scale direct shear testing, "Fourth International Conference on Railway Technology: Research, Development and Maintenance,Sitges, Barcelona, Spain. (2018).
27. Kant L and Samanta A, Structural response for multistoried buildings including dynamic structure-soil-structure interaction. The 16th Symposium on Earthquake Engineering (16SEE), IIT Roorkee (2018).
28. Yadav P.Vand Singhal V, Structural Score for Rapid Visual Screening of RC Framed Buildings in India, 16th Symposium on Earthquake Engineering,Roorkee (2018).
29. Borah B, SinghalV, Kaushik H B, Sustainable Housing Using Confined Masonry Buildings, 2nd International Conference on Civil Engineering for Sustainable Development – Opportunities and Challenges, Guwahati (2018).
30. Jadda K. and Bag R, The Effect of Saline Fluid on Hydraulic Properties of Clays, International IACMAG Symposium, IIT Gandhinagar (2019).
31. Suman S, SamantaAand KantL, Vulnerability Assessment of Structures under Earthquake and Post-earthquake Fire by Fragility Analysis-a review., The 7th Asia Conference on Earthquake Engineering, Bangkok, Thailand. (2018)

Sponsored Research Projects

1. Arsenic immobilization by in-situ synthesis of iron-based adsorbent under reducing environment within porous media (DST-WTI, Rs.39.36 Lakhs) (PI: Dr. Trishikhi Raychoudhury).
2. Development of Ganga Grams under Namami Gange Programme with Support of Technical Institutions (MHRD & NMCG, MoWR, RD&GR, Rs.5.00 Lakhs) (PI: Dr. Subrata Hait).
3. Development of Structural Health Monitoring Technique for Existing Bridges in Bihar: A Pilot Study (Road Construction Department, Rs.2.70 Lakhs) (PI: Dr. VaibhavSinghal and Dr. Koushik Roy).
4. Evaluate the fate and transport and implication of engineered nanoparticle retention in porous media (DST-SERB (Young scientist research award), Rs.30.44 Lakhs) (PI: Trishikhi Raychoudhury).
5. Seismic design and performance verification of confined masonry walls for medium-rise buildings (SERB-DST, Rs.26.40 Lakhs) (PI: Dr. Vaibhav Singhal).
6. Varied Profiling of Bio-macromolecules for Energy and Byproduct Assessment Employing Electrochemical Tools (SERB, DST, Rs.17.98 Lakhs) (PI: Dr. Subrata Hait).

Consultancy Projects

1. Physical Test of ACC Bricks (Satya Swarna Enterprises, Bihta, Bihar, Rs.0.05 Lakhs) Consultant Name: Dr.Avik Samanta, Dr. Koushik Roy and Dr. Vaibhav Singhal.
2. Physical Test of TMT Bar (ECR, Hajipur, Rs.0.56 Lakhs) Consultant Name: Dr. Avik Samanta, Dr. Koushik Roy and Dr. Vaibhav Singhal.
3. Pile integrity and depth analysis at different locations of Raxaul –Narkatiaganj section (East-Central Railway, Rs.8.30 Lakhs) Consultant Name: Dr. Pradipta Chakrabortty, Dr. Amarnath Hegde, Dr. Ramakrishna Bag.
4. Preparation of Water Audit and Mass Balance Report of M/s Mateshwari Paper Mill Pvt. Ltd., Patna, Bihar (M/s Mateshwari Paper Mill Pvt. Ltd., Patna, Bihar, Rs.1.32 Lakhs) Consultant Name: Dr. SubrataHait.
5. Proof checking certificate of compliance for RCC box culvert and RCC hume pipe culverts (Ultra Tech Cement Ltd, Patna, Rs.2.00 Lakhs) Consultant Name: Dr. AvikSamanta, Dr. SKK Hussaini.

6. Proof Checking of Structural Design for Construction of constable barrack at New Police Line (Bihar Police Building Construction Corporation, Rs.6.00 Lakhs) Consultant Name: Dr. Pradipta Chakrabortty, Dr Amarnath Hegde, Dr. Ramakrishna Bag, Dr Avik Samanta, Dr Koushik Roy.
7. Proof Checking of Structural Design for Construction of Govt. Medical College & Hospital, Purnea (Bihar Medical Services & Infrastructure Corporation Limited, Rs.11.35 Lakhs) Consultant Name: Dr. Koushik Roy
8. Proof checking of the Structural, Geotechnical design and drawing of the club building (G+7) at Railway Officers Colony at DighaGhat, Patna (Lord Vishnu Constructions Pvt. Ltd, Patna, Rs.3.84 Lakhs) Consultant Name: Dr. Amarnath Hegde and Dr. Vaibhav Singhal.
9. Review of structural and geotechnical design for ISBT Patna, Bihar (Shapoorji Palonji Company Pvt. Ltd, Rs.6.46 Lakhs) Consultant Name: Dr. Vaibhav Singhal
10. Seismic Strengthening and Retrofitting of Bihar State Chief Minister's residence at 1-Anne Marg, Patna (Building Construction Department, Rs.5.16 Lakhs) Consultant Name: Dr. Vaibhav Singhal
11. Structural Design Review of BudhaSmriti Stupa and Museum at Vaishali, Bihar (Building Construction Department, Rs.17.25 Lakhs) Consultant Name: Dr. Vaibhav Singhal and Dr. Koushik Roy
12. Structural Vetting of the Ground Solar Mounting Structure for MES Birchgunj, Port Blair (Rishabh Constructions Pvt. Ltd., Rs.1.12 Lakhs) Consultant Name: Dr. Vaibhav Singhal
13. Structural vetting of the storm water drainage at EPIP, Industrial Area, Hajipur (Infrastructure Development Authority,Rs.3.09 Lakhs) Consultant Name: Dr. Vaibhav Singhal and Dr. Amarnath Hegde.
14. Study of Tilt and Shift of well BangraGhat (Bihar RajyaPulNirman Nigam Ltd., Rs.3.69 Lakhs) Consultant Name: Dr. VaibhavSinghal and Dr.Ramkrishna Bag
15. Tensile tests of reinforcements for MG setu (TPF Engineering Pvt Ltd, Patna, Rs.0.64 Lakhs) Consultant Name:DrAvikSamanta, Dr. VaibhavSinghal.
16. Third party inspection of sewerage projects under Namami Gange Program (Urban Development and Housing Department, Govt. of Bihar, Patna, Rs.21.70 Lakhs) Consultant Name: Dr. Amarnath Hegde, Dr. Sudhir Varma, Dr. Subrata Hait, Dr. Avik Samanta, Dr. Syed K. K. Hussaini
17. Third Party Quality Assurance of Construction (Phase - II) at IIT Patna (Central Public Works Department, Govt. of India, Rs.85.90 Lakhs) Consultant Name: Dr. Pradipta Chakrabortty, Dr. Vaibhav Singhal, Dr. Ramakrishna Bag, Dr. Subrata Hait, Dr. Amarnath Hegde, Dr. Avik Samanta, Dr. Vishal Deshpande, Dr. Trishikhi Raychoudhury, Dr. Koushik Roy, Dr. Sudhir Varma, Dr. Syed K.K. Hussaini, Dr Kalim Khan (ME), Dr Siva Subhramani (EE).
18. Vetting of design of slip road and road side drain (BRPNNL, Rs.3.83 Lakhs) Consultant Name: Dr. Syed K.K. Hussaini.

Other Activities

Member - Professional Bodies

1. Amarnath Hegde (2013) International Geosynthetic Society
2. Amarnath Hegde (2014) Indian Geotechnical Society
3. Amarnath Hegde (2017) The Institution of Engineers(India)
4. Amarnath Hegde (2017) Indian Science Congress Association
5. Amarnath Hegde (2016) American Society of Civil Engineers
6. Amarnath Hegde (2017) International Society for Soil Mechanics and Geotechnical Engineering
7. Avik Samanta (2019) American Society of Civil Engineers
8. Avik Samanta (2019) EERI
9. Avik Samanta (2014) Indian Society of Earthquake Technology
10. Pradipta Chakrabortty (2003) Indian Society of Earthquake Technology
11. Pradipta Chakrabortty (2017) Indian Geotechnical Society
12. Ramakrishna Bag (2016) Institute of Engineers (India)
13. Subrata Hait (2012) Institution of Engineers (India)
14. Subrata Hait (2018) Soil Science Society of America (SSSA)
15. Subrata Hait (2018) American Society of Agronomy (ASA)
16. Subrata Hait (2014) International Water Association (IWA)
17. Subrata Hait (2005) Eco-Ethics International Union, Germany
18. Subrata Hait (2009) World Toilet Organization, Singapore
19. Subrata Hait (2014) American Society of Civil Engineers (ASCE)
20. Syed KK Hussaini (2018) American Association of Civil Engineers
21. Syed KK Hussaini (2018) Canadian Geotechnical Society.
22. Syed KK Hussaini (2018) International Geosynthetics Society
23. Trishikhi Raychoudhury (0) Americal Chemical Society (ACS)
24. Trishikhi Raychoudhury (0) International Water Association (IWA)
25. Vaibhav Singhal (2018) Earthquake Engineering Research Institute
26. Vaibhav Singhal (0) National Information Centre of Earthquake Engineering
27. Vaibhav Singhal (2019) American Society of Civil Engineers

Member - Editorial Board

1. Amarnath Hegde (2018) *Member, Editorial Board* - Transportation and Transit Systems.
2. Amarnath Hegde (2017) *Member, Editorial Board* - International Journal of Research Innovations in Civil Engineering.
3. Pradipta Chakrabortty (2016) *Associate Editor* - Journal of Advanced Research in Civil and Environmental Engineering
4. Trishikhi Raychoudhury (2018) *Member* - International Journal of Environmental Monitoring and Analysis

Awards & Honours

1. Pradipta Chakrabortty (2018) *Bharat Vikas Award,Institute of Self Reliance, Bhubaneswar*
2. Ramakrishna Bag (2018) *Bharat Vikas Award, Institute of Self Reliance, Bhubaneswar*
3. Amarnath Hegde (2018) *Bharat Vikas Award, Institute of Self Reliance, Bhubaneswar*
4. Subrata Hait (2018) *Outstanding Reviewer Appreciation from Process Safety and Environmental Protection Journal (Elsevier)*
5. Subrata Hait (2018) *Outstanding Reviewer Appreciation from Resources, Conservation and Recycling Journal (Elsevier)*
6. Subrata Hait (2018) *Outstanding Scientist in Environmental Engineering Award by the VIF, Chennai, Tamil Nadu*
7. Subrata Hait (2018) *Top Reviewer of Waste Management Journal (Elsevier) - 2018 Appreciation*
8. Amarnath Hegde (2018) *Young Faculty Award, Venus International Foundation, Chennai*
9. Trishikhi Raychoudhury (2018) *Bharat Vikas Award, Institute of Self Reliance, Bhubaneswar.*

Visits Abroad by Faculty Members

1. Ramakrishna Bag - Paper presentation during 7th International Conference on Unsaturated soil (HKUST, Hong Kong,) 3-5 August 2018
2. AmarnathHegde - To attend Eighth International Conference on Case Histories in Geotechnical Engineering (Philadelphia, PA, USA,) March 24-27, 2019.
3. VaibhavSinghal - Paper Presentation (Los Angeles, CA, US,) 25th-29th June 2018.

Invited Lectures by Faculty Members

1. An Overview of Indian Railways: Challenges and Way Ahead *by* Syed Khaja Karimullah Hussaini (Bihar State Disaster Management Authority, Government of Bihar, India).
2. Water Budgeting and Auditing *by* Subrata Hait (Centre for Environment, Energy & Climate Change (CEECC), Asian Development Research Institute (ADRI)).
3. Assessment the possibility of engineered nanoparticles of becoming an emerging contaminant in the gr *by* Trishikhi Raychoudhury (Indo-UK workshop, Bangalore, India).
4. Performance of in-situ synthesized FeS within the porous media for Arsenic immobilization: laborator *by* Trishikhi Raychoudhury (NERCS, Delhi, India).
5. Session chair: Early Career Researcher Workshop *by* Trishikhi Raychoudhury (Indo-UK workshop, Bangalore, India).
6. Radioactive waste management - India scenario *by* Ramakrishna Bag (IIT Delhi).
7. Soil Liquefaction its Assessment and Remedial Measures *by* Pradipta Chakrabortty (Indian Institute of Technology (ISM) Dhanbad).
8. Recent Advancement in Earthquake Resistent Design *by* Koushik Roy (IIT Mandi).

Short-Term Courses, Training Programmes and Workshops organized

1. GIAN course: Coupled Unsaturated and THM Behavior of Soils and Rocks: Applications to Geo-Energy and Geo-environmental problems (December 17-21, 2018), conducted at NIT Rourkela.

Computer Science and Engineering

Faculty Members

Prof. Pushpak Bhattacharyya Professor	Natural Language Processing, Machine Learning, Cross Lingual IR, Information Extraction
Dr. Asif Ekbal Associate Professor	Natural Language Processing, information extraction, machine learning applications, Opinion Mining, and Text mining
Dr. Jimson Mathew Associate Professor	Fault Tolerant Computing; VLSI Design and Methodologies; Reliability Aware Designs; Hardware Security
Dr. Rajiv Misra Associate Professor	Mobile Computing, Adhoc Networks and Sensor Networks
Dr. Somanath Tripathy Associate Professor	Lightweight Cryptography, Computer Security, Network Security
Dr. Abyayananda Maiti Assistant Professor	Online Algorithms, Complex Networks, Social Networks, Big Data
Dr. Arijit Mondal Assistant Professor	CAD for VLSI, Analog EDA
Dr. Joydeep Chandra Assistant Professor	Peer-to-Peer Systems, Online Social Networks, Complex Networks, Distributed Systems
Dr. Raju Halder Assistant Professor	Formal Methods for Analysis and Verification, Information Systems Security, Programming Languages
Dr. Samrat Mondal Assistant Professor	Security & Privacy, Database Systems and Smart Energy Management
Dr. Sourav Kumar Dandapat Assistant Professor	Wireless Networking; Mobile Social Computing; Human Computer Interaction
Dr. Sriparna Saha Assistant Professor	Pattern Recognition, Multiobjective Optimization, Bio-Text Mining, Bioinformatics, Soft Computing
Dr. Suman Kumar Maji Assistant Professor	Image Processing, Medical Imaging, Bioinformatics, Computer Vision
Dr. Kanchan Manna Assistant Professor	Network-on-Chip (NoC)-based Multicore Systems Design and Test, Temperature/ Thermal-aware System Design, Fault Tolerant System Design, Reliability-aware System Design, Multicore Architecture for Big Data and Graph Analytics and Computer Architecture

Academic Programmes

- B.Tech. in Computer Science and Engineering
- M.Tech. in Computer Science and Engineering
- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. R. Sebastian, Jos Prakash A. V, B. R. Jose, Shahana TK, Jimson Mathew , A Re-configurable MASH 2-2 bandpass DQEFM for Multi-standard Applications , International Journal of Electronics , https://doi.org/10.1 (2019).
2. Sanjeet Kumar Nayak, Somanath Tripathy , SEPDP: Secure and Efficient Privacy Preserving Provable Data Possession in Cloud Storage , EEE Transactions in Service computing, (2018).
3. Jos A. V. P., B. R. Jose, Jimson Mathew, B. A. Jose: , A Differential Quantizer-Based Error Feedback Modulator for Analog-to-Digital Converters. , IEEE Transactions on Circuits and Systems -II(1): 21-25, (1) (2018).
4. R. Sebastian, Jos A. V. Prakash, B. R. Jose, Jimson Mathew: , A Differentially Quantized Bandpass Error Feedback Modulator for ADCs in Digital Radio , Circuits, Systems, and Signal Processing, 37 (2018).
5. Sumit Mishra, Sriparna Saha, Samrat Mondal and Carlos A. Coello Coello , A Divide-and-Conquer based Efficient Non-dominated Sorting Approach , Swarm and Evolutionary Computation, Vol: 44, pp: 748-77 (2018).
6. S. K. Maji and H. Yahia , A Feature based Reconstruction Model for Fluorescence Microscopy Image Denoising , Scientific Reports, 9: 7725, 2019.
7. R. K. Sanodiya, Jimson Mathew: , A framework for semi-supervised metric transfer learning on manifolds , Knowledge-Based Systems, (2019).
8. Anita Chandra, Himanshu Garg, Abyayananda Maiti , A general growth model for online emerging user–object bipartite networks , Physica A: Statistical Mechanics and its Applications, 370-384 (2019).
9. KM Pooja, Samrat Mondal, and Joydeep Chandra, A Graph Combination with Edge Pruning based Approach for Author Name Disambiguation , Journal of the Association for Information Science and Technology, (2019).
10. R. K. Sanodiya, S. Saha, Jimson Mathew: , A kernel semi-supervised distance metric learning with relative distance: Integration with a MOO approach , Expert Systems with Applications, 125 (2019).
11. S. Kamila, M. Hasanuzzaman, A. Ekbal and P. Bhattacharyya , A Lexical Knowledge-base for Temporal Information Processing , ACM Transaction on Asian and Low-Resource Language Information Processing (ACM TALLIP), , 18(2): 19:1-19:22 (2019).
12. S. Saha, A Line Symmetry Based Genetic Clustering Technique: Encoding Lines in Chromosomes, International Journal of Machine Learning and Cybernetics, 9(12), 1963-1986 (2018).
13. R Sebastian, BR Jose, TK Shahana, Jimson Mathew , A Low-distortion Hardware Efficient MASH Modulator with Enhanced Noise Shaping , Smart Science, 6 (2018).
14. R. K. Sanodiya, J. Mathew, S. Saha, and M. D. Thalakottur , A New Transfer Learning Algorithm in Semi-supervised Setting , IEEE Access, accepted (2019).
15. S. Saha, R. Das and P. Pakray , Aggregation of multi-objective fuzzy symmetry-based clustering techniques for improving gene and cancer classification , Soft Computing, 22 (18),5935-5954 (2018).
16. Ram Narayan Yadav, Rajiv Misra, Approximating Common Control Channel Problem in Cognitive Radio Networks, IEEE Systems Journal (2019), 13(1): 301-312 (2019).
17. Ram Narayan Yadav, Rajiv Misra , Approximating the largest connected topology in cognitive radio networks , Computer Networks , 142:49-63 (2018).
18. M. George, B. R. Jose, Jimson Mathew, P. Kokare: , Autoencoder-based abnormal activity detection using parallelepiped spatio-temporal region , IET Computer Vision: 23-30, 13(1) (0).
19. N. Saini, S. Saha, P. Bhattacharyya, Automatic Scientific Document Clustering using Self- Organized Multi-objective Differential Evolution Technique, Cognitive Computation, accepted (2018).
20. S. Acharya, S. Saha, P. Sahoo , Bi-clustering of Microarray Data using a Symmetry based Multi-objective Optimization Framework , Soft Computing, accepted (2018).
21. Agostino Cortesi, Pietro Ferrara, Raju Halder, and Matteo Zanioli , Combining Symbolic and Numerical Domains for Information Leakage Analysis , LNCS Transactions on Computational Science, 31: 98-135 (2018).
22. Ashutosh Kumar Sinha, Somanath Tripathy , CookieArmor: Safeguarding against cross-site request forgery and session hijacking, , Wiley Security and Privacy, (2019).
23. Smita Roy, Samrat Mondal, Asif Ekbal and Maunendra Sankar Desarkar , Dispersion Ratio Based Decision Tree Model for Classification , Expert Systems with Applications,, Vol:116, pp:1-9 (2019).
24. Ajay Pratap, Rishabh Singhal, Rajiv Misra, Sajal K. Das , Distributed Randomized k-Clustering Based PCID Assignment for Ultra-Dense Femtocellular Networks , IEEE Trans. Parallel Distrib. Syst. , 29(6):1247-1260 (2018).
25. Nilotpal Chakraborty, Arijit Mondal, Samrat Mondal , Efficient Scheduling of Non-Preemptive Appliances for Peak Load Optimization in Smart Grid , IEEE Transactions on Industrial Informatics, 14, 3447-3458 (2018).
26. A. Adeyemo, Jimson Mathew, A.Jabir, C. Di Natale, E. Martinelli,M. Ottavi , Efficient sensing approaches for high-density memristor sensor array , Journal of Computational Electronics, (2018).
27. Ram Narayan Yadav, Rajiv Misra, Divya Saini , Energy aware cluster based routing protocol over distributed cognitive radio sensor network , Computer Communications , 129: 54-66 (2018).

28. S. Saha, Enhancing point symmetry-based distance for data clustering, Soft Computing, 22(2), 409-436 (2018).

29. S. Saha, R. Das, Exploring Differential Evolution and Particle Swarm Optimization to Develop Some Symmetry Based Automatic Clustering Techniques: Application to Gene Clustering, Neural Computing and Applications, 30(3), 735-757 (2018).

30. S. Saha, S. Mitra, S. Kramer , Exploring Multiobjective Optimization for Multi- view Clustering , ACM Transactions on Knowledge Discovery from Data, 12 Issue 4 (2018).

31. Angshuman Jana, Raju Halder, K. V. Abhishekh, S. D. Ganni, and Agostino Cortesi, Extending Abstract Interpretation to Dependency Analysis of Database Applications , IEEE Transactions on Software Engineering, In press (2018).

32. N. Saini, S. Saha, A. Jangra, P. Bhattacharyya , Extractive Single Document Summarization using Multi-objective Optimization: Exploring Self-organized Differential Evolution, Grey Wolf Optimizer and Water Cycle Algorithm , Knowledge Based Systems, 164, 45-67 (2018).

33. S. Yadav, A. Ekbal, S. Saha, A. Kumar, P. Bhattacharyya , Feature Assisted bi-directional LSTM Model for Protein-Protein Interaction Identification from Biomedical Texts , Knowledge Based Systems, Volume 166, 18-29 (2019).

34. Shweta Yadav, Asif Ekbal, Sriparna Saha, Ankit Kumar and Pushpak Bhattacharyya, Feature Assisted bi-directional LSTM Model for Protein-Protein Interaction Identification from Biomedical Texts , Knowledge-Based Systems Journal, 166 (2019).

35. Shweta Yadav, Asif Ekbal, Sriparna Saha, Ankit Kumar and Pushpak Bhattacharyya, Feature assisted stacked attentive shortest dependency path based Bi-LSTM model for protein-protein interaction , Knowledge based System, 166: 18-29 (2019).

36. S. Yadav, A. Ekbal and S. Saha , Feature Selection for Entity Extraction from Multiple Biomedical Corpora: A PSO based Approach , Soft Computing, 22(20), 6881-6904 (2018).

37. S. Mitra, S. Saha, S. Acharya , Fusion of Stability and Multi-objective Optimization for Solving Cancer Tissue Classification Problem , Expert Systems with Applications, 113, 377-396 (2018).

38. Sumit Mishra, Samrat Mondal, Sriparna Saha, and Carlos A. Coello Coello , GBOS: Generalized Best Order Sort Algorithm for Non-dominated Sorting , Swarm and Evolutionary Computation, Vol: 43, pp: 244-264 (2018).

39. P. Dutta, S. Saha, and S. Gulati , Graph-based Hub Gene Selection Technique using Protein Interaction Information: Application to Sample Classification , IEEE Journal on Biomedical and Health Informatics, accepted (2019).

40. S. Saha, M. Kaur , Identication of Topology Preserving, Class-Relevant Feature Sub-sets using Multiobjective Optimization , Soft Computing, accepted (2018).

41. Md Shad Akhtar, Palaash Sawant, Sukanta Sen, Asif Ekbal and Pushpak Bhattacharyya, Improving Word Embedding Coverage in Less-resource Language through Multi-linguality and Cross-linguality: A Case Study with Aspect based Sentiment Analysis, Transactions on Asian and Low-Resource Language Information Processing, Volume 18 Issue 2 (2019).

42. S. Akhtar, P. Sawant, S. Sen, A. Ekbal and P. Bhattacharyya , Improving Word Embedding Coverage in Less-resource Language through Multi-linguality and Cross-linguality: A Case Study with Aspect based Sentiment Analysis. , ACM Transaction on Asian and Low-Resource Language Information Processing (ACM TALLIP), , 18(2): 15:1-15:22 (2019).

43. S. Yadav, A. Ekbal, S. Saha , Information Theoretic-PSO based Feature Selection: An Application in Biomedical Entity Extraction , Knowledge and Information Systems, accepted (2018).

44. Debajyoty Banik, Asif Ekbal and Pushpak Bhattacharyya: , Machine Learning Based Optimized Pruning Approach for Decoding in Statistical Machine Translation , IEEE Access , 7: 1736-1751 (2019).

45. C. L. Palson, D. D. Krishna, B. R. Jose, Jimson Mathew and M. Ottavi , Memristor Based Planar Tunable RF Circuits , Journal of Circuits, Systems and Computers, (2019).

46. S. Acharya, S. Saha, P. Pradhan , Multi-factored gene-gene proximity measures exploiting biological knowledge extracted from Gene Ontology : application in gene clustering , IEEE Transactions on Computational Biology and Bioinformatics, accepted (2018).

47. R. Sengupta, M. Pal, S. Saha, S. Bandyopadhyay , NAEMO: Neighborhood-sensitive Archived Evolutionary Many-objective Optimization Algorithm , Swarm and Evolutionary Computation(, 46, 201-218 (2019).

48. R. Salgotra, U. Singh, S. Saha , New Cuckoo Search Algorithms with Enhanced Exploration and Exploitation Properties , Expert Systems with Applications, 95, 384-420 (2018).

49. Md. Shad Akhtar, Asif Ekbal, Sunny Narayan and Vikram Singh , No, That Never Happened!! Investigating Rumors on Twitter , IEEE Intelligent Systems, 33(5): 8-15 (2018).

50. S. Acharya, S. Saha , Novel symmetry-based gene-gene dissimilarity measures utilizing Gene Ontology: Application in gene clustering , Gene, 679, 341-351 (2018).

51. S. Kala, Jimson Mathew, B. R. Jose, N. Sivanandan , Radix-43 based two-dimensional FFT architecture with efficient data reordering scheme. , Computers & Digital Techniques), 13(2) (2019).

52. R. Sengupta, S. Saha, Reference Point based Archived Many Objective Simulated Annealing , Information Sciences, 467, 725-749 (2018).

53. Ananya Singla, Varsha Agarwal, Sudip Roy, Arijit Mondal , Reliability Analysis of Mixture Preparation using Digital Microfluidic Biochips , Accepted in IEEE Transaction on Computer Aided Design of Integrated Circuits and Systems, (2018).

54. Sabyasachi Kamila, Mohammad Hasanuzzaman, Asif Ekbal and Pushpak Bhattacharyya, Resolution of grammatical tense into actual time, and its application in Time Perspective study in the tweet space , PLOS-ONE, 14(2) (2019).

55. Subho Shankar Basu, Somanath Tripathy , Securing Multicast Group Communication in IoT-Enabled Systems , IETE Technical Review, (0).
56. Sanjeet Kumar Nayak, Somanath Tripathy , SEMKC:Secure & Efficient Computation over Outsourced Data Encrypted under Multiple Keys, , EEE Transactions on Emerging Topics in Computing, 1-1 (2018).
57. S. Saha, S. Acharya, Kavya K, Saisree , Simultaneous Clustering and Feature Weighting using Multiobjective Optimization for Identifying Functionally Similar miRNAs , IEEE Journal on Biomedical and Health Informatics, 22 (5),1684-1690 (2018).
58. N. Saini, S. Saha, A. Harsh, P. Bhattacharyya , Sophisticated SOM based Genetic Operators in Multi-objective Clustering Framework , Applied Intelligence, accepted (2018).
59. Niraj Kumar, Arijit Mondal , Timing Analysis of Precedence Constraint Messages Scheduled over Dynamic Segment of FlexRay , Accepted for publication in IEEE Transactions on Automation Science and Engineering, (2019).
60. Nilesh Chakraborty, Vijay S. Anand and Samrat Mondal , Towards Identifying and Preventing Behavioral Side Channel Attack On Recording Attack Resilient Unaided Authentication Services , Computers & Security, (2019).
61. Nilesh Chakraborty and Samrat Mondal , Towards Incorporating Honeywords In n-Session Recording Attack Resilient Unaided Authentication Services , Information Security, vol 13(1), pp: 7-18 (2019).
62. Sumit Mishra, Samrat Mondal and Sriparna Saha, , Towards Obtaining Upper Bound on Sensitivity Computation Process for Cluster Validity Measures , Fundamenta Informaticae, Vol 163, pp: 351-374 (2018).
63. Shalini Priya, Ryan Sequeira, Joydeep Chandra, Sourav Kumar Dandapat , Where should one get news updates: Twitter or Reddit , Online Social Networks and Media, 9, 17-29 (2019).

Papers Presented in Conferences

1. V. Gupta, S. Khandelwal, Jimson Mathew, Marco Ottavi: , 45nm Bit-Interleaving Differential 10T Low Leakage FinFET Based SRAM with Column-Wise Write Access Control , 2018 IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems , Chicago, IL, USA (2018).
2. R. Dhir, S. K. Mishra, S. Saha, P. Bhattacharyya , A Deep Attention based Framework for Image Caption Generation in Hindi Language , In the proceedings of 20th International Conference on Intelligent Text Processing and Computational Linguistics, CICLing 2019 (Core ranking B) , France (2019).
3. Mauajama Firdaus, Shobhit Bhatnagar, Asif Ekbal and Pushpak Bhattacharyya , A Deep Learning Based Multi-task Ensemble Model for Intent Detection and Slot Filling in Spoken Language Understanding , Neural Information Processing - 25th International Conference (ICONIP) , Siem Reap, Cambodia (2018).
4. Zishan Ahmad, Sovan Kumar Sahoo, Asif Ekbal and Pushpak Bhattacharyya , A Deep Learning Model for Event Extraction and Classification in Hindi for Disaster Domain, ICON , Punjabi University (2018).
5. Deepak Gupta, Asif Ekbal and Pushpak Bhattacharyya, A Deep Neural Network based Approach for Entity Extraction in Code-Mixed Indian Social Media Text, LREC, Miyazaki, Japan (2018).
6. S. Kala, B. R. Jose, D. Paul, Jimson Mathew: , A Hardware Accelerator for Convolutional Neural Network Using Fast Fourier Transform , VLSI Design and Test - 22nd International Symposium, VDAT 2018, Madurai, India, June 28-30, 2018, Revised Selected Papers. Communications in Computer and Information Science 892, Springer 2019, 22nd VDAT 2018: Madurai, India (0).
7. R. K. Sanodiya, S. Saha, J. Mathew , A Multi-Kernel Semi-Supervised Metric Learning using Multi-objective Optimization Approach , In the proceedings of 25th In- ternational Conference on Neural Information Processing (ICONIP2018) (Core ranking A) , Cambodia (2018).
8. Angshuman Jana, Md. Imran Alam, and Raju Halder , A Symbolic Model Checker for Database Programs , 13th International Conference on Software Technologies (ICSOFT 18) , Porto, Portugal, (2018).
9. Agarwal, Mayank and Puzis, Rami and Haj-Yahya, Jawad and Zilberman, Polina and Elovici, Yuval , Anti-forensic= Suspicious: Detection of Stealthy Malware that Hides Its Network Traffic [Accepted while being in Israel for post-doc, but presented after being appointed at IITPatna] ,IFIP International Conference on ICT Systems Security and Privacy Protection , Poland (2018).
10. Srikanta Pradhan, Somanath Tripathy, Sukumar Nandi , Blockchain based Security Framework for P2P Filesharing system , IEEE ANTS , Indore, India, (2018).
11. Basina Deepak Raj, Satish Kumar, Sambit Padhi, Arnab Sarkar, Arijit Mondal, Krithi Ramamritham , Brownout Based Blackout Avoidance Strategies in Smart Grids, International Conference on Future Energy Systems (e-Energy 18) , Germany (2018).
12. Deepak Gupta, Rajkumar Pujari, Asif Ekbal, Pushpak Bhattacharyya, Anutosh Maitra, Tom Geo Jain and Shubhashis Sengupta , Can Taxonomy Help? Improving Semantic Question Matching using Question Taxonomy , COLING 2018 , Santa Fe, New Mexico, USA (2018).
13. Deepak Gupta, Rajkumar Pujari, Asif Ekbal, Pushpak Bhattacharyya, Anutosh Maitra, Tom Jain and Shubhashis Sengupta , Can Taxonomy Help? Improving Semantic Question Matching using Question Taxonomy, COLING , Santa Fe, New-Mexico, USA (2018).
14. N. Saini, S. Saha and P. Bhattacharyya, Cascaded SOM: An Improved Technique for Automatic Email Classification, In the proceedings of IJCNN 2018, Brazil (Core Ranking: A), (h5-index=31). , Brazil (2018).
15. Shalini Priya, Manish Bhanu, Sourav Kumar Dandapat, Kripabandhu Ghosh and Joydeep Chandra , Characterizing Infrastructure Damage after Earthquake: A Split Query Based

IR Approach , IEEE/ACM COnference on Advances in Social Network Analysis and Mining (ASONAM) , Barcelona, Spain (2018).

16. Deepanway Ghosal, Md. Shad Akhtar, Dushyant Chauhan, Soujanya Poria, Asif Ekbal and Pushpak Bhattacharyya , Contextual Inter-modal Attention for Multi-modal Sentiment Analysis , EMNLP , Brussels, Belgium (2019).
17. Devansh Gupta, Somanath Tripathy, Bodhisatwa Mazumdar, , Correlation Power Analysis on KASUMI: Attack and Countermeasure , 8th International Conference on Security, Privacy, and Applied Cryptography Engineering , IIT Kanpur (2018).
18. Deepanway Ghosal, Md. Shad Akhtar, Asif Ekbal and Pushpak Bhattacharyya , Deep Ensemble Model with the Fusion of Character, Word and Lexicon Level Information for Emotion and Sentiment Prediction , Neural Information Processing - 25th International Conference (ICONIP) , Siem Reap, Cambodia (2018).
19. Mauajama Firdaus, Shobhit Bhatnagar, Asif Ekbal and Pushpak Bhattacharyya: , Deep Ensemble Model with the Fusion of Character, Word and Lexicon Level Information for Emotion and Sentiment Prediction , Neural Information Processing - 25th International Conference (ICONIP) , Siem Reap, Cambodia (2018).
20. Suryakanta Panda and Samrat Mondal , drPass: A Dynamic and Reusable Password Generator Protocol , 14th International Conference on Information Systems Security , Bengaluru, India (2018).
21. Sumit Kumar Tetarave, Somanath Tripathy, Ezhil Kalaimannan and Caroline John, , eBot: Approach towards modeling an advanced P2P Botnet , IEEE TrustCom-18 , New York, USA, J (2018).
22. Anurag Choubey, Sourajit Behera, Yashwant Singh Patel, Karanam Mahidhar, Rajiv Misra (Indian Institute of Technology Patna, India) , Energy Trading Rank Algorithm for Truthful Auctions among EVs via Blockchain Analytics of Large Scale Transaction Graphs , COMSNETS 2019 , Bengaluru, India (2019).
23. Sourajit Behera, Anurag Choubey, Chandresh Shambhubhai kanani, Yashwant Singh Patel, Rajiv Misra and Alber , ENSEMBLE TREES LEARNING BASED IMPROVED PREDICTIVE MAINTENANCE USING IIOT FOR TURBOFAN ENGINES , The 34th Annual ACM Symposium on Applied Computing , Limassol, Cyprus (2019).
24. Nemi Chandra Rathore, Somanath Tripathy, , Epidemic model based visibility estimation in Online Social Netowrks , th International Conference on Advances in Computing, Communication and Informatics, ICACCI'18, , Bangalore (2018).
25. Supriyo Mandal and Abyayananda Maiti , Explicit Feedbacks Meet with Implicit Feedbacks: A Combined Approach for Recommendation System , Complex Networks , Cambridge, United Kingdom (2018).
26. T. Saha, S. Saha, P. Bhattacharyya , Exploring Deep Learning Architectures coupled with CRF based Prediction for Slot-Filling , In the proceedings of 25th International Conference on Neural Information Processing (ICONIP2018)(Core ranking: A) , Cambodia (2018).
27. Ajay Pratap (Missouri University of Science and Technology, USA) Rishabh SInghal (Indian Institute of Technology Patna, India) Rajiv Misra (Indian Institute of Technology Patna & IIT Patna, India) , Factor Graph-based Message Passing Technique for Distributed Resource Allocation in 5G Networks , 11th International Conference on COMmunication Systems & NETworkS , Bengaluru, India (2019).
28. Sabyasachi Kamila, Mohammed Hasanuzzaman, Asif Ekbal, Pushpak Bhattacharyya and Andy Way , Fine-Grained Temporal Orientation and its Relationship with Psycho-Demographic Correlates , NAACL-HLT , New Orleans, Louisiana, USA (2018).
29. Sumit Kumar Tetarave, Somanath Tripathy and R. K. Ghosh , , GMP2P: Mobile P2P over GSM for efficient file sharing , Fourteenth International Conference on Distributed Computing and Internet Technology, 2018, ICDCIT18, , Bhubaneswar, India, (2018).
30. Hitesh Golchha, Deepak Gupta, Asif Ekbal and Pushpak Bhattacharyya (IIT Patna) , Helping each Other: A Framework for Customer-to-Customer Suggestion Mining using a Semi-supervised Deep Neural Network , ICON , Punjabi University (2018).
31. Navonil Majumder, Soujanya Poria, Alexander F. Gelbukh, Md. Shad Akhtar, Erik Cambria and Asif Ekbal , IARM: Inter-Aspect Relation Modeling with Memory Networks in Aspect-Based Sentiment Analysis , EMNLP , Brussels, Belgium (2018).
32. R. Salgotra, U. Singh and S. Saha , Improved Cuckoo Search With Better Search Capabilities For Solving CEC 2017 Benchmark Problems , In the proceedings of IEEE CEC 2018, Brazil (Core ranking: B), (h5-index: 60) , Brazil (2018).
33. S. Mitra, M. Hasanuzzaman, S. Saha , Incorporating Deep Visual Features into Multiobjective based Multi-view Search Result Clustering , In the proceedings of 27th International Conference on Computational Linguistics (COLING 2018) (Core Ranking: A) , Santa Fe, New-Mexico, USA (2018).
34. Nilotpal Chakraborty, Arijit Mondal, Samrat Mondal , Intelligent Scheduling of Smart Appliances in Energy Efficient Buildings: A Practical Approach , International Conference on VLSI Design & The 18th International Conference on Embedded Systems (VLSID 2019) , New Delhi (2019).
35. Mauajama Firdaus, Shobhit Bhatnagar, Asif Ekbal and Pushpak Bhattacharyya , Intent Detection for Spoken Language Understanding Using a Deep Ensemble Model, PRICAI} 2018: Trends in Artificial Intelligence - 15th Pacific Rim International Conference on Artificial Intelligence , Nanjing, China (2018).
36. T. Ghosal, R. Sonam, S. Saha, A. Ekbal and P. Bhattacharyya , Investigating Domain Features For Scope Detection and Classification of Scientific Articles , In the proceedings of 7th International Workshop on Mining Scientic Publications held in conjunction with LREC 2018, Japan , Japan (2018).

37. T. Ghosal, R. Verma, A. Ekbal, S. Saha and P. Bhattacharyya , Investigating Impact Features in Editorial Pre-Screening of Research Papers , In the proceedings of JCDL 2018, Texas (accepted as poster paper) (Core ranking: A*) , Texas (2018).
38. Tirthankar Ghosal, Rajeev Verma, Asif Ekbal, Sriparna Saha and Pushpak Bhattacharyya , Investigating Impact Features in Editorial Pre-Screening of Research Papers , JCDL , Fort Worth, Texas, USA (2018).
39. Md. Imran Alam, Raju Halder, Harshita Goswami, and Jorge Sousa Pinto , K-Taint: An Executable Rewriting Logic Semantics for Taint Analysis in the K Framework , 13th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 18) , Funchal, Madeira, Portugal (2018).
40. Alan Aipe, Asif Ekbal, Mukuntha NS and Sadao Kurohashi , Linguistic Feature Assisted Deep Learning Approach towards Multi-label Classification of Crisis Related Tweets, ISCRAM 2018 , Rochester, NY, USA (2018).
41. S. Mishra, S. Saha, S. Mondal , MBOS: Modified Best Order Sort Algorithm for Performing Non-dominated Sorting , In the proceedings of IEEE CEC 2018, Brazil (Core ranking: B), (h5-index: 60) , Brazil (2018).
42. Sumit Mishra, Sriparna Saha and Samrat Mondal , MBOS: Modified Best Order Sort Algorithm for Performing Non-dominated Sorting , IEEE World Congress on Computational Intelligence , Rio de Janeiro, Brazil (2018).
43. S. Yadav, A. Ekbal, S. Saha and P. Bhattacharyya , Medical Sentiment Analysis using Social Media: Towards building a Patient Assisted System , In the proceedings of 11th International Conference on Language Resources and Evaluation (LREC 2018) (Core Ranking: C) (h5-index: 43) , Miyazaki (Japan) (2018).
44. Shweta Yadav, Asif Ekbal, Sriparna Saha and Pushpak Bhattacharyya , Medical Sentiment Analysis using Social Media: Towards building a Patient Assisted System, LREC , Miyazaki, Japan (2018).
45. C. Liz Palson, D. D. Krishna, Jimson Mathew, B. R. Jose, Marco Ottavi, V. Gupta: Memristor based adaptive impedance and frequency tuning network , 13th International Conference on Design & Technology of Integrated Systems In Nanoscale Era, , DTIS 2018, Taormina, Italy, (2018).
46. Deepak Gupta, Surabhi Kumari, Asif Ekbal and Pushpak Bhattacharyya: , MMQA: A Multi-domain Multi-lingual Question-Answering Framework for English and Hindi, LREC , Miyazaki, Japan (2018).
47. Anita Chandra and Abyayananda Maiti , Modeling new and old editors' behaviors in different languages of Wikipedia , Web Information Systems Engineering (WISE 2018) , Dubai (2018).
48. Nilotpal Chakraborty, Arijit Mondal, Samrat Mondal , Multi-Objective Heuristic Charge Scheduling and Eco-Routing Mechanism for Electric Vehicles , International Conference on Future Energy Systems (e-Energy 18) , Germany (2018).
49. S. Yadav, A. Ekbal, S. Saha and P. Bhattacharyya , Multi-task Learning Framework for Mining Crowd Intelligence towards Clinical Treatment , In the proceedings of 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL HLT 2018) (Core Ranking: A) (h5-index: 47 , Hyatt Regency New Orleans hotel (2018).
50. Shweta Yadav, Asif Ekbal, Sriparna Saha and Pushpak Bhattacharyya, Amit P. Sheth , Multi-Task Learning Framework for Mining Crowd Intelligence towards Clinical Treatment. , NAACL-HLT , New Orleans, Louisiana, USA (2018).
51. D. Paul, S. Saha and J. Mathew , Multiobjective Optimization based Subspace Clustering using Evolvable Genome structure , In the proceedings of GECCO 2018, Japan (accepted as poster paper) (Core ranking: A) , Japan (2018).
52. Dipanjyoti Paul, Sriparna Saha, Jimson Mathew: , Multiobjective optimization based subspace clustering using evolvable genome structure , Proceedings of the Genetic and Evolutionary Computation Conference Companion, GECCO 2018, , Kyoto, Japan (2018).
53. Tirthankar Ghosal, Vignesh Edithal, Asif Ekbal, Pushpak Bhattacharyya, George Tsatsaronis and Srinivasa Satya Sameer Kumar Chivukula , Novelty Goes Deep. A Deep Neural Solution To Document Level Novelty Detection , COLING 2018 , Santa Fe, New Mexico, USA (2018).
54. Tirthankar Ghosal, Vignesh Edithal, Asif Ekbal, Pushpak Bhattacharyya, Sammer Chivukula and George Tsatsaronis , Novelty Goes Deep. A Deep Neural Solution To Document Level Novelty Detection , COLING , Santa Fe, New-Mexico, USA (2018).
55. Sumit Mishra, Sriparna Saha and Samrat Mondal , Obtaining the upper bound on the number of non-dominated fronts in a Population , International Conference on Advances in Computing, Communications and Informatics , Bangalore, India (2018).
56. Nilesh Chakraborty, Shreya Singh and Samrat Mondal , On Designing a Questionnaire Based Honeyword Generation Approach for Achieving Flatness , 17th IEEE Trustcom/BigDataSE/ISPA , New York, USA (2018).
57. Sumit Mishra, Sriparna Saha and Samrat Mondal , On Evaluation of Entity Matching Techniques for Bibliographic Database , International Conference on Advances in Computing, Communications and Informatics , Bangalore, India (2018).
58. M. George, B. R. Jose, Jimson Mathew, Performance Evaluation of KCF based Trackers using VOT Dataset, M George, BR Jose, Jimson Mathew, Procedia Computer Science (2018).
59. M. Bhanu, S. Priya, J. Chandra, S. K. Dandapat and J. Mendes-Moreira , Predicting Big Cities Traffic Flow using Modified Tucker Decomposition , Advanced Data Mining and Applications , Nanjing, China (2018).
60. P. Dutta, S. Saha, A. B. Chauhan , Predicting Degree of Relevance of Pathway Markers from Gene Expression Data: A PSO Based Approach , In the proceedings of 25th International Conference on Neural Information Processing (ICONIP2018) (Core ranking A) , Cambodia (2018).

61. R. Chakraborty, A. Kharat, A. Khatua, S. K. Dandapat and J. Chandra , Predicting Tomorrows Headline Using Todays Twitter Deliberations , International Workshop on News Recommendation and Analytics (INRA) colocated with CIKM , Turin, Italy (2018).
62. T. Saha, D. Gupta, S. Saha, P. Bhattacharyya , Reinforcement Learning based Dialogue Management Strategy , In the proceedings of 25th International Conference on Neural Information Processing (ICONIP2018) (Core ranking: A) , Cambodia (2018).
63. Dhanachandra Ningthoujam, Shweta Yadav, Pushpak Bhattacharyya and Asif Ekbal , Relation extraction between the clinical entities based on the shortest dependency path based LSTM , ICON , Punjabi University (2018).
64. Ajay Pratap, Rajiv Misra, Sajal K. Das , Resource Allocation to Maximize Fairness and Minimize Interference for Maximum Spectrum Reuse in 5G Cellular Networks., WOWMOM 2018 , Chania, Greece (2018).
65. Sumit Kumar Tetarave, Somanath Tripathy , Secure Opportunistic Data Exchange using Smart Devices in 5G/LTE-A networks , ISEA SP , NIT Jaipur (2019).
66. Anutosh Maitra, Shubhashis Sengupta, Abhisek Mukhopadhyay, Deepak Gupta, Rajkumar Pujari, Pushpak Bhattacharya, Asif Ekbal, Tom Geo Jain , Semantic Question Matching in Data Constrained Environment , Text, Speech, and Dialogue - 21st International Conference, {TSD} , Brno, Czech Republic (2018).
67. R. K. Sanodiya, S. Saha, Jimson Mathew, P. Bangwal: , Semi-supervised Transfer Metric Learning with Relative Constraints , Neural Information Processing - 25th International Conference, ICONIP 2018, Siem Reap, Cambodia, December 13-16, 2018, Proceedings, Part III. Lecture Notes in Computer Science , 11303, Springer 2018 (2018).
68. Sabyasachi Kamila, Asif Ekbal and Pushpak Bhattacharyya , Sentence Level Temporality Detection using an Implicit Time-sensed Resource , LREC , Miyazaki, Japan (2018).
69. Suryakanta Panda and Samrat Mondal , SGP: A Safe Graphical Password System Resisting Shoulder-Surfing Attack on Smartphones , 14th International Conference on Information Systems Security , Bengaluru, India, (2018).
70. Md. Shad Akhtar, Palaash Sawant, Sukanta Sen, Asif Ekbal and Pushpak Bhattacharyya , Solving Data Sparsity for Aspect Based Sentiment Analysis Using Cross-Linguality and Multi-Linguality , NAACL-HLT , New Orleans, Louisiana, USA (2018).
71. Rakesh Kumar Sanodiya, Sriparna Saha, Jimson Mathew and Arpita Raj , Supervised and Semi-Supervised Multi-Task Binary Classification , In the proceedings of 25th International Conference on Neural Information Processing (ICONIP2018) (Core ranking A) , Cambodia (2018).
72. R. K. Sanodiya, S. Saha, Jimson Mathew, A. Raj: , Supervised and Semi-supervised Multi-task Binary Classification , Neural Information Processing - 25th International Conference, ICONIP 2018, Siem Reap, Cambodia, December 13-16, 2018, Proceedings, Part IV. Lecture Notes in Computer Science 11304, Springer 2018 , 25th ICONIP 2018: Siem Reap, Cambodia (2018).
73. Tirthankar Ghosal, Amitra Salam, Swati Tiwary, Asif Ekbal and Pushpak Bhattacharyya, TAP-DLND 1.0 : A Corpus for Document Level Novelty Detection, LREC , Miyazaki, Japan (2018).
74. Tirthankar Ghosal, Amitra Salam, Swati Tiwari, Asif Ekbal, Pushpak Bhattacharyya , TAP-DLND 1.0: A Corpus for Document Level Novelty Detection, LREC , Miyazaki, Japan (2018).
75. Deepanway Ghosal, Md Shad Akhtar, Dushyant Chauhan, Soujanya Poria, Asif Ekbal and Pushpak Bhattacharyya, Text, Visual and Acoustic are Friends! A Multi-Modal Attention Framework for Utterance-Level Sentiment Prediction , EMNLP , Brussels (2018).
76. Nilamadhaba Mohapatra, Vasileios Iosifidis, Asif Ekbal, Stefan Dietze and Pavlos Fafalios , Time-Aware and Corpus-Specific Entity Relatedness , DL4KGS@ESWC , Heraklion, Crete, Greece (2018).
77. Nilotpal Chakraborty, Arijit Mondal and Samrat Mondal, Towards Optimal Scheduling of Thermal Comfortability and Smoothening of Load Profile in Energy Efficient Buildings , International Conference on Embedded Software , Torino, Italy, (2018).
78. Yashwant Singh Patel, Rajiv Misra , Truthful Double Auction Based VM Allocation for Revenue-Energy Tradeoff in Cloud Data Centers , NCC 2019 , IISC Bangalore (2019).
79. S. Kala, N. Sivanandan, B. R. Jose, Jimson Mathew, Marco Ottavi , Two dimensional FFT architecture based on radix-43 algorithm with efficient output reordering. , 13th International Conference on Design & Technology of Integrated Systems In Nanoscale Era, Taormina, Italy (2018).
80. Deepak Gupta, Pabitra Lenka, Asif Ekbal and Pushpak Bhattacharyya , Uncovering Code-Mixed Challenges: A Framework for Linguistically Driven Question Generation and Neural Based Question Answering , CoNLL 2018 , Belgium (2018).
81. Kala S., Jimson Mathew, Babita R Jose, Nalesh S , UniWiG: Unified Winograd-GEMM Architecture for Accelerating CNN on FPGA , In Proceedings of 31st International Conference on VLSI Design (VLSID 2019), Jan 2019 , New Delhi (2019).
82. Sumit Kumar Tetarave, Somanath Tripathy and R. K. Ghosh, , VChord: An efficient fille sharing on LTE/GSM Network , Ninteenth International Conference on Distributed Computing and Networking ICDCIT 2018 , IIT BHU, Varanasi (2018).
83. Debajyoty Banik, Asif Ekbal and Pushpak Bhattacharyya , WupLeBleu: The Word-net Based Evaluation Metric for Machine Translation , ICON , Punjabi University (2018).

Sponsored Research Projects

1. Development of solution to defend against Collaborative attacks in Peer-to-Peer networks (Meity, Rs.34.50 Lakhs) (PI : Somanath Tripathy).
2. A computational model for 3D fluorescence microscopy super resolution (SERB, Rs.15.09 Lakhs) (PI : Suman Kumar Maji).
3. A platform for Crosslingual and Multilingual Event Monitoring in Indian languages(IMPRINT) (IMPRINT, Rs.85.00 Lakhs) (PI : A. Ekbal and P. Bhattacharyya)

4. A Software Tool for the Planning and Design of Smart Micro Power Grids (MHRD under IMPRINT-I, Rs.80.00 Lakhs) (PI : Arijit Mondal, Dr. R. K. Behera)
5. Center of Excellence for Natural Language Processing (Elsevier, Rs.213.00 Lakhs) (PI : Prof. Pushpak Bhattacharyya (lead), Dr.)
6. Deep Learned Detection and Classification of Multiple Intrusions Using WDM Intensity and Phase-Sensitive OTDR in Underwater Environment (NRB, DRDO, Rs.46.67 Lakhs) (PI : Arijit Mondal, Co-PI: Dr. Sumanta Gupta, Dr. Jimson Mathew)
7. Design, Development, and Characterization of Blue LED and Visible Laser Based Underwater Optical Wireless Communication System for Audio and Video Sig (Naval Research Board, Rs.24.95 Lakhs) (PI : Dr. Sumanta Gupta)
8. Developing Systems for Sentiment, Emotion, Sarcasm and Hate Speech Detection (SESH) (CDOT, Rs.37.21 Lakhs) (PI : A. Ekbal , S. Saha and P. Bhattacharyya)
9. Development and Implementation of AI Driven Adaptive Microgrid Control and Protection Schemes (SPARC-Scheme for Promotion of Academic and Research Collaboration, Rs.33.83 Lakhs) (PI : Dr. Sanjoy Kumar Parida)
10. Development of Adaptive Algorithms for Solving Many-Objective Optimization Problems: Application in Machine Learning (Department of Science and Technology, Rs.15.00 Lakhs) (PI : Dr. Sriparna Saha)
11. Development of CDAC Digital Forensic Centre with Artificial Intelligence based Knowledge Support Tools (Meity, Rs.91.00 Lakhs) (PI : Prof Pushpak Bhattacharyya)
12. Development of Lizard-like Robotic Spy Surveillance System (Imprint-II (approved), Rs.1,01,49,858) (PI : Raju Halder (P.I.))
13. Development of Planning and Designing Tool for Smartly Adopting Electric Vehicles in Indian Cities (Science and Engineering Research Board (SERB), Rs.57.42 Lakhs) (PI : Dr. Samrat Mondal, Co-PI: Dr. Arijit Mondal and Dr. Jimson Mathew)
14. Dynamic Natural Language Generation (Samsung, Rs.14.50 Lakhs) (PI : Dr. Pushpak Bhattacharyya, Dr. Asif Ekba)
15. Elsevier CoE for NLP (Elsevier , Rs.213.00 Lakhs) (PI : Prof. Pushpak Bhattacharyya)
16. Hindi to English Machine Translation System for Judicial domain (MeITY, Rs.77.00 Lakhs) (PI : Prof. Pushpak Bhattacharyya)
17. Improving Regional Transportation Systems using GPS Data (SPARC, IIT Kharagpur, Rs.54.00 Lakhs) (PI : Joydeep Chandra)
18. Information Leakage Analysis of Database Query Languages (DST-SERB (Completed in August 2018), Rs.19.92 Lakhs) (PI : Raju Halder)
19. Information Retrieval Via Knowledge Graphs Developed For Aircraft Accidents Database And Aircraft Manuals (Imprint-2: Mhrd, Meity, Honeywell, Rs.80.00 Lakhs) (PI : Pushpak Bhattcharyya)
20. LG-Soft Restaurant Recommendation (LG Soft, Rs.15.93 Lakhs) (PI : A. Ekbal, S. Saha and P. Bhattacharyya)
21. Low-cost Energy Efficient Cloud for Cyber Physical Disaster Management Systems (DST, Rs.21.77 Lakhs) (PI : Rajiv Misra)
22. Road extraction from satellite images (SkyMap Pvt. Ltd., Rs.17.37 Lakhs) (PI : Prof. Pushpak Bhattacharyya, Dr. Asif Ekbal)
23. Sentiment Analysis and Image Recognition (Skymap, Rs.52.13 Lakhs) (PI : P. Bhattacharyya, A. Ekbal and S. Saha)
24. Sentiment, Emotion, Sarcasm and Hate Speech Detection (CDOT New Delhi, Rs.33.00 Lakhs) (PI : Dr. Asif Ekbal)
25. Sevak – An Intelligent Indian Language Chatbot (IMPRINT-2: MHRD MEITY Wipro, Rs.150.00 Lakhs) (PI : Asif EKbal)
26. Special Manpower Development Program - Chip to System Design (SMDP-C2SD) (MeiTY, Rs.200.00 Lakhs) (PI : Dr. K. C. Ray, Co-PI: Arijit Mondal)
27. V2D: Video-to-Description Generation using Deep Learning (DST, Rs.32.00 Lakhs) (PI : Arijit Mondal, Co-PI: Dr. Jimson Mathew).

Consultancy Projects

1. Architectural Audit for Blockchain (Federal Bank, Rs.1.48 Lakhs) Consultant Name: Jimson Mathew.
2. Information Extraction in Radiology (ScribeTech Mumbai, Rs.15.00 Lakhs) Consultant Name: Pushpak Bhattcharyya.
3. Interoperable Intelligent System and Network Security Framework (MICROSEC, Rs.7.20 Lakhs) Consultant Name: Dr. Jimson Mathew
4. LG Life Assistant (LG Soft, Rs.5.49 Lakhs) Consultant Name: P. Bhattacharyya, A. Ekbal and S. Saha.

Other Activities

Fellow - Professional Bodies

Rajiv Misra (0) IETE

Member - Professional Bodies

1. Arijit Mondal (2014) IEEE
2. Asif Ekbal (2006) ACL
3. Asif Ekbal (2014) IEEE
4. Asif Ekbal (2015) ACM
5. Jimson Mathew (2008) IEEE
6. Joydeep Chandra (0) IEEE
7. Joydeep Chandra (0) ACM
8. Rajiv Misra (2018) IEEE
9. Raju Halder (2019) ACM SIGSOFT

10. Raju Halder (2018) IEEE
11. Samrat Mondal (2019) IEEE (Senior)
12. Somanath Tripathy (2006) Cryptology Research Society of India
13. Somanath Tripathy (2017) IEEE
14. Sriparna Saha (2016) Bioclues Organization (An affiliate of International Society for Computational Biology and Asia-Pacific Bioinformatics Network)
15. Sriparna Saha (2017) IEEE
16. Sriparna Saha (2016) Indian Unit for Pattern Recognition and Artificial Intelligence (IUPRAI)
17. Suman Kumar Maji (2017) Indian Science Congress Association

Member - Editorial Board

1. Asif Ekbal (2017) *Associate Editor* - Sadhana
2. Asif Ekbal (2019) *Chair, QA* - NAACL
3. Jimson Mathew (2019) *Guest Editor* - Journal of Low Power Electronics
4. Somanath Tripathy (2018) *Associate Editor* - Sadhana- Academy Proceedings in Engineering Science
5. Sriparna Saha (2017) *Associate Editor* - ACM Transaction on Asian Low Resource Language Information Processing

Awards & Honours

1. Sriparna Saha (2018) *Awarded the prestigious ``Young Faculty Research Fellowship under Visvesvaraya PhD Scheme for Electronics & IT.*
2. Pushpak Bhattacharyya (2018) *Distinguished Alumnus IIT Kharagpur*
3. Sriparna Saha (2018) *Indo-U.S. Fellowship for Women in STEMM (WISTEMM) Women Overseas Fellowship program 2018*
4. Sriparna Saha (2018) *Jury member of CoE-DSAI, NASSCOM to determine best-in-class AI applications impacting social sector*
5. Sriparna Saha (2018) *Member of Expert Committee (EC) under CURIE (Consolidation of University Research for Innovation and Excellence in Women Universities) Programme on 'Artificial Intelligence', CURIE Programme of Department of Science and Technology (DST).*
6. Sriparna Saha (2018) *SERB Women in Engineering Award 2018*

Fellowships

1. Asif Ekbal (208) *JSPS Fellowship*
2. Samrat Mondal (2018) *Visiting Associate Professor Fellowship at University of Denver, Colorado, USA for 11 months*

Patents (filed/granted)

1. Patent Name: A hybrid multi bit random number generator; Patent Owner: Somanath Tripathy.

Visits Abroad by Faculty Members

1. Samrat Mondal - Teaching and research (University of Denver, Colorado, USA,) 11 months
2. Sriparna Saha - research (University of Kyoto Japan,) June-July 2018
3. Sriparna Saha - Recipient of Indo-U.S. Fellowship for Women in STEMM (WISTEMM) Women Overseas Fellowship (University of California San Diego,) December 2018-February, 2019
4. Mayank Agarwal - Conference Paper Presentation (Poland,) 4 days
5. Samrat Mondal - To present paper in IEEE Trustcom 2018 conference (New York, USA,) 31st Jul to 3rd Aug 2018
6. Jimson Mathew - 13th IEEE International Conference on Design & Technology of Integrated Systems In Nanoscale Era (Taormina, Italy,) April 9-12, 2018
7. Asif Ekbal - Availing JSPS Invitation Fellowship (Kyoto University, Japan ,) 5 months
8. Asif Ekbal - Attending EMNLP/CoNLL 2018 (Brussels, Belgium), October 31, 2018-November 04, 2018
9. Asif Ekbal - Attending LREC 2018 Conference (Miyazaki, Japan), May 7-12, 2018
10. Asif Ekbal - Invited Talk (NICT, Japan,) June 26, 2018
11. Pushpak Bhattacharyya - Collaboration (Stanford University,) 1 month
12. Rajiv Misra - IEEE WoWMoM 2018 :19th International Symposium on a World of Wireless, Mobile and Multimedia Networ (Chania, Crete, Greece), Jun 12, 2018 - Jun 15, 2018.

Invited Lectures by Faculty Members

1. Security in IoT and Cloud *by* Somanath Tripathy (NIT Silchar)
2. Security in IoT and Cloud *by* Somanath Tripathy (IIT Patna)
3. Deep Learning and Computer Vision *by* Arijit Mondal (NIT Shilchar)
4. Deep Learning for Computer Vision *by* Arijit Mondal (Techno-India, Kolkata)
5. A talk on Password security: threats and countermeasures *by* Samrat Mondal (Reserve Bank of India, Patna)
6. Multiobjective Based Approaches for Solving Clustering Problem: Application to Information Retrieval *by* Sriparna Saha (Jadavpur University)
7. Image Segmentation *by* Sriparna Saha (Madhav Institute of Technology & Science, Gwalior)

8. Unsupervised Classification *by* Sriparna Saha (NCE Chandi)
9. Machine Learning *by* Sriparna Saha (NPOL Kochin)
10. Summarization Techniques *by* Sriparna Saha (NIT Mizoram)
11. Machine Learning *by* Sriparna Saha (short-term course entitled ``Component and Applications of IOT (CAIOT) held at IIT Patna)
12. Multiobjective Optimization in Clustering and Classification *by* Sriparna Saha (Keynote speech at ICACCI 2018)
13. Machine Learning *by* Sriparna Saha (Patna Women College)
14. Multiobjective clustering *by* Sriparna Saha (Thapar University, Patiala)
15. Multi-view Clustering Techniques *by* Sriparna Saha (Kyoto University, Japan)
16. Machine Learning and Applications *by* Sriparna Saha (ABV-IIITM Gwalior)
17. Police Training Cyber Security, Threats *by* Mayank Agarwal (Sardar Patel Bhawan, Jawaharlal Nehru Marg, Patna,)
18. IITP Automation & Startup *by* Mayank Agarwal (Bihar Startup Fair-2019)
19. Deep learning in IOT *by* Arijit Mondal (IIT Patna)
20. Cyber physical systems *by* Arijit Mondal (Lendi Institute of Engineering and Technology, Vizianagaram)
21. Investigating the spread of drug abuse contents over Twitter *by* Joydeep Chandra (Conference on Social Networks 2018, Shanghai, China)
22. Investigating the drivers behind spreading of drug abuse contents over Twitter *by* Joydeep Chandra (Social Networking Workshop at COMSNETS 2019, Bangalore)
23. Managing and Transforming Dairy Supply Chain Using ICT/IoT *by* Joydeep Chandra (International Dairy Conference, Patna)
24. Techniques for analyzing large scale social networks *by* Joydeep Chandra (St. Xaviers College)
25. Fine-grained Sentiment Analysis *by* Asif Ekbal (NIT Silchar)
26. Sentiment Analysis *by* Asif Ekbal (IIIT Manipur)
27. NLP and ML Activities at IIT Patna *by* Asif Ekbal (Wipro, Bangalore)
28. Machine Learning for Natural Language Processing *by* Asif Ekbal (Jadavpur University)
29. Emotion and Sentiment Analysis in Cyber Forensic Text *by* Asif Ekbal (IIT Patna)
30. Education and Culture of India *by* Asif Ekbal (Kyoto University)
31. Sentiment and Emotion Analysis Research Activities at IIT Patna *by* Asif Ekbal (Kyoto University, Japan)
32. NLP and ML Activities at IIT Patna *by* Asif Ekbal (NICT, Japan)
33. Sentiment Analysis: Mining and Analyzing Opinion-Centric Information from Big Social Data *by* Asif Ekbal (IIT Patna, CEP Course on Big Data Computing)
34. Natural Language Processing of Low Resource Languages *by* Pushpak Bhattacharyya (Jadavpur University)
35. Experience of Bringing up a New IIT *by* Pushpak Bhattacharyya (Taj Mumbai)
36. Low Resource NLP *by* Pushpak Bhattacharyya (NVIDIA Bangalore)
37. saathi haath baDaanaa: Cooperative NLP *by* Pushpak Bhattacharyya (Intl Conf on NLP Patiala)
38. Low Resource Machine Translation by Pushpak Bhattacharyya (Forum for Information Retrieval Evaluation Gandhinagar)
39. Indian Languages: Challenges and Requirements *by* Pushpak Bhattacharyya (Microsoft Research Bangalore)
40. Deep Learning and Co-operative NLP *by* Pushpak Bhattacharyya (TCS Research, Pune)
41. The Sentimental Computer: Art and Science of Sentiment and Emotion Analysis on Computer *by* Pushpak Bhattacharyya (YELP, San Fransisco)
42. Factors, Subwords and Pivots: Low Resource Machine Translation, *by* Pushpak Bhattacharyya (C-DOT Foundation Day Seminar, New Delhi)
43. Artificial Intelliegnce for Growth, 2nd ASSOCHAM INTL CONF TO ADVANCE AI for Growth *by* Pushpak Bhattacharyya (New Delhi)
44. The Sentimental Computer- the Art and Science of Making Computers Understand Sentiment and Emotion *by* Pushpak Bhattacharyya (Honeywell Technology Solutions, Bangalore)
45. Key Note Lecture Cloud and Big Data for Society *by* Rajiv Misra (KNIT Sultanpur)
46. Storage Technologies for Big Data *by* Rajiv Misra (CUSB Gaya)
47. National Science Day Lecture on Cloud and Big Data for Society *by* Rajiv Misra (Bihar Science and Technology).

Books Published

1. Abhijit Mishra and Pushpak Bhattacharyya: Cognitively Inspired Natural Language Processing- An Investigation Based on Eye Tracking *published by* Springer (2018)
2. Aditya Joshi, Pushpak Bhattacharyya and Mark J. Carman: Investigations in Computational Sarcasm *published by* Springer (2018)
3. R. S Chakraborty, Jimson Mathew , Athanasios V. Vasilakos : Security and Fault Tolerance in Internet of Things *published by* Springer (2019)

Short-Term Courses, Training Programmes and Workshops organised

1. Big Data Computing: A Practical Approach (Dec 3-7,2018 (5-days))
2. GIAN Course on Cyber Security Trends and Technologie, (14-18 May, 2018)
3. Machine Learning and Deep Learning: Issues, Innovations and Interplays (9 - 11 December, 2018).

Electrical Engineering

Faculty Members

Dr. Mahesh kumar H. Kolekar Associate Professor	Digital Signal, Image and Video Processing, Video Surveillance, Multimedia Communication, Medical Image Processing, Computer Graphics, Signal Processing for communication, Tele-medicine
Dr. Preetam Kumar Associate Professor	Physical Layer issues in Wireless Communications, Signal Processing for Communication Systems, VLSI for Communication, Wideband Antenna Design, Underwater Communications.
Dr. Ranjan Kumar Behera Associate Professor	Power Electronics, Electrical Machine Drive, and Renewal Energy Integration
Dr. Sanjoy Kumar Parida Associate Professor	Optimal Operation and Control of Power Systems, Electricity Market, Renewable Energy, Smart Energy Network, Flexible AC Transmission Systems
Dr. Shovan Bhaumik Associate Professor	Statistical signal processing, Non linear estimation, Aerospace target tracking and Smart material
Dr. Sumanta Gupta Associate Professor	Digital Signal Processing for Communication, Coherent Optical Communication, Photonic Integrated Circuits (PICs), All-Optical Signal Processing, Design, Characterization, and Optimization of Fiber-Optic Transmission Systems and Networks.
Dr. Saurabh Kumar Pandey Assistant Professor	Optoelectronics Devices, Semiconductor thin films, Solar Cells. Micro-Nanoelectronics, MEMS, Modeling & Simulation.
Dr. Ahmad Ali Assistant Professor	Control Systems, Evolutionary algorithms, New tuning strategies for controller design, Relay based system identification.
Dr. Aneek Adhya Assistant Professor	Physical layer impairment-aware WDM backbone networks; traffic grooming, energy efficiency in backbone and access networks; hybrid wireless-optical broadband access networks; computer communication and networks.
Dr. Kailash Chandra Ray Assistant Professor	VLSI architectural design, VLSI Signal Processing, Digital VLSI Design, Hardware design methodologies, FPGA based System Design, CORDIC
Dr. Pramod Kumar Tiwari Assistant Professor	Modeling, Simulation and Fabrication of Semiconductor Devices
Dr. Sudhan Majhi Assistant Professor	Wireless communications and signal processing, estimation and detection, time and frequency domain signal analysis, blind signal parameters estimation, blind signal classification, blind wireless receiver design, estimation includes carrier frequency, symbol rate, symbol timing offset, carrier frequency offset, blind OFDM signal parameter estimation and synchronization, cooperative communications, MIMO, OFDM , cognitive radio and UWB systems, implementation of a universal blind receiver estimation algorithm on National Instrument (NI) hardware, experiment and measurement
Dr. Yatendra Kumar Singh Assistant Professor	RF MEMS, Computational Electromagnetics
Dr. Sudhir Kumar Assistant Professor	Wireless Sensor Networks, Cyber Physical Systems, Pervasive Mobile Computing, Internet of Things (IoT), Applications of Signal Processing, Machine Learning, and Data Mining.
Dr. Jawar Singh Assistant Professor	Semiconductor Devices/Microelectronics/VLSI/ Modeling and Simulationof Classical and Non- classical devices.

Academic Programmes

- B.Tech. in Electrical Engineering
- M.Tech. in Communication System Engineering
- M.Tech. in VLSI & Embedded Systems
- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. A. R. Adhikary, SudhanMajhi, Zilong Liu, Yong Liang Guan , New Sets of Even-Length Binary Z-Complementary Pairs With Asymptotic ZCZ Ratio of 3/4 , *IEEE Signal Processing Letters*, 25 (2018).
2. Neha Kamal, MeenaPanchore, Jawar Singh , 3-D Simulation of Junction- and Doping-free Field-effect Transistor under Heavy Ion Irradiation , *IEEE Transactions on Device and Materials Reliability*, 18 (173 - 179) (2018).
3. P. Sarkar, SudhanMajhi, H. Vetticalladi, and A. S. Mahajumi, A Direct Construction of Inter-Group Complementary Code Set , *IEEE Access*, 6 (2018).
4. S. Das, SudhanMajhi, S. Budishin, Z. Liu , A New Construction Framework for Polyphase Complete Complementary Codes with Various Lengths , *IEEE Transactions on Signal processing*, (2019).
5. A Bhardwaj, VS Verma, Rajib Kumar Jha, A new scheme for logo extraction using combined noise-induced resonance and support vector machine with PCA based feature reduction , *Multimedia Tools and Applications*, (2019).
6. S. Das, SudhanMajhi, Z. Liu , A Novel Class of Complete Complementary Codes and Their Applications for APU Matrices , *IEEE Signal Processing Letters*, 25 (2018).
7. Sumit Kumar, Rajib Kumar Jha, A Novel Fractional Differentiator Based Detector for Medical Image Watermarking, *Journal of IET Image Processing*, (2019).
8. Sumit Kumar, Rajib Kumar Jha, A Novel Noise enhanced propagation technique for weak signal detection in Neyman-Pearson Framework , *Journal of Neuro Processing Letters*, (2019).
9. S. Raj, K. C. Ray, A personalized arrhythmia monitoring platform, *Scientific Reports (Nature)*, vol. 8 (2018).
10. Sandeep Raj and K. C. Ray, A Personalized Point-Of-Care Platform for Real-Time ECG Monitoring, *IEEE Transaction on Consumer Electronics*, 64(4) (2018).
11. Abhinoy Kumar Singh, Rahul RadhakrishnanShovanBhaumikPareshDate, Adaptive sparse-grid Gauss–Hermite filter, *Journal of Computational and Applied Mathematics*, Vol 342, Nov (2018).
12. PrabinaPattanayak and Preetam Kumar , An Efficient Scheduling Scheme for MIMO-OFDM Broadcast Networks , *Elsevier AEU - International Journal of Electronics and Communications*, (2019).
13. K. C. Ray, M.V.N.V.Prasad, and A. S. Dhar, An Efficient VLSI Architecture for Computation of Discrete Fractional Fourier Transform , *Journal of Signal Processing Systems*, 90(11), 1569–1580 (2018).
14. Arun Kumar, and Pramod Kumar Tiwari, An Explicit Unified Drain Current Model for Silicon-Nanotube-Based Ultra-thin Double Gate-All-Around (DGAA) MOSFETs , *IEEE Transaction on NanoTechnology*, 17, 1224-34 (2018).
15. Akash Agarwal and PreetamKumar, Analysis of Variable Bit Rate SOFDM Based Integrated Satellite-Terrestrial Broadcast System in Presence of CFO and Phase Noise , *IEEE Systems Journal*, (2018).
16. Akash Agarwal and Preetam Kumar , Analysis of Variable Bit Rate SOFDM Transmission Scheme over Multi-relay Hybrid Satellite-Terrestrial System in presence of CFO and Phase Noise , *IEEE Transactions on Vehicular Technology*, (2019).
17. Akash Agarwal and Preetam Kumar, Analysis of Variable Bit Rate WH/CI-Spread OFDM based Integrated Satellite-Terrestrial Broadcast System, *IET Communications*, (2019).
18. S. Raj, K. C. Ray, Automated recognition of cardiac arrhythmias using sparse decomposition over composite dictionary, *Comput. Methods Programs Biomed.*, vol. 165, pp.175-186 (2018).
19. R. K. Behera and R. Bansal, Bidirectional Power Converter for Solar Grid Interface Applications: An Experimenta, *International Journal of Electric Power Components and Systems*, 46 997–1005 (2018).
20. SnehaKumari and Sumanta Gupta , Cladding stress induced performance variation of silicon MMI coupler , *Photonics and Nanostructures - Fundamentals and Applications*, vol.no.33, pp.55-65 (2018).
21. Deepak Punetha and Saurabh Kumar Pandey, CO Gas Sensor Based on E-Beam Evaporated ZnO, MgZnO, and CdZnO Thin Films: A Comparative Study, *IEEE Sensor Journal*, Early access (2019).
22. Bhaskar Panna, Rajib Kumar Jha, Color Image Encryption in Block-wise Fractional Fourier Transform Associated with Wavelet Transform, *IETE Technical Review*, (2018).
23. PrabinaPattanayak and Preetam Kumar Combined User and Antenna Scheduling Scheme for MIMO-OFDM Networks, *Springer Telecommunication Systems*, (2018).
24. Nagendra Kumar and Yatendra Kr Singh , Compact tunable low-pass to CFBW bandpass switchable filter using concentric resonators , *IET Microwaves Antennas and Propagation*, 12, 2225 (2018).
25. Rahul Radhakrishnan, ShovanBhaumik, Nutan Kumar Tomar, Continuous-discrete filters for bearings-only underwater target tracking problems, *Asian journal of control*, Jan 2019 (2019).
26. R. Gupta, SudhanMajhi, O. Dobre, Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems, *IEEE Transactions on Instrumentation & Measurement*, (2018).
27. Sandeep Raj, K. C. Ray and O. Shankar , Development of Robust, Fast and Efficient QRS Detector: A Methodological Review , *Australas Phys EngSci Med.*, Vol.41(3),pp.581-600 (2018).
28. Saurabh Kumar Pandey and Krishna Kumar, Device Modelling and Performance Analysis of CZTS/CdTe Solar Cell , *Advanced Science, Engineering & Medicine* , 11 (2019).

29. Chandan Kumar Jha, Maheshkumar H Kolekar, Diagnostic quality assured ECG signal compression with selection of appropriate mother wavelet for minimal distortion , *IET Science, Measurement & Technology*, (2019).
30. N Sharma, M. H Kolekar, K Jha, Y & Kumar , EEG and cognitive biomarkers based mild cognitive impairment diagnosis , *IRBM*, 40, 113-121 (2019).
31. Chandan Kumar Jha, Maheshkumar H Kolekar, Electrocardiogram data compression using DCT based discrete orthogonal Stockwell transform , *Biomedical Signal Processing and Control*, 46 (2018).
32. V. K. Trivedi, K. Ramadan, Preetam Kumar, M.I. Dessouky and F. E. Abd El-Samie, Enhanced OFDM-NOMA for Next Generation Wireless Communication: A Study of PAPR Reduction and Sensitivity to CFO and Estimation Errors , *Elsevier AEU - International Journal of Electronics and Communications*, (2019).
33. Md. A. Rahman, Rajib Kumar Jha, Gabor phase response based scheme for accurate pectoral muscle boundary detection, *IET Image Processing*, (2018).
34. Rahul Radhakrishnan, ShovanBhaumik, Nutan Kumar Tomar, Gaussian Sum Shifted Rayleigh Filter for Underwater Bearings-Only Target Tracking Problems , *IEEE JOURNAL OF OCEANIC ENGINEERING*, VOL. 44, NO. 2, Apri (2019).
35. Himanshu Dixit, Deepak Punetha and Saurabh Kumar Pandey , Improvement in performance of lead free inverted perovskite solar cell by optimization of solar parameters , *Optik - International Journal for Light and Electron Optics* , 179 (2019).
36. N. Nandan, SudhanMajhi, and H. C. Wu , Maximizing Secrecy Capacity of Underlay MIMO-CRN through Bi-Directional Zero-Forcing Beamforming , *IEEE Transactions on Wireless Communications*, 17 (2018).
37. Deepak Punetha, Himanshu Dixit and Saurabh Kumar Pandey , Modeling and analysis of an Ni:ZnO-basedSchottky pattern for NO2 detection , *Journal of Computational Electronics*, 18 (2019).
38. A. K. Panda and K. C. Ray , Modified Dual-CLCG Method and its VLSI Architecture for Pseudorandom Bit Generation , *IEEE Transactions on Circuits and Systems--I: Regular Papers*, 66(3),pp. 989-1002 (2019).
39. Lokeshgupta, B., Sivasubramani, S. , Multi-objective dynamic economic and emission dispatch with demand side management , *International Journal of Electrical Power and Energy Systems*, 97, pp. 334-343 (2018).
40. S. Kumar, SudhanMajhi, Y. Chau, Multi-user CFOs Estimation for SC- FDMA System Over Frequency Selective Fading Channels , *IEEE Access*, 6 (2018).
41. Bhattacharya, M., Sivasubramani, S., Roy, A. , Multiobjective placement and sizing of distributed generations in distribution system using global criterion method , *International Transactions on Electrical Energy Systems*, 28(1), e2471 (2018).
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44. J. Akhtar and R. K. Behera, Optimal design of stator and rotor slot of induction motor for electric vehicle applications , *IET Electrical Systems in Transportation*, 9 35 – 43 (2019).
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46. Subhradeep Pal and Sumanta Gupta, Performance analysis of an electrostatic doping assisted silicon microring modulator , *Optics Communication*, vol.430, pp.131-138 (2019).
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49. SudhanMajhi, N. Nandan, Secrecy Capacity Analysis of MIMO System over Multiple Destinations and Multiple Eaves droppers , *Wireless Personal Communications*, 100 (2018).
50. N. Nandan, SudhanMajhi, H.C. Wu , Secure Beamforming for MIMO-NOMA Based Cognitive Radio Network , *IEEE Communication Letters*, 22 (2018).
51. Vinay Kumar Trivedi, Madhusudan Kumar Sinha, and Preetam Kumar , Simplified Approach for Symbol Error Rate Analysis of SC-FDMA Scheme over Rayleigh Fading Channel , *Wiley ETRI* , (2018).
52. S. Raj, K. C. Ray, Sparse representation of ECG signals for automated recognition of cardiac arrhythmias, *Expert Systems and Applications*, vol. 105, pp. 49-64 (2018).
53. Deepti Gola, Balraj Singh and Pramod Kumar Tiwari, , Subthreshold Modeling of Tri-Gate Junctionless Transistors With Variable Channel Edges and Substrate Bias Effects, , *IEEE Transaction on Electron Devices* , Vol. 65, 1663 -1671 (2018).
54. Xiaohang Song, NithinBabu, Wolfgang Rave, SudhanMajhi, and Gerhard Fettweis, Two-Level Spatial Multiplexing using Hybrid Beamforming Antenna Arrays for mm Wave Communications , *IEEE Transactions on Wireless Communications*, 17 (2018).
55. Sumit Kumar, Rajib Kumar Jha, Weak Signal Detection Using Stochastic Resonance with Approximated Fractional Integrator , *Circuits, Systems, and Signal Processing*, (2018).

Papers Presented in Conferences

1. Hemant Verma and Debdeep Paul and Shiva Reddy, Bathula and Shreya Sinha and Sudhir Kumar , Human Activity Recognition with Wearable Biomedical Sensors in Cyber Physical Systems ,

15th IEEE India Council International Conference (INDICON), IEEE , Coimbatore, India (2018)

2. Sumit Kumar, Rajib Kumar Jha, SudhaChouhan , A FPGA BASED PRACTICAL IMPLEMENTATION OF STOCHASTIC RESONANCE FOR IMAGE ENHANCEMENT , International Conference on Noise and Fluctuations (ICNF) , Neuchâtel (Switzerland) (2019)
3. Sumit Kumar, Rajib Kumar Jha , A Fractional Integrator Based Novel Detector for Weak Signal Detection with Watermark Application , IEEE Asia-Pacific Signal and Information Processing Association, APSIPA , Honolulu, Hawaii, USA (2018)
4. M. K. Mishra and S. K. Parida , A Game Theoretic Approach for Demand-Side Management Considering Generation, Storage and the Combinatorial Nature of Load Scheduling , International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE) , Phuket, Thailand (2018)
5. Ankur Pandey, PiyushTiwary, Sudhir Kumar, and Sajal K. Das , A Hybrid Classifier Approach to Multivariate Sensor Data for Climate Smart Agriculture Cyber-Physical Systems , ACM, Proceedings of the 20th International Conference on Distributed Computing and Networking (ICDCN) , IISc Bangalore, India (2019)
6. R. Kumar, and R. K. Behera , A Low Cost Distributed Solar DC Nanogrid: Design and Deployment with Remote Monitoring Unit , NPSC'18 , NIT Tiruchirapalli (2018)
7. A. Dash, R. K. Behera, D. P. Bagarty and P. K. Hota , A Novel Method for Synchronization with Unbalanced Grid: An Experimental Investigation , NPSC'18 , NIT Tiruchirapalli (2018)
8. SnehaKumari and Sumanta Gupta , A Novel Stress Assisted Bragg Grating Filter Employing Si3N4 Cladding on Silicon Waveguide , IEEE International Conference on Photonics & High Speed Optical Networks , S A Engg College, Chennai (2018)
9. Hemant Verma, and Sudhir Kumar , An Accurate Missing Data Prediction Method using LSTM based Deep Learning for Health care , Proceedings of the 20th International Conference on Distributed Computing and Networking (ICDCN), ACM (Workshop) , IISc Bangalore, India (2019)
10. M. Kumar and SudhanMajhi, , An Efficient Blind CFO Estimation Technique for MIMO-OFDM Systems Using Space-time Diversity , 14th International Wireless Communications and Mobile Computing Conference , Cyprus (2018)
11. S. Das, SudhanMajhi and P. Sarkar , An Improved Multiplier-free Generator for Polyphase Complete Complementary Codes , 10th International Conference on Sequences and Their Applications , HKUST, Hong Kong (2018)
12. Piyush Bhandari, Rakesh Kumar Bijarniya, Subhamoy Chatterjee, MaheshkumarKolekar , Analysis for Self-taught and Transfer Learning Based Approaches for Emotion Recognition , 5th International Conference on Signal Processing and Integrated Networks (SPIN) , Noida (2018)
13. A. Kumar, P.S.T.N. Srinivas, and P. K. Tiwari, , Analytical Threshold Voltage Model of Schottky-source/drain (Schottky-S/D) double gate-all-around (DGAA) Field-Effect- Transistors (FETs), , Devices for Integrated Circuit (DevIC), , Kalyani, Kolkata (2018)
14. Vinay Kumar Trivedi and Preetam Kumar , BER Performance of Multi User Scheduling for MIMO-OFDM and MIMO-SCFDMA Broadcast Network with Imperfect CSI, National Conference on Communications (NCC-2018) , Hyderabad (2018)
15. R. Gupta, SudhanMajhi, O. Dobre , Blind Modulation Classification of Different Variants of QPSK and 8-PSK for Multiple-Antenna Systems with Transmission Impairments , IEEE 88th Vehicular Technology Conference (VTC-Fall) , Chicago, USA (2018)
16. B. Chikondra and R. K. Behera , Comparison of Five-phase Three-level NPC to Five-phase Two-level Voltage Source Inverter , PEDES'18 , IIT Madras (2018)
17. U. R. Muduli, and R. K. Behera , Constant Switching Frequency DTC SVPWM with Reduced Common Mode Voltage for Two Level Five Phase Induction Motor Drives, PEDES'18 , IIT Madras (2018)
18. R. Kumar, and R. K. Behera , Controller Gain Impact on Islanded DC Microgrid Stability with Constant Power Load , PEDES'18 , IIT Madras (2018)
19. Abhinoy Kumar Singh, Kundan Kumar, ShovanBhaumik , Cubature and Quadrature Based Continuous-Discrete Filters for Maneuvering Target Tracking , FUSION 2018 , Cambridge university (2018)
20. A. K. Panda and K. C. Ray , Design and FPGA Prototype of 1024- bit Blum-Blum-Shub PRBG Architecture , IEEE Int. Conf. on Information Communication and Signal Processing (IEEE-ICICSP2018) , Singapore (2018)
21. Ayush Kumar and Saurabh Kumar Pandey , Design and Performance Analysis of Perovskite Solar Cell , Numerical Simulation of Optoelectronics Devices , Hong Knog, China (2018)
22. S. Sourabh and S. K. Parida , Design of a Novel U Shaped Dual Stator Brushless Doubly Fed Induction Machine , PEDES 2018, , IIT Madras (2018)
23. RajibJha, Onkar Krishna, Jawar Singh and Saurabh Kumar Pandey , Dynamic Stochastic Resonance Based Blocking Artifacts Removal from Compressed Images in DCT Domain, International Conference on Noise and Fluctuations (ICNF) , Neuchâtel (Switzerland) (2019)
24. Adhishree Srivastava, RituMeena, S.K. Parida , Effect of PV and FACTS on Small Signal Stability , 20th National Power System Conference (NPSC) , NIT Trichy (2018)
25. Piyush Bhandari, Meiqing Wu, Nazia Aslam, Siew-Kei Lam, and MaheshkumarKolekar , Efficient Sparse to Dense Stereo Matching Technique , IntConf on Computer Vision and Image Processing , Jabalpur (2018)
26. Vinay Kumar Trivedi, Madhusudan Kumar Sinha and Preetam Kumar , Error Rate Performance of SC-FDMA with Channel Dependent Subcarrier Scheduling , 5th International Conference on Signal Processing and Integrated Networks (SPIN-2018), Noida , Noida (2018)

27. Debi Pada Jana and Sumanta Gupta , Feasibility Study on CMA based Multi-modulation and Multi-rated Data Transmission over 20 km Few-Mode Fiber , International Conference on Fiber Optics and Photonics (Photonics 2018) , IIT Delhi (2018)
28. Kundan Kumar, ShovanBhaumik , Higher Degree Cubature Quadrature Kalman Filter for Randomly Delayed Measurements , FUSION 2018 , Cambridge university (2018)
29. J. Kumar and R. K. Behera , Hysteresis Current Controllers for Grid Connected Inverter: Review and Experimental Implementation , PEDES'18 , IIT Madras (2018)
30. SudhanMajhi, M. Kumar and W. Xiang , Implementation and Measurement of Blind Wireless Receiver for Single Carrier Systems , International Instrumentation and Measurement Technology Conference , USA (2018)
31. Sudhir Kumar , Joint Malicious Source Detection and Target Localization using Compartmental Model in Cluster-based Networks , 12th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) , Indore, India (2018).
32. Lokeshgupta, B., Sadhukhan, A., Sivasubramani, S. , Multi-objective optimization for demand side management in a smart grid environment , 2017 7th International Conference on Power Systems, ICPS 2017 , CoE,Pune (2017)
33. MUSICAL GENRE AND STYLE RECOGNITION USING DEEP NEURAL NETWORKS AND TRANSFER LEARNING , 19th annual International INTERSPEECH Conference , Hyderabad (2018)
34. P. Kumar, R. K. Behera and D. V. Bhaskar , Novel closed loop speed control of permanent magnet brushless dc motor drive , ICSESP' 2018 , C. V. R College of Engineering Bhubanesw (2018)
35. Deepak Punetha, Rashmi Ranjan and Saurabh Kumar Pandey , Numerical Modeling and Performance Analysis of Zinc Oxide (ZnO) Thin-Film based Gas Sensor , AIP Conference Proceedings , Coimbature (2018)
36. AyushBakliwal and Saurabh Kumar Pandey , Optimal Design and Simulation of High-Efficiency SnS Based Solar Cell , International Conference on Innovations in Infrastructure (ICIIF) , IITRAM, Ahmadabad (2018)
37. MdIrshad and Ahmad Ali , Optimal Tuning rules for integrating processes for 2 DOF parallel control structure , International Conference on Control, Decision and Information Technologies , France (2019)
38. Ranjeet Kumar Tiwari, Rahul Radhakrishnan, ShovanBhaumik , Particle Filter for Underwater Passive Bearings-Only Target Tracking with Random Missing Measurements , ECC 2018 , Limassol (2018)
39. Prateek Sharma, Pranjali M Kokare, Maheshkumar H Kolekar , Performance Comparison of KLT and CAMSHIFT Algorithms for Video Object Tracking , Recent Trends in Communication, Computing, and Electronics , Allahabad (2018)
40. Raghvendra, Rashmi Ranjan and Saurabh Kumar Pandey , Performance Improvement and Defects Analysis in Pervoskite based Solar Cell , IEEE 46th Photovoltaic Specialists Conference , Chicago, USA (2019)
41. N. K. Vemula and S. K. Parida , Performance Improvement of Dynamic Response for Parallel Operation of Inverters Under Line Impedance Mismatch , 20th National Power System Conference (NPSC) , NIT Trichy (2018)
42. Rashmi Ranjan Kumar, Deepak Punetha, Raghvendra and Saurabh Kumar Pandey , Performance Optimization and Analysis of ZnO based Ultraviolet Photodiode, Numerical Simulation of Optoelectronics Devices , Hong Knog, China (2018)
43. D P Dash, M H Kolekar , Probability-Based Approach for Epileptic Seizure Detection Using Hidden Markov Model , International Symposium on Signal Processing and Intelligent Recognition Systems , Bangalore (2018)
44. Adhishree Srivastava, Jayant Mani Tripathi, Abhinav, S.K. Parida , Protection Coordination in Grid Connected and Islanded Mode of Microgrid , 8th IEEE Power India International Conference (PIICON) , NIT Kurukshetra (2018)
45. Rajib Kumar Jha, BadalSoni, Vivek Singh Verma , Radon Transform and Dynamic Stochastic Resonance based Technique for Line Detection from Noisy Images, International Conference on Noise and Fluctuations (ICNF) , Neuchâtel (Switzerland) (2019)
46. N. Nandan and SudhanMajhi , Secrecy Outage Analysis by Applying Bi-directional Beamforming in Underlay MIMO-CRN , 14th International Wireless Communications and Mobile Computing Conference , Cyprus (2018)
47. R. Palisetty, A. K. Panda and K. C. Ray , Secure OFDM based on Coupled Linear Congruential Generator and its FPGA Prototype , IEEE Int. Conf. on Information Communication and Signal Processing , Singapore (2018)
48. N. K. Vemula and S. K. Parida , Small Signal Stability Assessment of an Inverter- Based Microgrid With Universal Droop and Internal Model-Based Controllers , PEDES 2018, , IIT Madras (2018)
49. N. K. Vemula and S. K. Parida , Small Signal Stability Assessment of Inverter-Based Islanded Microgrids with Universal Droop Controller , International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE) , Phuket, Thailand (2018)
50. Pinky, Ankur Pandey, and Sudhir Kumar , Smart Device Localization using Femtocell and Macro Base Station Based Path Loss Models in IoT Networks , 12th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) , Indore, India (2018)
51. Ankur Pandey and Pinky and Sudhir Kumar , Smartphone Localization Using Stochastic Gradient Descent Method in a 5G Network , 15th IEEE India Council International Conference (INDICON), IEEE , Coimbatore, India (2018)
52. N. K. Vemula and S. K. Parida , State Space Modelling and Analysis of Inverter Dominated Microgrid System with Internal Model Control-Based Robust Droop Controller , 11th APSCOM 2018, IET, Hong Kong , Hong Kong (2018)

53. DeepaliKushwaha, Ankur Pandey, and Sudhir Kumar , Sum of Two Exponentials Based Path Loss Model for Inter-Device Range Estimation using Stochastic Gradient Descent Method, 12th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) , Indore, India (2018)
54. Sumit Kumar, Rajib Kumar Jha, Nancy Chouhan , SUPRATHRESHOLD STOCHASTIC RESONANCE FOR GAMMA NOISE WITH WATERMARKING APPLICATION, International Conference on Noise and Fluctuations (ICNF) , Neuchâtel (Switzerland) (2019)
55. SnehaKumari and Sumanta Gupta , Temperature sensitivity of ultra-compact Si3N4 assisted optical filter in presence of stress , International Conference on Fiber Optics and Photonics (Photonics 2018) , IIT Delhi (2018)
56. Debi Pada Jana Subhradeep Pal Arvind. K. Mishra Sumanta Gupta , Transmission of polarization division multiplexed 25-Gb/s data at 1.55 μm over 2 km OM1 fiber , 3rd International Conference on Microwave and Photonics (ICMAP) , IIT (ISM) DHANBAD (2018)

Sponsored Research Projects

1. A software tool for planning and design of smart micro power grids (Ministry of Human Resource Development and Ministry of Power, Government of India, Rs.202.19 Lakhs) (PI : DrRanjan K Behera and Dr. ArijitMondal)
2. Analytical Investigation of subthreshold characterstics of SiNT FETs (DRDO, Rs.19.98 Lakhs) (PI : P K Tiwari)
3. Blind Symbol Timing Offset (STO) and Carrier Frequency Offset (CFO) Estimation and Implementation over OFDM, and MIMO-SC-FDMA testbed (DST, Rs.25 Lakhs) (PI : Dr. SudhanMajhi)
4. Cyber-Physical Systems for M-Health (ECR award scheme under SERB, Govt. of India, Rs.22.15 Lakhs) (PI : Dr. Sudhir Kumar)
5. Decentralized consensus filtering for underwater target motion analysis (NRB, Rs.25.00 Lakhs) (PI : ShovanBhaumik)
6. Design and development of an efficient tool for medical image authenticity. (DST (Submitted), Rs.2310000.00) (PI : RAJIB KUMAR JHA)
7. Design and development of RF energy harvesting circuits for low power electronics devices (DST (SERB), Rs.55.00 Lakhs) (PI : Jawar Singh)
8. Design and Implementation of Orbital Angular Momentum (OAM) Assisted Spectrally Efficient Wavelength Division Multiplexed Communication System Using C (Science and Engineering Research Board (SERB), IMPRINT-II, Govt. of India , Rs.76.40 Lakhs) (PI : Sumanta Gupta)
9. Design of Blind Modulation Classification for MIMO-OFDM and MIMO-SC-FDMA System through FPGA Module and Testbed Implementation (DST, Rs.21 Lakhs) (PI : Dr. SudhanMajhi)
10. Design, Development, and Characterization of Blue LED and Visible Laser Based Underwater Optical Wireless Communication System for Audio and Video Sig (Naval Research Board, DRDO, Rs.23.60 Lakhs) (PI : Sumanta Gupta)
11. Development and Implementation of AI Driven Microgrid Protection (MHRD, Govt. of India, Rs.33.83 Lakhs) (PI : Dr. Sanjoy Kumar Parida)
12. Exploration of 8/9 nano-meter process variation immune doping and junction free devices and their circuits (DST (SERB), Rs.35.00 Lakhs) (PI : Jawar Singh)
13. Interoperable Intelligent Systems and Network Security Framework (MicroSec Singapore, Rs.8.00 Lakhs) (PI : Jimson Mathew)
14. Leaf Disease Detection and Severity Estimation using Image Segmentation and Deep Learning Techniques (DST (Submitted), Rs.4344000.00) (PI : RAJIB KUMAR JHA, SUDHIR KUMAR)
15. Machine learning based healthcare Services using electronic health record with big health Data. (MEITY (Submitted), Rs.13500000.00) (PI : Preetam Kumar)
16. National Resource Center on Internet of Things (MHRD, Govt. of India, Rs.19.70 Lakhs) (PI : Dr. Sanjoy Kumar Parida, Dr. Ranjan Kuma)
17. Prediction of Land Cover Change and Future Trends using time series satellite data: A data mining Approach (ISRO(Submitted), Rs.3480400.00) (PI : RAJIB KUMAR JHA, SUDHIR KUMAR)
18. SMDP-C2SD (MeitY, Govt. of India, Rs.215.00 Lakhs) (PI : Dr. Kailash Chandra Ray)
19. Teaching Learning Centre for Internet-of-Things Smart Grid and Smart Building (Department of Higher Education, Ministry of Human Resource Development, Government of India, Rs.753.60 Lakhs) (PI : Ranjan K Behera and Sanjoy K Parida)
20. Underwater target motion analysis with passive sensors (NPOL, Rs.9.95 Lakhs) (PI : ShovanBhaumik)
21. Exploration of 8/9 nano-meter process variation immune doping- and junction-free devices and their circuits,DST SERB, Rs. 3144680.00 (PI: Jawar Singh)

Consultancy Projects

1. Impact assessment SmartGram(4G/LTE-A) (UVACA DIGITAL SYSTEM PVT LTD, Rs.1.47 Lakhs) Consultant Name: Dr PREETAM KUMAR
2. Vetting of the electrical drawing of solar plant including cable, earthing and components for MES Birchgunj, PortBlair (Rishabh Constructions Pvt. Ltd., Rs.1.27 Lakhs) Consultant Name: Ranjan K Behera

Patents (filed / granted)

1. Patent Name:An Improved Squirrel Cage Induction Motor With Enhanced Efficiency And Wide Range Of Operating Speed For Application In Electric Vehicle; Patent Owner: Ranjan Kumar Behera
2. Patent Name:Lowpass to Bandpass Switchable and Tunable Filter; Patent Owner: Yatendra Kumar Singh

Other Activities

Member - Professional Bodies

1. Kailash Chandra Ray (2004) IEEE
2. Mahesh Kumar Kolekar (2000) Computer Society of India
3. Mahesh Kumar Kolekar (2016) IEEE
4. Mahesh Kumar Kolekar (2000) IETE
5. Mahesh Kumar Kolekar (2000) Indian Society for Technical Education
6. Pramod Kumar Tiwari (2018) IEEE
7. Pramod Kumar Tiwari (2018) ISTE
8. Pramod Kumar Tiwari (2017) IC Soceity
9. Preetam Kumar (2015) IEEE
10. RajibJha (2018) IEEE
11. RajibJha (2014) IUPRAI
12. Ranjan Kumar Behera (2013) IEEE
13. S. Sivasubramani (2013) IEEE
14. Sanjoy Kumar Parida (3) IEEE, Power and Energy
15. Sanjoy Kumar Parida (4) IEEE, Power Electronics Society
16. Sanjoy Kumar Parida (3) IEEE, Control Systems Society
17. Saurabh Kumar Pandey (0) IAENG
18. Saurabh Kumar Pandey (2016) IRED
19. Saurabh Kumar Pandey (2016) IEEE
20. Saurabh Kumar Pandey (2018) ISTE
21. SudhanMajhi (2015) IEEE
22. Sudhir Kumar (2016) IEEE
23. Sudhir Kumar (2017) ACM
24. Sudhir Kumar (2018) INDIAN SOCIETY FOR TECHNICAL EDUCATION
25. Sumanta Gupta (2010) IEEE
26. Jawar Singh (2013) IEEE
27. Jawar Singh IEEE Electron Devices Society
28. Jawar Singh Computer Society Technical Committee on VLSI

Member - Editorial Board

1. Preetam Kumar (2016) *Associate Editor* - Wireless Personal Communications
2. Saurabh Kumar Pandey (2018) *Guest Editor* - Advances in Optoelectronics
3. SudhanMajhi (2016) *Associate Editor* - Circuit, system and signal processing
4. SudhanMajhi (2018) *EDITOR* - IEEE Transactions on Vehicular Technology
5. SudhanMajhi (2019) *EDITOR* - IEEE Communications Letters
6. Jawar Singh (2016) Associate Editor, IET Electronics Letters
7. Jawar Singh (2016) Associate Editor, IEEE TCVLSI VLSI Circuits and Systems Letter

Awards & Honours

1. Mahesh Kumar Kolekar (2018) *Best Paper Award- Int. Sym on Signal Processing and Intelligent Recognition Systems*
2. Preetam Kumar (2018) *ISTE-L&T National award in Electrical/ Electronics Engineering*
3. RajibJha (2018) *Received National award (First Prize) for Supervising best M.Tech. thesis by ISTE, Gov. of India*
4. Sudhir Kumar (2019) *Received the National Award from L & T (Larsen and Toubro)- ISTE (Indian Society for Technical Education) for having guided the Best M.Tech. Thesis (2nd Prize)*
5. Pramod Kumar Tiwari (2019)*name appeared in golden list of reviewer by IEEE TED and EDL*
6. Pramod Kumar Tiwari(2019) *got appreciation letter from Elsevier for outstanding contribution in peer-review*

Fellowships

1. RajibJha (2018) *Visvesvaraya Young Faculty fellowship*
2. Sanjoy Kumar Parida (2019) *Young Faculty Research Fellowship*
3. ShovanBhaumik (2019) *Visvesvaraya Faculty Research Fellowship*
4. SudhanMajhi (2018) *Visvesvaraya Young Faculty Research Fellowship*

Visits Abroad by Faculty Members

1. Saurabh Kumar Pandey - Presenting Research Paper in International Conference (Hong Kong, China,) 5 days
2. Ranjan Kumar Behera - Conference (Hamilton New Zealand,) 4 days
3. Preetam Kumar - ICC Conference (Paris, France,) May 2017
4. RajibJha - Attending Conference (Hawaii. Honolulu, USA,) 12-15 November 2018
5. SudhanMajhi - Academic Guest, Collaboration Research (The University of Melbourn, Australia,) Oct., 2018
6. SudhanMajhi - Academic visit and Research Collaboration (SUTD, Singapore,) Oct., 2018
7. SudhanMajhi - Academic visit and Research Collaboration (NTU, Singapore,) Oct., 2018

8. Sanjoy Kumar Parida - To attend 11th APSCOM, IET Hong Kong (Hong Kong,) 11-15 November, 2018
9. ShovanBhaumik - Visiting researcher (Brunel University London), 10 days

Invited Lectures by Faculty Members

1. IoT - Introduction, Challenges and Use Cases in IoT Summit - Expanding Horizons *by* Sudhir Kumar (ITC limited, Munger, Bihar)
2. Interplay of IoT and 5G in the UGC DSA-I & TEQIP III sponsored workshop on 5G Systems and Tech *by* Sudhir Kumar (Aligarh Muslim University (AMU), Aligarh)
3. Sensors and Their Applications in Health at Winter School in MedTech Innovation *by* Sudhir Kumar (Incubation Centre, IIT Patna)
4. Joint Malicious Source Detection and Target Localization using Compartmental Model in Cluster-based *by* Sudhir Kumar (IEEE ANTS, Indore)
5. Components and Applications of IoT *by* Sudhir Kumar (IIT Patna)
6. Application of Embedded Systems to IoT *by* Sudhir Kumar (Lendi Institute of Engg. & Technology Visakhapatnam)
7. Recent Trend and Developments in VLSI *by* Saurabh Kumar Pandey (NIT Silchar)
8. Control of High Efficient Solar and Wind Power Converters *by* Ranjan Kumar Behera (National Institute of Technology, Raipur Cattishgarh)
9. Control of High Efficient Solar and Wind Power Converters *by* Ranjan Kumar Behera (Gaya College of Engineering, Gaya Bihar)
10. Timeless Science *by* Ranjan Kumar Behera (New Govt Polytechnic,Patna-13)
11. Control of Electrical Drives for EV/HEV and motors for EV/HEV *by* Ranjan Kumar Behera (Department of Electrical Engineering, Aligarh Muslim University, Aligarh, India)
12. High Performance Induction Motor Drives *by* Ranjan Kumar Behera (Department of Electrical Engineering of Government College of engineering, Keonjhar, Odisha)
13. Timeless Science *by* Ranjan Kumar Behera (GovindBallabh Pant Engineering College, Pauri-Garhwal, Uttara Khand)
14. Smart Grid Technology and Its Application. Title of presentation is "Industrial Cyber Physical Syst *by* Ranjan Kumar Behera (GovindBallabh Pant Engineering College, Pauri-Garhwal, Uttara Khand)
15. Timeless Science *by* Ranjan Kumar Behera (National Institute of Technology Patna)
16. Timeless Science *by* Ranjan Kumar Behera (IIT Patna)
17. Solar Tree Design and Implementation," and "Smart Building *by* Ranjan Kumar Behera (IIT Kanpur)
18. PMSG Based Wind Power Modeling, Generation, and Control *by* Ranjan Kumar Behera (MNNIT Allahabad Uttar pradesh)
19. Inbuilt Frequency Regulation Capability in Wind Generation System *by* Ranjan Kumar Behera (MNNIT Allahabad Uttar pradesh)
20. Wireless Power Transfer *by* Ranjan Kumar Behera (B V C Engineering College, Odalarevu (AUTONOMOUS), Andhra Pradesh)
21. Industrial Cyber Physical System Technology and Applications *by* Ranjan Kumar Behera (Department of Electrical and Electronics Engineering, Lendi Institute of Engineering and Technology, Vizianagaram, Visakhapatnam, Andhra Pradesh)
22. Semicustom ASIC Design *by* Kailash Chandra Ray (IIIT Gwalior)
23. Semiconductor Devices Modeling and Simulations *by* Jawar Singh (MANIT Jaipur)
24. Past Present and Future of Semiconductor Industry from academic perspectives *by* Jawar Singh (NIT Patna)
25. *by* Preetam Kumar (5G Summit, Ranchi)
26. *by* Preetam Kumar (5G Summit, Delhi)
27. *by* Preetam Kumar (Darbhanga College of Engineering, Darbhanga, Bihar)
28. *by* Preetam Kumar (C-DAC, Mohali)
29. *by* Preetam Kumar (SRM, Chennai)
30. Digital Image Processing Fundamentals *by* RajibJha (GB Pant University Pauri)
31. Blind Signal classification for Intelligent Wireless Receiver *by* SudhanMajhi (Kathmandu, Nepal)
32. Physical layer security for future wireless communications *by* SudhanMajhi (Bangalore, India)
33. Design and Implementation of Intelligent Receiver for 5G and Beyond Wireless Communications *by* SudhanMajhi (India)
34. Writing Paper and Publishing in Reputed Journal *by* SudhanMajhi (India)
35. Intelligent Receiver for Future Wireless Communication Systems *by* SudhanMajhi (India)
36. Current modeling in 3D devices *by* Pramod Kumar Tiwari (JIIT Noida)
37. MOSFET Modeling *by* Pramod Kumar Tiwari (GBPEC PauriGarhwal)
38. Emerging Issues in VLSI design *by* Pramod Kumar Tiwari (SMDU Jammu (Skype))
39. IoT Applications in Smart Grid *by* Sanjoy Kumar Parida (Lendi Institute of Engineering & Technology, Vizag-Vizianagaram Road)
40. Self-Healing Networks *by* Sanjoy Kumar Parida (Indian Institute of Technology Patna)

41. International Standards and the Fourth Industrial Revolution *by* Sanjoy Kumar Parida (BUREAU OF INDIAN STANDARDS, Patna Branch Office & Laboratory)
42. National Seminar on Excellence in Higher Education: Emerging Concerns and the Road Ahead *by* Sanjoy Kumar Parida (Patna Womens College)
43. Internet of Things-aided Smart Grid *by* Sanjoy Kumar Parida (BIT Mishra, Deoghar Campus)
44. Biomedical Signal Processing and IoT in Healthcare *by* Mahesh Kumar Kolekar (Govt College of Engg, Amaravati)
45. IoT based Camera Network for Surveillance *by* Mahesh Kumar Kolekar (Govt College of Engg, Amaravati)
46. Silicon Photonics for Optical Communication *by* Sumanta Gupta (IIT (ISM) DHANBAD)

Books Published

1. M H Kolekar: Intelligent Video Surveillance System: An Algorithmic approach *published by* CRC (2018)
2. M H Kolekar, Vinod Kumar: Biomedical Signal and Image Processing in Patient Care *published by* IGI Global (2018)

Short-Term Courses, Training Programmes and Workshops organised

1. Analysis of Faulted Power Systems (13-15 December, 2018)
2. Application of Biomedical Signal Processing in Healthcare (Sept 7-9, 2018)
3. Application of Embedded Systems to Internet of Things (AESIoT) (16 - 21 April, 2018)
4. Components and Applications of Internet of Things (24-27 September, 2018)
5. Medtech Innovation (1 Week)
6. MOSFET Modeling and Simulations (MMS-2018) (3 days)

Humanities and Social Sciences

Faculty Members

Dr. Nalin Bharti Associate Professor	Macroeconomic Reforms, Labour Economics, WTO and India
Dr. Smriti Singh Associate Professor	Contemporary Literary Theory, Linguistics and Language Teaching, Indian Writing in English
Dr. Aditya Raj Assistant Professor	Sociology of Education, Migration and Diaspora Studies, Development Discourse, Qualitative Research Design, Youth
Dr. Papia Raj Assistant Professor	Health Care Management, Population and Public Health, Gender and Development, Environmental Health, Regional Development, Quantitative Methods
Dr. Priyanka Tripathi Assistant Professor	Gender Studies, Indian Writing in English, Short Fiction
Dr. Sweta Sinha Assistant Professor	Linguistics, Natural Language Processing, Phonology, Communication Skills, ESL, ELT and Speech Forensics
Dr. Richa Chaudhary Assistant Professor	Corporate Social Responsibility, Work Engagement, Human Resource Development Climate, Occupational Self-efficacy, Leadership, Entrepreneurship
Dr. Meghna Dutta Assistant Professor	Applied Microeconomics, Panel Data and Cross–Section Econometrics, International Economics, Development Economics
Dr. Rajendra N. P. Assistant Professor	Macro-dynamic modeling, Time Series Analysis, International Economics and Finance
Dr. Prashant Jha Visiting Faculty	

Academic Programmes

- Ph.D. Program

Research & Development Activities

Papers Published in Journals

1. Rajendra N. Paramanik, Revisiting Kuznets Curve for Selected ASEAN Economies', Empirical Economics Letter, 17(12) (2018).
2. Ramjit Kumar and Smriti Singh, Aspects of science education in India: a synoptic review and possible directions for the future, Current Science, 1825-1828 (2018).
3. Aditya Raj & T P Kumar, Aspiration and Experiences of Youth in Patna, Sociology Today, 2(1) (2018).
4. Chaudhary, R. and Panda, C, Authentic leadership and creativity: The intervening role of psychological meaningfulness, safety and work engagement, International Journal of Productivity and Performance Management (Emerald, ABDC-B), 67(9), 2071-2088 (2018).
5. Priyanka Tripathi, Book Review "The Writer, the Reader and the State: Literary Censorship in India by Mini Chandran, Literature & History (Sage), vol. 27, pp. 34-36 (2018). https://doi.org/10.1177/0306197318795 79
6. Priyanka Tripathi, Book Review Cast Out and Other Stories by Sucharita Dutta Asane, Indian Literature (Sahitya Akademi), no. 303, pp. 198-200 (2018).
7. Chaudhary, R., Can green human resource management attract young talent? An empirical analysis, Evidence-based HRM: a global forum for empirical scholarship (Emerald, ABDC-B), 6(3), 305-319 (2018).
8. Mahela, Ratul and Sinha, Sweta, Case Markers in Bodo and Sanzari Bodo: A Comparative Investigation of Tibeto- Burman Languages, International Journal of Linguistics USA., 10 (3) (2018).
9. Kumar T P and Aditya Raj, Contextualizing Youth Studies in Contemporary India, Indian Journal of Development Research and Social Action, 14(1) (2018).
10. Chaudhary, R., Corporate Social Responsibility and Employee Performance: A Study among Indian Business Executives, International Journal of Human Resource Management (Taylor and Francis, ABDC-A, Impact factor: 2.425), 10.1080/09585192.201 (2018).

11. Chaudhary, R., Corporate Social Responsibility Perceptions and Employee Engagement: Role of Psychological Meaningfulness, Safety and Availability, Corporate Governance The international journal of business in society, (Emerald, ABDC-C) Accepted (2019).

12. Dutta, Meghna and Dhar, N. S, Credit Constraint and Intra-Country Production Reorganization - Evidence from the Unorganized Textile Industry in Maharashtra, Journal of Economic Studies, 47(2) (2019).

13. Chaudhary, R.and Akhouri, A., CSR Perceptions and Employee Creativity: Examining Serial Mediation Effects of Meaningfulness and Work Engagement, Social Responsibility Journal (Emerald, ABDC-C), 15(1), 61-74 (2018).

14. Sanatan Mandal and Smriti Singh, Culture, Oral Narratives and "Monomyth": Projection of the Archetypal Hero in Easterine Kire's When the River Sleeps, IJELLH (International Journal of English Language, Literature in Humanities), 1374-1389 (2019).

15. Bhattacharjee, Partha and Priyanka Tripathi, Decoding the Visual Rhetoric: Memory and Trauma in Lynda Barry's One! Hundred! Demons! World Journal of English Language, vol. 8, pp. 37-42 (2018).

16. Aditya Raj, Democracy and Social Justice in Bihar: A Birds Eye View, Contemporary Social Science, 26(4) (2018).

17. Yashraj, Vinayak, and Priyanka Tripathi, Emergence of Cultural and Fashion Uniqueness from Bihar (India) rooted in Its Distinctive Regional Background, American Journal of Art and Design, vol. 3, pp. 26-32 (2018).

18. Sadeqa Ghazal and Smriti Singh, English as a Medium of Instruction: Challenges for teachers in unaided schools, International Journal of Languages Education and Teaching, 368-379 (2019).

19. Chaudhary, R. and Panda, C., Examining Self-monitoring and Neuroticism as Predictors and Self-efficacy as an Outcome of Authentic Leadership, Organization Management Journal (Taylor and Francis, ABDC-C), Accepted (2019).

20. Chaudhary, R. and Bisai, S., Factors Influencing Green Purchase Behavior of Millennials in India, Management of Environmental Quality: An International Journal, (Emerald), 29(5), 798-812 (2018).

21. Dutta, Meghna, Globalization, Corruption and Women Empowerment, Economic Papers: A Journal of Applied Economics and Policy, 37 (2018).

22. Chaudhary, R., Green Buying Behavior in India: An Empirical Analysis, Journal of Global Responsibility (Emerald, ABDC-C), 9(2), 179-192 (2018).

23. Chaudhary, R., Green Human Resource Management and Job Pursuit Intention: Examining the underlying Processes, Corporate Social Responsibility and Environment Management. (Wiley, ABDC-C, Impact factor: 4.918), 10.1002/csr.1732 (2019).

24. Chaudhary, R., Green Human Resource Management in Indian Automobile Industry, Journal of Global Responsibility (Emerald, ABDC-C), Accepted (2019).

25. Rajendra N. Paramanik, Rajbhushan, VN Pandit, Growth Debt nexus in India-A post liberalization analysis, Artha Vijnana, Forthcoming (2019).

26. Raj, Papia and Nayak, K.V., Health and culture nexus among Oraon female adolescents in Jharkhand. Jharkhand Journal of Development and Management, Vol. 16(3):7781-7796 (2018).

27. Raj, Papia and Nayak, K.V., Health Status and Health Seeking Behaviour of Oraon Female Adolescents in Jharkhand., International Journal of Social Science, Vol. 7(3): 1-10 (2018).

28. Aditya Raj, Immigration and Integration Policy and the formation of Indian Diaspora in Canada, South Asian Anthropologist, 18(1) (2018).

29. Aditya Raj, In-Dia_Spora: Context and Critique, The Eastern Anthropologist, 71(3) (2018).

30. Kumar Gaurav, Nalin Bharti, India–Japan CEPA: What RCA Index Reveals for Trade in Services? Foreign Trade Review, Volume: 53 issue: 3 (2018).

31. Kumar Chandan, Bharti Nalin, Indo- EU Agricultural Trade: Trade Restrictions and SPS Measures, Óbuda University e-Bulletin, Volume 8 No-1 (2018).

32. Birasnav, M., Chaudhary, R. and Schillitoe, J., Integration of Human Capital and Organizational Learning Theories to Improve Organizational Performance, Global Journal of Flexible Systems Management (Springer), Online first (2019).

33. Rastogi, M. &Chaudhary, R., Job crafting and work-family enrichment: the role of positive intrinsic work engagement, Personnel Review (Emerald, ABDC-A, Impact factor: 1.942), 47(3), 651-674 (2018).

34. Chaudhary, R. and Akhouri, A., Linking Corporate Social Responsibility Attributions and Creativity: Modeling Work Engagement as Mediator, Journal of Cleaner Production (Elsevier, Impact factor: 6.35), 190, 809-821 (2018).

35. Kashyap, V. &Chaudhary, R., Linking Employer Brand Image and Work Engagement: Modeling Organizational Identification and Trust in Organization as Mediators, South Asian Journal of Human Resources Management (Sage, ABDC-C), Accepted (2019).

36. Raj, Papia & Srishti, mHealth as an effective medium for improving maternal health in Bihar., Amity Journal of Health Care Management, Vol. 3(1): 14-27 (2018).

37. Begum, Nusrat and Sinha, Sweta, Mother Tongue Marginalization: An Empirical Study on Language Visibility and Vitality in Public space of an upcoming Indian Satellite town, International Journal of Multilingualism by Routledge, Taylor and Francis Group Scopus, DOI: 10.1080/1479071 (2019).

38. Priyanka Tripathi and Partha Bhattacharjee, Negotiating the Social Struggle: Deconstructing the Dalit Subalternity in Omprakash Valmiki's Joothan: A Dalits Life, The IUP Journal of English Studies, vol. 14, no.1, 2019, pp. 34-41.

39. Anand, Ajit and Priyanka Tripathi. "'Experiencing the City': Decoding the Spatial Construction of 'Patna' in Select Writings of Amitava Kumar". Atlantic Literary Review, Vol 19, No.3, 2018, pp. 65-80

40. Kar., S and Dutta, Meghna, Outsourcing and Productivity During Economic Crisis: Evidence from Indian Manufacturing Firms, Arthaniti: Journal of Economic Theory and Practice, 17(2) (2018).
41. Srishti & Papia Raj, Potential of Health Informatics for Improving Maternal Health in Bihar, Indian Journal of Public Health Research and Development, Vol. 9(2):156-160 (2018).
42. Priyanka Tripathi, Reading Perumal Murugan's One Part Woman within the Spectrum of Translation, Worship and Censorship, International Journal of Translation, vol. 30, pp. 85-96 (2018). doi: 10.11648/j.ajad.20180303.11
43. Priyanka Tripathi, "Recasting feministic discourses in postcolonial South Asia: an interventionist reading." Postcolonial Studies (Taylor & Francis). 2019 https://doi.org/10.1080/13688790.2019.1595342
44. Tripathi, Priyanka, "Review: Battling Hatred and Sectarianism for Indian Democracy" The Wire. 10 April 2019. https://thewire.in/books/battling-for-india-democracy-sectarianism
45. Tripathi, Priyanka, "Recalling Kedarnath Singh and his Secular Voice of Poetry". *The Wire*. 16 March 2019. https://thewire.in/books/remembering-kedarnath-singh-and-his-immortal-work
46. Tripathi, Priyanka, *"Can the Cast Away Speak? Stories of Reason and Resistance from the Margins"* Indian Literature (Sahitya Akademi), no. 2018 ,308, pp. 200 – 198.
47. Samrat Bisai and Smriti Singh, Rethinking Assessment-A Multilingual Perspective, Language in India, 308-319 (2018).
48. Aditya Raj, Review of Philanthropy in India- promise to practice, Sociological Bulletin, 67(1) (2018).
49. Aditya Raj & K V Nayak, Scheduled Tribe Youth in India and Their Institutions: A Study of Dhumkuria, Journal of Exclusion Studies, 9(2) (2018).
50. Samrat Bisai and Smriti Singh, Schoolscape in Minority School: An Empirical Study in Jhargram and Paschim Medinipur District, India, Proceedings of the International Conference on Education, Teaching & Learning, France, (2018).
51. Singh, A.&Papia Raj, Segregation of Waste at Source Reduces the Environmental Hazards of Municipal Solid Waste in Patna, India, Archives of Environmental Protection, 44 (4). 96-110 (2018).
52. Reyaz, Aiman, and Priyanka Tripathi, Sexuality and Shaping of the Blooming Psyche of Molly in James Joyce's Ulysses, The Indian Review of World Literature in English, vol. 14, pp. 53-60 (2018).
53. Samrat Bisai and Smriti Singh, Social Mobility and Crime in Aravind Adiga's The White Tiger, Language in India, 456-464 (2019).
54. Kumar Gaurav, Nalin Bharti, Some Common Lessons from Uncommon FTAs, South Asia Economic Journal, 20(1) 138–157, (2019).
55. Begum, Nusrat Sinha, Sweta, Study of the Linguistic Landscaping of Patna, Bihar, Indian Journal of Applied Linguistics, 44(1-2) Pp 66- 82 (2018).
56. Singh, A.& Papia Raj, Sustainable Recycling Model for Municipal Solid Waste in Patna., Energy & Environment, DOI: 10.1177/0958305 (2018).
57. Shamsher Alam & Aditya Raj, The Aacademic Journey of Witchcraft Studies in India, Man in India, 97 (2018).
58. Biswas, Sanjib K, and Priyanka Tripathi, The Blame Game: War and Violence in Dilruba Z. Aras Blame, Asiatic: IIUM Journal of English Language and Literature, vol. 12, pp. 43-58 (2018). http://journals.iium.edu.my/asiatic/index.php/AJELL/article/view/1208.
59. Reyaz, Aiman, and Priyanka Tripathi, To Animalise is Humane, to Humanise is Animal: Exploring Kafka's "The Metamorphosis, Ars Artium, vol. 7, pp. 85-93 (2019).
60. Samrat Bisai and Smriti Singh, Translanguaging as A Strategy to Promote Collaborative Learning in Multilingual Classroom, international Journal of English Learning and Teaching Skills, 140-144 (2018).
61. Partha Bhattacharjee and Priyanka Tripathi, Traumics": Genesis and Journey of Trauma Narratives in Comics, GNOSIS (An International Journal of English Language & Literature), 5 (2019).
62. Priyanka Tripathi, Traversing the Terrain of Indian Feminism and Indian Sexuality, Indian Literature (Sahitya Akademi), no. 303, pp. 181-195 (2018).
63. Sharma, Sandeep and Sinha Sweta, Understanding Sarcastic Metaphorical Expression in Hindi through Conceptual Integration Theory, Acta Linguistica Asiatica by University of Ljubljana, Slovenia Scopus., 9(1) (2019).
64. Priyanka Tripathi, Voicing through the Veil: Exploring 'the marginal space' in the Writings of Rashid Jahan, Journal of Comparative Literature and Aesthetics, vol. 41, pp. 76-81 (2018).

Papers Presented in Conferences

1. M M Gohain & Aditya Raj, An Ordeal of independent child Migrants and their education, *IX Annual International Conference 2018 of Comparative Education Society of India*, Baroda (2018)
2. Rashmi&Aditya Raj, An Appraisal of Teacher Education Curriculum in India, *IX Annual International Conference 2018 of Comparative Education Society of India,* Baroda (2018)
3. *Chaudhary, R.*, Authentic leadership and Meaningfulness at Work: Role of Employees CSR Perceptions and Evaluations, *Academy of Management Annual Meeting 2019* (accepted), Boston, Massachusetts (2019)
4. Sharma, Sandeep Sinha Sweta, • Cognitive Theoretical Approach to Understand Hindi Sarcasm: A Corpus-Based Pilot Study, *Fourth International Conference on Linguistics and Language Studies,* THEi, Hong Kong (2018)
5. Ramjit Kumar and Smriti Singh, Being Scientific Mode of Education at the verge of STS and Science Education, *TRANSnational STS – Society For Social Studies of Science Annual Conference,* Sydney, Australia (2018)
6. Yashraj, Vinayak, and PriyankaTripathi , Breaking the Stereotypes by Constructing Real Femininity through Dressing-up: Representing Goans, a comparative reading through select Indian Films , *Region/Nation/Trans-Nation: Literature Cinema Interface* , Birla Institute of Technology Pilani,Goa (2019)

7. Sadeqa Ghazal and Smriti Singh, Bringing the Magical Power of Storytelling to Language Classes, *COIL1-,* IIT Patna (2019)
8. Aditya Raj & M M Gohain , Contextualizing Migration from the lived experience of the Mahatma , *Contextualizing Mahatma Gandhis Philosophy in 21st Century ,* R M L National Law University, Lucknow (2018)
9. Chaudhary, R. and Akhouri, A., CSR Attributions, Work engagement and Creativity: Examining the role of Authentic Leadership, *AOM Annual Meeting 2018,* Chicago, Illinois (2018)
10. Bhattacharjee, Partha and Priyanka Tripathi, Disease' and Visual Rhetorics of Disability: Comics and Autopathography in the Works of Alison Bechdel, *International Conference on Interrogating Disability Studies: Literature, Culture, Performance,* University of Delhi (2018)
11. Ramjit Kumar and Smriti Singh, Education in the Age of Knowledge Society: The Growing Proximities of Changing Dynamics of Knowledge, Science, and Society, *National Conference on Changing Perspectives of Education in India,* Patna Women's College, Patna (2019)
12. Bhattacharjee, Partha and Priyanka Tripathi, Going Beyond Illustrations: Silhouetting the Contours of Augmented Reality in Print Comics, *ImageTech: Comics and Materiality,* University of Florida (2018)
13. Partha Bhattacharjee and Priyanka Tripathi, Going beyond Narrative: 'Retelling' of Mahabharata in Amruta Patil's Sauptik: Blood and Flowers, *Telling & Retelling Stories: (Re)imagining Popular Culture,* Wayne State University, Detroit, Michig (2019)
14. Mamata Kumari Nalin Bharti, Impact of trade facilitation on trade costs: A South Asian perspective, *Sixth IIFT Conference on Empirical Issues in International Trade and Finance (EIITF),* Indian Institute of Foreign Trade (IIFT) (2018)
15. Rajendra N. Paramanik, Inflation Growth nexus- Does Business Cycle Matter, *TIES Conference,* Mumbai (2019)
16. Papia Raj, Influence of non-governmental actors in maternal and child health sector of Bihar, 44th *ALL INDIA SOCIOLOGICAL CONFERENCE,* Mysure (2018)
17. Anand, Ajit, and Priyanka Tripathi, Interrogating Representations and Misrepresentations of Culture: A Critical Study of Amitava Kumar's Bombay – London – New York, *Performing the Nation: Memory and Desire in Contemporary Literature,* Berhampur University, Odisha (2019)
18. Papia Raj, Intervention of NGOs in Public Health Sector of Bihar, *India, International Health Conference 2018,* St Hugh's College Oxford (UK) (2018)
19. Kislay Kashyap Nalin Bharti, Labour Productivity VsWages:Post Libralization Textile and Garment Sector in India , *60th Labour Economics Conference* , IGIDR Mumbai (2018)
20. Sujay Kumar Saha and Smriti Singh, Language learning Through Social Media among College Students, *National Seminar on Communication and Technology,* Amity University, Patna (2019)
21. Sweta Sinha, Language Loss in Eastern India: A Consequence of Language *Contact, International Conference on Endangered Languages of Delhi- NCR:* The Northeast India Focus, National Law University, New Delhi (2018)
22. Sweta Sinha, Language, Embodiment and Cultural Idiosyncrasies, *CALA 1,* Siem Reap, Cambodia (2019)
23. Puja Gupta & Papia Raj, Lifestyle disease among girl child in urban India, *Vision for an Inclusive Society: A Feminist Perspective*, Bangalore University (2018)
24. Srishti & Papia Raj, mHealth as an effective medium for Improving Maternal health in Rural Bihar, *15th World Rural Health Conference,* New Delhi (2018)
25. Smriti Singh, Need to Learn Foreign Language, *World Languages: The Window to Global Opportunities*, Patna (2018)
26. Aditya Raj, Politics of Healthcare and the Imperatives for Social Change in India, *Asian Studies Association,* India Habitat Centre (2018)
27. Mritunjay Kumar Nalin Bharti, Provision of Generic Drugs Under Section 3(d) of Indian IP Act: What Data Reveals from the Backward States of India? *International Conference on Law & Economics 2018,* Gokhale Institute of Politics and Econom (2018)
28. Bhattacharjee, Partha and Priyanka Tripathi, Re(th)inking the Silence(ing) of the Voice(s): Crossing the Cultural Barriers in Graphic Kaleidoscopes, South Central Modern Language Association 2018, San Antonio, Texas (2018)
29. Aditya Raj, Reflections on emerging education in India: A case study of IIT, *44th All India Sociological Conference,* Mysore (2018)
30. Ramjit Kumar and Smriti Singh, Science, Education and the Public: A New Approach to Assessment of Scientific Literacy, *Science in Public Conference 2018,* Cardiff, UK (2018)
31. Smriti Singh, seven decades of Independence and Tribal Marginalization: Shekhar's The Adivasi Will Not Dance, *British Commonwealth and Postcolonial Conference,* Savannah, Georgia (2019)
32. Singh, A. & Papia Raj, Sustainable recycling model for Patna, *The 3rd International Conference on Biological Waste as Resource*, Hong Kong (2018)
33. Begum, Nusrat Sinha, Sweta, The Linguistic Landscape of Patna-An Empirical Study, *CALA 1*, Siem Reap, Cambodia (2019)
34. Biswas, Sanjib Kr, and Priyanka Tripathi, Truth and its Fabrication in Narrative Nonfictions: Case of Victims' Narratives of the 1971 War of Bangladesh, *Women, Conflict and Peace Processes in South Asia, Malaviya* Centre for Peace Research, Bana (2018)
35. Sharma, Sandeep Sinha Sweta, Understanding Sarcasm in Metaphorical Expressions of Hindi Proverbs, *4th International Conference on Figurative Thought and Language*, Braga, Portugal (2018)
36. Shamsher Alam & Aditya Raj, Witchcraft and Witch hunting in India: An Assessment, *National Convention on Emerging Challenges of Violence Against Women,* Odisha State Commission for Women (2018)

37. Jha, M.L. and Chaudhary, R., Workplace spirituality and Incivility at Work: A Conceptual Framework, *Academy of Management Annual Meeting 2019* (accepted), Boston, Massachusetts (2019)

Sponsored Research Projects

1. Green Human Resource Management in Indian Automobile Industry located in Tamilnadu state of India (ICSSR, Rs.645000.00 Lakhs) (PI: Dr. RichaChaudhary)
2. India-Japan Trade and FDI: What New After CEPA (ICSSR, Rs.11.00 Lakhs) (PI: Nalin Bharti)
3. mHealth technologies for gender empowerment in Bihar (ICSSR, Rs.7.00 Lakhs) (PI: Dr. Papia Raj)

~~Consultancy Projects~~

1. ~~NA (Rs.0.00 Lakhs) Consultant Name:~~

Other Activities

Fellow - Professional Bodies

1. Aditya Raj (2013) Indian Sociological Society

Member - Professional Bodies

1. Aditya Raj (2004) International Sociological Association
2. Aditya Raj (2018) Indian Social Science Academy
3. Aditya Raj (2004) Canadian Sociological Association
4. Aditya Raj (2019) Canadian Association for the study of International Development
5. Aditya Raj (2015) Comparative and International Education
6. Nalin Bharti (2015) Indian Economic Association
7. Nalin Bharti (2018) American Economic Association
8. Nalin Bharti (2015) Virtual Institute UNCTAD
9. Nalin Bharti (2015) Indian Society of Labour Economics
10. Nalin Bharti (2011) The Indian Science Congress Association
11. Papia Raj (2013) Indian Sociological Society
12. Papia Raj (2007) Canadian Association for the study of International Development
13. Papia Raj (2018) Women's and Gender Studies et Recherches Féministes
14. Papia Raj (2018) Indian Social Science Academy
15. Priyanka Tripathi (2018) Postcolonial Studies Association
16. Priyanka Tripathi (2018) ELTAI - English Language Teachers Association of India
17. Priyanka Tripathi (2018) FSLE (Foundation for the Study of Literature and Environment)–India: Member and Coordinator-Bihar Chapter (http://www.fsleindia.org/dr-priyanka-tripathi/)
18. Priyanka Tripathi Indian Society for Commonwealth Studies
19. Priyanka Tripathi FORTELL - Forum of Teaching English Language and Literature Link: *http://www.fortell.org/*
20. Priyanka Tripathi MELUS-MELOW- (The Society for the Study of the Multi-Ethnic Literatures of the World)
21. Priyianka Tripathi IACLALS- Indian Association for Commonwealth Literature and Language Studies (Officially recognized as Indian Chapter of the International ACLALS)
22. Richa Chaudhary (2018) Academy of Management
23. Smriti Singh (2018) Postcolonial Studies Association
24. Smriti Singh (2010) ELT@I
25. Smriti Singh (2018) ELT@I-Patna Chapter
26. Smriti Singh (2009) Melus-Melow
27. Smriti Singh (2009) Forum for Contemporary theory
28. Sweta Sinha (2014) Linguistic Society of India
29. Sweta Sinha (2015) Indian Society of Teacher Educators
30. Sweta Sinha (2015) All India Association of Educational Research
31. Sweta Sinha (2018) Social Science and Humanities Research Association
32. Sweta Sinha (2018) International Pragmatics Association

Member - Editorial Board

1. Aditya Raj (2013) *Member, Editorial Board* - International Journal of Critical Pedagogy
2. Aditya Raj (2018) *Invited Guest Editor* - Environmental Health Insights
3. Nalin Bharti (2018) *Member* - Journal of Management & Public Policy (JMPP)
4. Nalin Bharti (2018) *Member* - Issues and Ideas in Education
5. Papia Raj (2018) *Editorial review board* - Amity Journal of Health Care Management
6. Papia Raj (2018) *Invited Guest editor for special issue on Waste Management and Public Health* - Environmental Health Insights
7. Richa Chaudhary (2018) *Member* - Indonesian Journal of Corporate Social Responsibility and Environmental Management
8. Richa Chaudhary (2018) *Member* - Indonesian Journal of Sustainability Accounting and Management
9. Richa Chaudhary (2018) Guest Editor-Journal of global operations and strategic outsourcing (Emerald, ABDC-B)
10. Sweta Sinha (2017) *Editorial member* - Indian Journal of Applied Linguistics
11. Sweta Sinha (2017) *Editorial Board Member* - Language Forum

Awards & Honours

1. Richa Chaudhary (2018) *AIMS International Young Women Management Researcher Award*
2. Rajendra N. Paramanik (2018) Best Teacher Award-2018 (UG-Section, HSS)

Visits Abroad by Faculty Members

1. Richa Chaudhary - Presenting a paper and chairing a session at Academy of Management Annual Meeting 2018 (Chicago, Illinois,) 10-14th Aug 2018
2. Smriti Singh - Conference (Savannah, Georgia, USA,) February 15 -16
3. Sweta Sinha - Conference participation (Siem Reap, Cambodia,) January 22- January 27, 2019
4. Papia Raj - Presented paper at International Health Congress (University of Oxford, UK) 27th – 29th June, 2018.
5. Nalin Bharti - For making presentation and project work (Kobe University Japan,) 7th March - 16th March

Invited Lectures by Faculty Members

1. Bihari Diasporic Literature *by* Priyanka Tripathi (Bodhgaya Biennale 2018)
2. Symbolic Violence against Women in the Age of Twitter: Let's Speak up India *by* Priyanka Tripathi (IIT Kharagpur)
3. How Gendered is our Language? *by* Priyanka Tripathi (Hindi Rajbhasha Vibhag, DRL, DRDO, Tezpur)
4. Introduction to Developing Communication Skills for Employability *by* Priyanka Tripathi (NIT Kurukshetra)
5. Written Communication: Content writing, Email etiquette, Presentation skills *by* Priyanka Tripathi (NIT Kurukshetra)
6. Phonetics *by* Sweta Sinha (IIIT Vadodara)
7. Linguistic Imperialism *by* Sweta Sinha (SMVDU Katra, Jammu and Kashmir)
8. Language- Gender- Power *by* Sweta Sinha (SMVDU Katra, Jammu and Kashmir)
9. Understanding India's Economic Reforms *by* Nalin Bharti (Osaka University)
10. Understanding Women: The Gender Based Role Crisis *by* Papia Raj (Nitishwar Mahavidyalaya, Muzaffarpur, Bihar)
11. mHealth Technologies for Empowerment of Women in Bihar *by* Papia Raj (A.N. Sinha Institute of Social Studies in collaboration with University of Nottingham)
12. The growing role of diasproic networks and associations for India's development *by* Aditya Raj (Mysore, RC4, Indian Sociological Society Annual Conference)
13. Community Based Education for Gender Empowerment in Bihar *by* Aditya Raj (A N Sinha Institute of Social Studies in collaboration with University of Nottingham)
14. Behavioural change for waste management *by* Aditya Raj (GIAN course @ IIT Patna)
15. Macroeconics - Evolution and Evaluation by Rajendra N. Paramanik (Christ University, Banalore)
16. India, Journey of a Juggernaut by Rajendra N. Paramanik (Netaji Subhash College, Udaipur)
17. Types of IPR and IPR Protection *by* Nalin Bharti (IIT Patna for AICTE-MHRD Innovation Council)

Short-Term Courses, Training Programmes and Workshops organised

1. Mediation, Moderation and Conditional Process Analysis (7-8th Dec 2018)
2. Understanding Your Data: Analytical Tools (30th Nov-1st Dec 2018)
3. GIAN course, *Waste Management and Health Care* (3rd – 8th December, 2018)

Matallurgical and Materials Engineering

Faculty Members

Dr. Anirban Chowdhury Assistant Professor	Materials Chemistry - chemical synthesis - structural and spectroscopiccharacterisations - thin films & coatings - nanomaterials- sol gel – ceramics
Dr. Anup Kumar Keshri Assistant Professor	Carbon Nanotube Reinforced Ceramic Matrix and Metal Matrix Composites, Thermal Spraying, Tribology of Materials, Process-Structure-Property Relationship
Dr. Dinesh Kumar Kotnees Assistant Professor	Polymer Science and Technology with specialization in Adhesion, Blends, Composites, Fillers and Bulk/Surface properties of Polymers
Dr. Tamoghna Chakrabarti Assistant Professor	Processing, sintering, characterization and mechanical behavior of ceramics; Ultra High Temperature Ceramics (UHTCs); Computational modelling of sintering and related phenomena; Phase field modelling study of microstructural evolution in phase transformations
Dr. Devinder Yadav Assistant Professor	Flash sintering of ceramics, Thermomechanical processing, Electron microscopy, EBSD and texture, Friction stir processing, Structure-property correlation

Academic Programmes

- M.Tech. in Material Science and Engineering
- Ph.D Programs

Research & Development Activities

Papers Published in Journals

1. M. Sribalaji, Davinder Singh, Swarnima Singh, AminulIslam,Mayank Kumar Pandey, B. Viswanath, Anup Kumar Keshri , A New Insight on the Role of 1-D and 2-D Reinforcements in TiC during High Temperature Plastic Deformation , Ceramics International, 44, 18389-18399 (2018).
2. Kumar, K. D., Satyanarayana M.S., Basak G. C., Bhowmick, A. K. , Adhesion between Compounded Elastomers: A Critical Review , Rev. Adhesion and Adhesives, 6, 105 (2018).
3. Kumar K, Priya A, Arun A, Hait S, Chowdhury A , Antibacterial and natural room-light driven photocatalytic activities of CuOnanorods , Materials Chemistry and Physics, 226: 106-112 (2019).
4. Satyanarayana M. S., Sreenath, P.R., Bhowmick, A. K., Kumar, K. D. , Catalyst driven preferential growth of in-situ generated nanosilica particles in the phases of incompatible polymer blend and its effect on physico-mechanical properties , Polymer, 156, 186 (2018).
5. S. Bhanuchandara, P. Arunkumar, M. Sribalaji, Anup Kumar Keshri, K. Suresh Babu, Controlled growth of Ni/NiO composite nanoparticles and its influence on exchange anisotropy and spin glass features , Journal of Alloys and Compounds, 780, 256-265 (2019).
6. P. Arunkumar, U. Aarthi, M. Sribalaji, B. Mukherjee, Anup Kumar Keshri, Waqas Hassan Tanveer, Suk-Won Cha, K Suresh Babu , Deposition rate dependent phase/mechanical property evolution in zirconia and ceria-zirconia thin film by EB-PVD technique , Journal of Alloys and Compounds, 765, 418-427 (2018).
7. A. Amudha, H. D. Shashikala, O. S. Asiq Rahman, Anup Kumar Keshri, H Nagaraja, Effect of graphene oxide loading on plasma sprayed alumina-graphene oxide composites for improved anticorrosive and hydrophobic surface , Surface Topography: Metrology and Properties, (2019).
8. Aditi Pandey, Anup Kumar Patel, Vikram Kumar, Rajeev Kumar Sharma, Satish Kanhed, Vinod Kumar Nigam, Anup Kumar Keshri, Arvind Agarwal, KanteshBalani , Enhanced Tribological and Bacterial Resistance of Carbon Nanotube with Ceria-and Silver-Incorporated Hydroxyapatite Biocoating , Nanomaterials, 8, 363 (2018).
9. B. Mukherjee, R. Kumar, A. Islam, O. S. Asiq Rahman, Anup Kumar Keshri , Evaluation of strength-ductility combination by in-situ tensile testing of graphene nano platelets reinforced shroud plasma sprayed Nickel-Aluminium coating , Journal of Alloys and Compounds, 765, 1082-1089 (2018).
10. Islam A, Kumar K, Pandey K K, Mukherjee B, Rahman OSA, Chowdhury A, Keshri A K, Exceptionally high fracture toughness of carbon nanotube reinforced plasma sprayed lanthanum zirconate coatings , Journal of Alloys and Compounds, 777, 1133-1144 (2019).

11. Punith Kumar M.K., Devinder Yadav, J.-M. Lebrun, Rishi Raj, , Flash sintering with current-rate: A different approach , Journal of the American Ceramic Society, In press (2019).

12. Srivastava S, Kumar K, Singh K, Ojha P K, Chowdhury A , Functional properties of $La_xCe_{1-x}O_{2-\delta}$ nanocrystals and their bulk ceramics , Journal of Materials Science: Materials in Electronics, 30(3): 2096–2106 (2019).

13. Biswajyoti Mukherjee, Aminul Islam, Krishna Kant Pandey, O.S. Asiq Rahman, Rishow Kumar, Anup Kumar Keshri , Impermeable CeO_2 overlay for the protection of plasma sprayed YSZ thermal barrier coating from molten sulfate-vanadate salts , Surface and Coating Technology, 358, 235-246 (2019).

14. Rohit Gupta, Aminul Islam, Krishna Kant Pandey, ShreshthaRanjan, Ravi Kumar Singh, Biswajyoti Mukherjee, Anup Kumar Keshri , In-situ oxide-free titanium nitride coating by conventional plasma spraying with improved properties , Ceramics International , in press (2019).

15. X. Vendrell, Devinder Yadav, Rishi Raj, A.R. West , Influence of flash sintering on the ionic conductivity of 8 mol% yttria stabilized zirconia , Journal of the European Ceramic Society, 39, 1352-1358 (2019).

16. O. S. Asiq Rahman, Biswajyoti Mukherjee, Aminul Islam, Anup Kumar Keshri , Instant Tuning of Superhydrophilic to Robust Superhydrophobic and Self Cleaning Metallic Coating: Simple, Direct, One-Step and Scalable Technique , ACS Applied Materials and Interface , 11, 4616–4624 (2019).

17. Kumar K, Srivastava S, Chowdhury A, La^{3+}-doped CeO_2 system: Negating the myths with a tailor-made ceramic, ScriptaMaterialia, 157, 138-141 (2019).

18. Singh K, Kumar R, Chowdhury A, Lanthanum doped Ceria Nanoparticles: a Promising Material for Energy Applications, Materials Today: Proceedings, 5(11): 22993-22997 (2018).

19. A.K. Srivastav, N. Chawake, Devinder Yadav, N.S. Karthiselva, B.S. Murty , Localized pore evolution assisted densification during spark plasma sintering of W-5wt.%Mo alloy , ScriptaMaterialia, 159, 41-45 (2019).

20. MohdSharib, Rakesh Kumar, K. Dinesh Kumar, Polylacticacid incorporated polyfurfuryl alcohol bioplastics: thermal, mechanical and curing studies, Journal of Thermal Analysis and Calorimetry, 132, 1593 (2018).

21. Sony Priyadershini, O.S. Asiq Rahman, Krishna Kant Pandey, Anup Kumar Keshri, Remarkable improvement in tribological behavior of plasma sprayed carbon nanotube and graphene nanoplatelates hybrid reinforced alumina nanocomposite coating, Ceramics International, 45, 5768-5778 (2019).

22. Aminul Islam, Biswajyoti Mukherjee, M Sribalaji, OS Asiq Rahman, P Arunkumar, K Suresh Babu, Anup Kumar Keshri, Role of hybrid reinforcement of carbon nanotubes and graphene nanoplatelets on the electrical conductivity of plasma sprayed alumina coating , Ceramics International, 44, 4508-4511 (2018).

23. Satyanarayana M. S., Sreenath, P.R., Bhowmick, A. K., Kumar, K. D., Selective orientation of needle like sepiolitenanoclay in polymer blend for controlled properties , ACS Omega , 3, 11691 (2018).

24. Priya Rani, Rakesh Kumar, Dinesh Kumar , Soy Protein Isolate Film By Incorporating Mandelic Acid As Well As Through Fermentation Mediated by Bacillus Subtilis, Journal of Renewable Materials, 7, 103 (2019).

25. Kumar K, Dutta H, Pradhan SK, Chowdhury A, Stabilization of ZrO2 matrix: Revisiting the 'archaic' issue with a peculiar example ,ScriptaMaterialia, 162, 408-411 (2019).

26. Singh K, Kumar K, Ojha P K, Chowdhury A, Structure-property correlations for the surfactant-free faceted nanocrystals of $Ce_{1-x}Zr_xO_2$ and their bulk ceramics, Materials Research Bulletin, 112, 38-45 (2019).

27. O.S Asiq Rahman, M Sribalaji, Biswajyoti Mukherjee, Tapas Laha, Anup Kumar Keshri, Synergistic effect of hybrid carbon nanotube and graphene nanoplatelets reinforcement on processing, microstructure, interfacial stress and mechanical properties of Al2O3 nanocomposites , Ceramics International, 44, 2109-2122 (2018).

28. NitikaKundan, BiswajitParida, Anup Kumar Keshri and P. R. Soni, Synthesis of Sub-micron/Nano Diamond Powder by Hot Pressing/ Spark Plasma Sintering of Supersaturated Solid Solution of Ni-Cgr, Journal of Material Science and Mechanical Engineering (JMSME), 5, 2393-9095 (2018).

29. M. Sribalaji, Aminul Islam, Biswajyoti Mukherjee, MayankKumar Pandey, Anup Kumar Keshri, Tailoring the thermal shock resistance of titanium carbide by reinforcement with tungsten carbide and carbon nanotubes , Ceramics International, 44, 2552-2562 (2018).

30. SubhrojyotiMazumder, Om Prakash Kumar, Dinesh Kumar Kotnees, Nilrudra Mandal, Tribological influences of cuo into 3y-tzp ceramic composite in conformal contact , Journal of Tribology, 141, 031606-1 (2019).

31. Satyanarayana M. S., P. R. Sreenath, S. Basavaraja, K. Dinesh Kumar , Unique behavior of in-situ generated nanosilica particles on physico-mechanical properties of fluoroelastomer , Journal of Polymer Research, 25, 230 (2018).

32. TamoghnaChakrabarti and Sukriti Manna , Zener Pinning through Coherent Precipitates A Phase Field Study, Computational Materials Science, 154 (2018) 84–90 (2018).

33. Anirban Chowdhury,Constitutive modelling and Weibull statistical analysis for the porosity-Mechanical property correlations in 3% yittria-stabilized zirconia system, International Journal of Refractory Metals and Hard Materials, 70(1): p.246–252,2018

34. Kundan Kumar, Anirban Chowdhury, Use of Novel Nanostructured Photocatalysts for the Environmental Sustainability of Wastewater Treatments, Reference Module in Materials Science and Materials Engineering, Elsevier, 2018 (Invited Book Chapter), DOI: 10.1016/B978-0-12-803581-8.11149-X.

35. Aditya Arun, Anirban Chowdhury, Reaping the remarkable benefits of a 'burst nucleation' approach for a ceria doped zirconia system,

Journal of Alloys and Compounds, In Press, Accepted Manuscript, 2019, https://doi.org/10.1016/j.jallcom.2019.06.184

Papers Presented in Conferences

1. P.R. Sreenath, Prolay Das, A. K. Bhowmick, K. Dinesh Kumar , Carbon dot-unique reinforcing filler for polymer with special reference to physico-mechanical properties, International Elastomer conference (2018), ACS Rubber Division , Louisville, Kentucky, USA. (2018)
2. Dinesh Kumar Kotnees , Catalyst driven preferential growth of in-situ generated nanosilica particles in the phases of incompatible polymer blend and its effect on physico-mechanical properties , 4th International conference on nanotechnology for better living , IIT Kanpur (2019)
3. O.S. Asiq Rahman, Sony Priyadershini, Anup Kumar Keshri, Dry and Wet WearResistance of Plasma Sprayed Graphene Nanoplatelets Reinforced Alumina Coating, CIMTEC, Perugia, Italy. (2018)
4. Biswajyoti Mukherjee, Rishow Singh, Aminul Islam, AnupKumar Keshri, Graphene Nanoplatelets Reinforced Plasma Sprayed Alumina-Titania Coating with Improved Corrosion and Wear Resistance., CIMTEC, Perugia, Italy. (2018)
5. ShreshthaRanjan, Rohit Gupta, Prashant Kumar, Anup Kumar Keshri, High temperature tribologicalbehaviour of titanium nitride coatings prepared by shroud-reactive plasma spraying, Indian Institute of Metals (NMD-ATM), Kolkata (2018)
6. Rohit Gupta, ShreshthaRanjan, Krishna Kant Pandey, Anup Kumar Keshri, In-situ synthesis of Titanium nitride coatings by shroud-reactive plasma spraying, Indian Institute of Metals (NMD-ATM), Kolkata (2018)
7. Sribalaji M, Anup Kumar Keshri, Investigation of High Temperature Mechanical Properties of Carbon Nanotube Reinforced Titanium Carbide Nanocomposites for Aerospace Applications, 10th Indo-German Frontiers of Engineering Symposium 2018, Potsdam, Germany (2018)
8. Aminul Islam, Biswajyoti Mukherjee, O. S.Asiq Rahman, Anup Kumar Keshri, in-situ tensile testing of graphene nano platelets reinforced shroud plasma sprayed Nickel-Aluminium coating , Indian Institute of Metals (NMD-ATM), Kolkata (2018)
9. M.S. Satyanarayana, A. K. Bhowmick, K. Dinesh Kumar, Preferentially fixing nanoclays in the phases of incompatible carboxylated nitrile rubber (XNBR)-natural rubber (NR) blend using thermodynamic approach and its effect on physico mechanical properties, International Elastomer conference (2018), ACS Rubber Division , Louisville, Kentucky, USA. (2018)
10. Bihar Gaurav, Anup Kumar Keshri, Role of carbon nanotubeon mechanical properties of plasma sprayed Alumina-titania coating, Indian Institute of Metals (NMD-ATM), Kolkata (2018)
11. Rakesh Kumar, Ravi Kumar Singh, O. S.Asiq Rahman, Anup Kumar Keshri, Role of graphene nano platelets reinforcement on mechanical properties of plasma sprayed Alumina-titania coating, Indian Institute of Metals (NMD-ATM) , Kolkata (2018)
12. Ravi Kumar Singh, Anup Kumar Keshri, Role of graphene nanoplatelets reinforcement on corrosion properties of plasma sprayed Alumina-13 wt.% Titania coating , Indian Institute of Metals (NMD-ATM), Kolkata (2018)
13. Devinderyadav, Study of flash phenomena on single crystals of cubic 8 mol% yttria stabilized zirconia, International conference on Electric field enhanced processing of advanced materials II, Tomar, Portugal (2019)
14. Kundan Kumar and Anirban Chowdhury, Remarkable Ionic Conductivity in a Textured $La_2Ce_2O_7$ Ceramic made by a Conventional Sintering, 1st Indian Materials Conclave and 30th Annual General Meeting of MRSI, IISc Bangalore (2019)
15. Kundan Kumar and Anirban Chowdhury, Remarkable ionic conductivity in a textured $La_2Ce_2O_7$ ceramic), 7th Interdisciplinary Symposium on Materials Chemistry, BARC Mumbai, India (2018)
16. Kundan Kumar and Anirban Chowdhury, Peculiarities in phase development in the ZnO-stabilized ZrO_2 system, 14th International Ceramics Congress, Perugia, Italy (2018)

Sponsored Research Projects

1. Development and optimization of cost effective and scalable near net shape plasma sprayed membrane with graded porosity for microfiltration application (IMPRINT, SERB-DST, Rs.68.00 Lakhs) (PI : AnupKeshri, Co-PI: Anirban Chowdhury)
2. High Temperature Materials for Thermal Protection Systems (With IIT Kanpur) (IMPRINT II, Rs.34.47 Lakhs) (PI : Dr. KanteshBalani (IIT Kanpur))
3. Improvement of low temperature flexibility and room temperature physical properties of chloroprene rubber (CR) (DENKA, Tokyo, Japan, Rs.15.00 Lakhs) (PI : Dr. Dinesh Kumar Kotnees)
4. Plasma Sprayed Carbon Nanotube and Graphene Reinforced Alumina Hybrid Nanocomposite Coating with Enhanced Electrical Conductivity, Corrosion and Mecha (ISRO (Indian Space Research Organisation), Rs.19.40 Lakhs) (PI : Dr. Anup Kumar Keshri)
5. Plasma Sprayed Carbon Nanotube reinforced Molybdenum Disulfide Anti-friction Nano Composite Coating with enhanced Mechanical and Wear Properties (NRB (Naval Research Board), Rs.15.05 Lakhs) (PI : Dr. Anup Kumar Keshri)
6. Study on the densification and fracture properties of piezoelectric ceramics produced by novel flash sintering technique (DST-INSPIRE, Rs.35.00 Lakhs) (PI : TamoghnaChakrabarti)
7. Surface modified metallic orthopedic implant for sustained drug release. (With IIT Roorkee) (DST/TSG/AMT, Rs.92.49 Lakhs) (PI : Dr. DebrupaLahiri (IIT Roorkee))

Consultancy Projects

1. Compositional characterization of Investment casting powders (Maharaja jewellery tools, Mumbai, Rs.1.00 Lakhs) Consultant Name: Anirban Chowdhury

2. Factors influenzing the tack behaviour of rubbers used in tyres (MRF Tyres, Chennai, Tamilnadu, India, Rs.23.00 Lakhs) Consultant Name: Dr. Dinesh Kumar Kotnees
3. Plasma Sprayed Nanostructured Coating (Tata Steel Limited, Rs.12.50 Lakhs) Consultant Name: Dr. Anup Kumar Keshri
4. Process Map of Plasma sprayed Iron Based Coating (Tata Steel Limited, Rs.12.00 Lakhs) Consultant Name: Dr. Anup Kumar Keshri

Patents (filed / granted)

1. "A process for obtaining shape and size controlled ceramic nanopowders"(patent numbered 201831006045 dated 16th February, 2018, Inventors: Kundan Kumar, Kushal Singh, Anirban Chowdhury)

Other Activites

Fellow - Professional Bodies

1. Dinesh Kumar Kotnees (0) Member of syllabus framing committee for Department of Materials Science and Engineering, IIT Delhi

Member - Professional Bodies

1. Anirban Chowdhury (2018) Society of Materials Chemistry
2. Anup Kumar Keshri (2014) Indian Institute of Metals (IIM)
3. Dinesh Kumar Kotnees (0) Member of American Chemical Society (ACS)

Awards & Honours

1. Anup Kumar Keshri (2018) *Research Stay Grant of Euro 1232.00 by Alexander Von Humboldt (AvH) foundation Germany*
2. Dinesh Kumar Kotnees (2018) *Selected as the best teacher in the Department of Metallurgical and Materials Engineering, IIT Patna for the year 2018.*

Visits Abroad by Faculty Members

1. Anup Kumar Keshri - • Invitation for attending the 10th Indo-German Frontiers of Engineering Symposium 2018 (Potsdam, Germany,) May 24-27, 2018
2. Anup Kumar Keshri - •Research Stay Grant of Euro 1232.00 by Alexander Von Humboldt (AvH) foundation Germany under Connec (University of Kassel, Germany ,) December 11-21, 2018

Invited Lectures by Faculty Members

1. Synthesis and Serendipity: How far can they collaborate? *by* Anirban Chowdhury (IISc Bangalore)
2. Investigation of High Temperature Mechanical PropertieCarbon Nanotube Reinforced Titanium Carbi *by* Anup Kumar Keshri (Potsdam, Germany)
3. Insight of Plasma spraying *by* Anup Kumar Keshri (Tata Motors Limited)
4. Catalyst driven preferential growth of in-situ nanosilica in phases of incompatible polymer blend *by* Dinesh Kumar Kotnees (IIT Kanpur (4th International conference on nanotechnology for better living))

Mathematics

Faculty Members

Dr. Ashish Kumar Upadhyay Associate Professor	Combinatorial Topology, Geometric Topology, Algebraic Topology, Algorithmic and Combinatorial aspects of Low - dimensional Manifolds, Synthetic Geometry, Combinatorial Geometry, Graphs on Surfaces, Automorphism Groups
Dr. Om Prakash Associate Professor	Rings & Modules, Associated Prime Rings
Dr. Yogesh Mani Tripathi Associate Professor	Statistical Decision Theory, Statistical Inference
Dr. Debashree Guha Adhya Assistant Professor	Fuzzy logic and its application
Dr. Nutan Kumar Tomar Assistant Professor	Mathematical Control Theory, Nonlinear Functional Analysis, Optimal Control
Dr. Prashant Kumar Srivastava Assistant Professor	Mathematical Modeling in Ecology and Epidemiology, Applications of Differential Equations in Biology, Stability and Bifurcation, Mathematical Modeling of HIV dynamics :in vivo
Dr. Sudhan Majhi Assistant Professor	Signal processing for wireless communication, blind signal classification, blind signal synchronization , blind parameter estimation, secrecy capacity of cognitive radios and cooperative communications, MIMO, OFDM, MIMMO-OFDM, SC-FDMA, NOMA, UWB systems, receiver design and implementation on testbed, and Sequence design for wireless communication.
Dr. Amit Kumar Verma Assistant Professor	Analysis of Nonlinear Differential Equations, Numerical Solutions of ODEs and PDEs
Dr. Pratibhamoy Das Assistant Professor	Numerical Analysis, Moving Mesh Methods, Singular Perturbation, A posteriori Error Estimates, r-refinement Strategy
Dr. Subhabrata Paul Assistant Professor	Algorithmic graph theory
Dr. Pradeep Kumar Rai Assistant Professor	Finite Group Theory: p-groups, Schur multiplier, Automorphisms of groups.
Dr. Balendu Bhooshan Upadhyay Assistant Professor	Nonlinear Optimization; Variational Inequality; Semi-infinite Programming; Fixed Point Theory; Differential Manifolds

Academic Programmes

- M.Tech. in Mathematics and Computing
- M.Sc. in Mathematics
- Ph.D Programs

Research & Development Activities

Papers Published in Journals

1. R. K. Mistri, R. K. Pandey and Om Prakash, A generalization of sumset and its applications , Proc. Indian Acad. Sci. (Math. Sci.) , 128(5):55 (1-8) (2018).
2. TanmayKayal, Yogesh Mani Tripathi and Shu-Fei Wu , A hypothesis testing procedure of assessment for the lifetime performance index under a general class of inverse exponentiated distributions with progressive type I interval censoring, Journal of Applied Mathematics & Informatics, Vol. 37, 105 - 121 (2019).
3. H. Islam, T. Bag and Om Prakash, A class of constacyclic codes over $\mathbb{Z}_4[u]/\langle u^k\rangle$, J. Appl. Math. Comput., **60**(1-2) (2019), **237-251**(Springer)
4. Sushma Singh and Om Prakash, A note on lower nil M-Armendariz ring , Cogent Mathematics & Statistics, 5(1): 1545411 (2018).

5. M. Chandru, T. Prabha, P. Das, V. Shanthi , A numerical method for solving boundary and interior layers dominated parabolic problems with discontinuous convection coefficient and source terms, 27(1-3):91-112, Differential Equations and Dynamical Systems, (2019).

6. T. Bag, H. Islam, Om Prakash and A. K. Upadhyay, A study of constacyclic codes over ℤ4[u]/u2-3, Discrete Math. Algorithms Appl., 10(4), 1850056 (1-10) (2018).

7. Habibul Islam and Om Prakash , A study of cyclic and constacyclic codes over $\mathbb{Z}_4 + u\,\mathbb{Z}_4 + v\,\mathbb{Z}_4$, Int. J. Inf. Coding Theory, 5(2), 155-168 (2018).

8. B S Panda, Arti Pandey, and S Paul, Algorithmic aspects of b-disjunctive domination in graphs, Journal of Combinatorial Optimization, 36(2) (2018).

9. P. Das , An a posteriori based convergence analysis for a nonlinear singularly perturbed system of delay differential equations on an adaptive mesh , Numerical Algorithms,, doi:10.1007/s11075-0 (2018).

10. T Bag, A Dertli, Y Cengellenmis and A K Upadhyay , Application of Constacyclic Codes over the Semi Local Ring $F_{p^m}+vF_{p^m}$, Indian J PAM, to appear (2019).

11. T. Bag, Sachin Pathak and A K Upadhyay, Classes of constacyclic codes of length p^s over the ring $F_{pm} + uF_{pm} + vF_{pm} + uvF_{pm}$, Contributions to Algebra and Geometry, to appear (2019).

12. Habibul Islam and Om Prakash, codes from the cyclic codes over $F_p[u, v,w]/\langle u^2 - 1, v^2 - 1, w^2 - 1, uv - vu, vw - wv, wu - uw\rangle$, J. Appl. Math. Comput.**60**(1-2) (2019), **625-635**. (Springer).

13. Ashish Kumar Upadhyay, R Islam, and S Maity, Corrigendum to "The multiplicative Zagreb co-indices on two graph operators, Bul. Acad. Ştiinţe Repub. Mold. Mat, 2, 138–140 (2018).

14. D Maity and Ashish Kumar Upadhyay, Corrigendum to ``On the enumeration of a class of toroidal graphs, Contributions to Discrete Mathematics, to appear (2019).

15. Anuj Kumar, Prashant K Srivastava and Anuradha Yadav, Delayed Information Induces Oscillations in a Dynamical Model for Infectious Disease, International Journal of Biomathematics, 12, 19520 (34pages) (2019).

16. Ravindra Kumar and Om Prakash, Divisor graph of the complement of Γ(R), Asian-European J. Math., 12(1) (2019).

17. T. Kayal, Yogesh Mani Tripathi and M. K. Rastogi, Estimation and Prediction for an Inverted Exponentiated Rayleigh Distribution Under Hybrid Censoring, Communications in Statistics: Theory and Methods, Vol. 47 (7), 1615-16 (2018).

18. SankuDey, MazenNassar, Raj Kamal Maurya and Yogesh Mani Tripathi , Estimation and prediction of Marshall- Olkin Extended Exponential Distribution under Progessively Type-II Censored Data , Journal of Statistical Computation and Simulation, Vol. 88 (12), 2287-2 (2018).

19. Amulya Kumar Mahto, Yogesh Mani Tripathi and SankuDey , Estimation of Density and Distribution Functions of a Burr X Distribution , Journal of Statistical Research, Vol. 52(1), 43-59 (2018).

20. Yogesh Mani Tripathi, C. Petropoulos and MayankJha, Estimation of the shape parameter of a Pareto distribution, Communications in Statistics: Theory and Methods, Vol. 47 (18), 4459-4 (2018).

21. SankuDey, Tanmaykayal and Yogesh Mani Tripathi, Evaluation and Comparison of Estimators in the Gompertz Distribution, Annals of Data Science, Vol. 5(2), 235-258 (2018).

22. Tanmay Sen, Biswabrata Pradhan, Yogesh Mani Tripathi and Ritwik Bhattacharya , Fisher information in generalized progressive hybrid censored data , Statistics, Vol. 52 (5), 1025-10 (2018).

23. Tanmay Sen, Ritwik Bhattacharya and Yogesh Mani Tripathi , Generalized hybrid censored reliability acceptance sampling plans for the Weibull distribution , American Journal of Mathematical and Management Sciences, Vol. 37(4), 324-343 (2018).

24. Raj Kamal Maurya, Yogesh Mani Tripathi, Tanmay Sen, Manoj Kumar Rastogi , Inference for an Inverted Exponentiated Pareto Distribution Under Progressive Censoring , Journal of Statistical Theory and Practice, March 2019, 13:2 (2019).

25. Anshika Srivastava, R. K. Pandey and Om Prakash, Motzkin's maximal density and related chromatic numbers, Unif. Distrib. Theory, 13(1), 27-45 (2018).

26. A. Kumar, Prashant K Srivastava, and R.P. Gupta , Nonlinear dynamics of infectious diseases via information-induced vaccination and saturated treatment , Mathematics and Computers in Simulation, 157, 77-99 (2019).

27. M. Chandru, P. Das, H. Ramos , Numerical treatment of two-parameter singularly perturbed parabolic convection diffusion problems with non-smooth data , Mathematical Methods in the Applied Mathematics, 41(14), 5359-5387, (2018).

28. Chandrakant, Manoj Kumar Rastogi, Yogesh Mani Tripathi, On A Weibull-Inverse Exponential Distribution, Annals of Data Science, Vol. 5 (2), 209-234 (2018).

29. Raj Kamal Maurya, Yogesh Mani Tripathi, Tanmay Sen and Manoj Kumar Rastogi , On Progressively Censored Inverted Exponentiated Rayleigh Distribution , Journal of Statistical Computation and Simulation, Vol. 89 (3), 492–5 (2019).

30. Amit K. Verma and Sheerin Kayenat, On the Convergence of Mickens' type Nonstandard Finite Difference Schemes on Lane-Emden Type Equations , J. Math. Chem., 56, no. 6, 16 (2018).

31. Ashish Kumar Upadhyay and D Maity, On the enumeration of a class of toroidal graphs, Contributions to Discrete Mathematics, 13 79 – 119 (2018).

32. T. Antczak, S.K. Mishra and B.B. Upadhyay, Optimality conditions and duality for generalized fractional minimax program involving locally Lipschitz (b,psi,phi,rho)-invexity, Control and Cybernetics,, 47(1), 1-28 (2018).

33. B.B. Upadhyay, R.N. Mohapatra, S.K. Mishra: Sufficient optimality conditions and duality for mathematical programming problems with equilibrium constraints, Communications on Applied Nonlinear Analysis, 25(4), 68-84 (2018).

34. B.B. Upadhyay, Priyanka Mishra, R.N. Mohapatra, S.K. Mishra: On the applications of nonsmooth vector optimization problems to solve generalized vector variational inequalities using

convexificators", https://doi.org/10.1007/978-3-030-21803-4_66, Advances in Intelligent Systems and Computing, Springer 2019 (Accepted)

35. T. Antczak, S.K. Mishra and B.B. Upadhyay , Optimality conditions and duality for generalized fractional minimax program involving locally Lipschitz (b,psi,phi,rho)-invexity, Control and Cybernetics,, 47(1), 1-28 (2018).
36. Farha Sultana, Yogesh Mani Tripathi, M.K. Rastogi and Shuo-Jye Wu , Parameter estimation for the Kumaraswamy distribution based on hybrid censoring , American Journal of Mathematical and Management Sciences, Vol. 37 (3), 243-261 (2018).
37. P Das, J Vigo-Aguiar, Parameter uniform optimal order numerical approximation of a class of singularly perturbed system of reaction diffusion problems involving a small perturbation parameter, Journal of Computational and Applied Mathematics, 354, 533-544, (2019).
38. T Bag, M Ashraf, G Mohmmad and A K Upadhyay , Quantum codes from cyclic codes over the ring Fp[u]/ u3 − u , Asian-European Journal of Mathematics, (2018).
39. V K Mishra, N K Tomar, and M K Gupta , Regularization and index reduction for linear differential-algebraic systemss , Computational and Applied Mathematics, 37 (4), 4587–4598 (2018).
40. Habibul Islam and Om Prakash, Skew cyclic and skew (uα1 + uα2 + vα3 + uvα4)-constacyclic codes over Fq + uFq + vFq + uvFq, Int. J. Inf. Coding Theory, 5(2), 101-116 (2018).
41. T Bag and Ashish Kumar Upadhyay, Skew cyclic and skew constacyclic codes over the ring Lp + u1Lp + ... + u2mLp, Asian-European Journal of Mathematics, (2018).
42. D Maity and Ashish Kumar Upadhyay, Some Centrally Symmetric Manifolds, Journal of the Ramanujan Mathematical Society, to appear (2019).
43. Tanmay Sen, Yogesh Mani Tripathi and Ritwik Bhattacharya , Statistical inference and optimum life testing plans under Type-II hybrid censoring scheme , Annals of Data Science, Vol. 5(4), 679-708 (2018).
44. Tanmay Sen, Sukhdev Singh and Yogesh Mani Tripathi, Statistical inference for lognormal distribution with Type-I progressive hybrid censored data, American Journal of Mathematical and Management Sciences, VOL.38, NO. 1, 70– (2019).
45. S. Dey, TanmayKayal and Yogesh Mani Tripathi , Statistical Inference for the Weighted ExponentialDistribution under Progressive Type-II Censoring with Binomial Removal , American Journal of Mathematical and Management Sciences, Vol. 37 (2), 188-208 (2018).
46. T Bag and Ashish Kumar Upadhyay, Study on negacyclic codes over the ring $$mathbb {Z}_{p}[u]/, Journal of Applied Mathematics and Computing, (2018).
47. Sufficient optimality conditions and duality for mathematical programming problems with equilibrium constraints, Communications on Applied Nonlinear Analysis, 25(4), 68-84 (2018).
48. M K Gupta, N K Tomar, and M Darouach, Unknown inputs observer design for descriptor systems with monotone nonlinearities, International Journal of Robust and Nonlinear Control, 28, 5481-5494 (2018).

Papers Presented in Conferences

1. Ram Krishna Verma, Om Prakash and Habibul Islam , A note on constacyclic codes over $F_p[v, w]/<v^2-1, w^2-1, vw-wv>$, International Conference on Recent Advances in Pure and Applied Mathematics , Dept. of Applied Mathematics, DTU, Delhi (2018)
2. Ram Krishna Verma, Om Prakash and Habibul Islam , A note on constacyclic codes over $R= F_q[u_1, u_2, u_3, u_4]/<u_i^2-1, u_iu_j-u_ju_i>$, International Conference on Recent Advances in Mathematics and Scientific Computing, Department of Mathematics, MU, Bodh Gaya (2018)
3. Om Prakash , Applications of mathematics in coding theory and its utility in science and technology, National Conference on Recent Trends in Research in Applied Sciences: An Interdisciplinary Approach (NCRTRAS- 2018), GLA College, Medininagar, Palamu (2018)
4. Om Prakash and Arindam Ghosh, Characterization of Jordan left {g, h}-derivation over some algebras, ArbeitstagungAllgemeine Algebra(AAA-96), Univ. of Dermstadt, Dermstadt, Germany (2018)
5. A Kumar, P.K. Srivastava , Delayed Information Induced Self-protection Leads to Oscillations in an Epidemic Model , Emerging Trends in Mathematical Sciences and its Applications, AIP Conf. Proc. 2061 , JIIT, Noida (2019)
6. Yogesh Mani Tripathi, C. Petropoulos and Farha Sultana , Estimation of a Parametric Function of a Two parameter Exponential Distribution under Double Censoring, , IISA International Conference on Statistics From Data to Knowledge, Working for a Better World , University of Florida, USA (2018)
7. Om Prakash and Arindam Ghosh , Generalization of Jordan derivation over some algebras , International Conference on Recent Advances in Mathematics and Scientific Computing , Department of Mathematics, MU, Bodh Gaya (2018)
8. P. Das, J. Vigo Aguiar, S. Rana , Numerical methods for System of singularly perturbed problems , CMMSE 2018, Spain , Spain (2018)
9. B.B. Upadhyay, Priyanka Mishra, R.N. Mohapatra, S.K. Mishra , On the applications of nonsmooth vector optimization problems to solve generalized vector variational inequalities using convexificators , 6th World Congress on Global Optimization (WCGO 2019) , University of Lorraine Metz, France (2019)
10. Habibul Islam, Om Prakash and Ram Krishna Verma , Quantum codes from the cyclic codes over $F_p[v, w]/<v^2-1, w^2-1, vw-wv>$, International Conference on Recent Advances in Pure and Applied Mathematics , Dept. of Applied Mathematics, DTU, Delhi (2018)

11. Habibul Islam and Om Prakash , Skew cyclic codes over $\mathbf{F}_p + u\mathbf{F}_p + u^2\mathbf{F}_p$, International Conference on Recent Advances in Mathematics and Scientific Computing , Department of Mathematics, MU, Bodh Gaya (2018)
12. Sushma Singh and Om Prakash, Some results on power serieswise almost Armendariz rings, ArbeitstagungAllgemeine Algebra(AAA-96), Univ. of Dermstadt, Dermstadt, Germany (2018)
13. Pratibhamoy Das, A posteriori based convergence analysis for nonlinear singularly perturbed system of delay differential equations with multiple layer phenomena" on "International Conference on Analysis and Its Applications" at National Institute of Technology, Trichy, from 2-4th July, 2018.
14. P. Das, S. Rana and J. Vigo-Aguiar, Uniformly convergent numerical methods for singularly perturbed mixed type reaction diffusion systems with boundary layers, 18th International Conference "Computational and Mathematical Methods in Science and Engineering (CMMSE 2018)" organized by Departmento deMathematicas, Universidad de C adiz, Vol: 2, Page:, July 9-13, 2018, Rota, Cadiz, Spain.
15. Abhyendra Prasad and A K Upadhyay, Some results in Algebraic graph theory, Emerging Trends in Combinatorics and Its Applications, February 22-23, 2019, BHU Varanasi
16. BhanuPratap Yadav and Ashish Kumar Upadhyay, Fuzzy strong L-topology Generated by Fuzzy Relation, National Conference on Recent Trends in Mathematics (NCRTM), 0-11th November 2018 at the Department of Mathematics & Astronomy, University of Lucknow.
17. Rajkaran Kori and Ashish Kumar Upadhyay, Spectral radius and Hamiltonicity of K-connected graphs, Emerging Trends in Combinatorics and Its Applications, February 22-23, 2019, BHU Varanasi

Sponsored Research Projects

1. Estimationand Predictionwith Constrainedand Unconstrained Observations (SERB, Rs.3.96 Lakhs) (PI : Yogesh Mani Tripathi)
2. Impact of information of disease prevalence on the dynamics of diseases: A mathematical study (MATRICS, SERB (DST), Rs.6.60 Lakhs) (PI : Dr PK Srivastava)
3. Nonlinear Singular BVPs arising in real life (DST SERB, Rs.16.00 Lakhs) (PI :)
4. Parameter uniform numerical analysis for singularly perturbed differential equations based on mesh adaptivity (Science & Engineering Research Board (SERB), Rs.24.40 Lakhs) (PI : P. Das)
5. Towards New Platform on Generalized Vector Variational Inequalities: Scope in Optimization and Bilevel programming (SERB(ECR) DST, Rs.1494350.00 Lakhs) (PI : BalenduBhooshanUpadhyay)
6. ~~Towards New Platform on Generalized Vector Variational Inequalities: Scope in Optimization and Bilevel Programming (SERB(ECR) DST, Rs.1494350.00 Lakhs) (PI : BalenduBhooshanUpadhyay)~~
7. Underwater target motion analysis (NPOL, DRDO, India, Rs.0.00 Lakhs) (PI : ShovanBhaumik; Co-PI: Nutan Kumar Tomar)
8. A study of d-covered triangulations and Semi equivelar maps on surfaces (SERB, India, 4.92 lakhs, Completed) (PI: Ashish Kumar Upadhyay)

Other Activities

Fellow - Professional Bodies

1. Pratibhamoy Das (2018) DAAD

Member - Professional Bodies

1. Amit Kumar Verma (0) IMS
2. Amit Kumar Verma (0) BGP
3. Ashish Kumar Upadhyay (0) Mathematics Teachers Association (India)
4. Ashish Kumar Upadhyay (2019) Mathematical Society of BHU
5. Ashish Kumar Upadhyay (2005) Ramanujan Math Society
6. Ashish Kumar Upadhyay (2002) Indian Math Society
7. Ashish Kumar Upadhyay (0) Indian Science congress association
8. Ashish Kumar Upadhyay (0) The Association of Mathematics Teachers of India
9. Ashish Kumar Upadhyay (0) American Mathematical Society
10. Nutan Kumar Tomar (0) Indian Mathematical Society
11. Om Prakash (2019) Ramanujan Mathematical Society
12. Om Prakash (2018) American Mathematical Society
13. Om Prakash (2006) The Indian Science Congress
14. Om Prakash (2010) Calcutta Mathematical Society
15. Om Prakash (2012) The Indian Mathematical Society
16. Prashant Kumar Srivastava (2012) Indian Mathematical Society (IMS)
17. Prashant Kumar Srivastava (2018) Indian Science Congress Association (ISCA)
18. Prashant Kumar Srivastava (2017) The National Academy of Sciences, India (NASI)
19. Prashant Kumar Srivastava (2013) Society for Mathematical Biology

20. Prashant Kumar Srivastava (2010) Indian Academy for Mathematical Modelling and Simulation (ISMMAS)
21. Pratibhamoy Das (2017) Indian Mathematical Society (IMS)
22. B BUpadhyay (2010) Working Group on Generalized Convexity (WGGC)
23. B BUpadhyay (2011) International Society on Multi Criteria Decision Making (MCDM)
24. B BUpadhyay (2012) Indian Mathematical Society (IMS)

Awards & Honours

1. Pratibhamoy Das (2018) *DAAD Research Ambassador, Germany*
2. Ashish K Upadhyay, Plenary Lecture in UGC sponsored workshop by BN College
3. Ashish K Upadhyay, Chaired a session in Annual conference of Mathematical Society of BHU, Varanasi,
4. Ashish K Upadhyay, Elected to Executive Committee of RMS

Visits Abroad by Faculty Members

1. Yogesh Mani Tripathi - Presented a Paper in IISA Conference (USA,) May 17-20, 2018
2. Pratibhamoy Das - International Conference (University of Cadiz, Rota, Cadiz, Spain,) 9-13th July, 2018
3. Om Prakash - Presenting research paper in the conference (Dermstadt, Germany) June 01-03, 2018
4. BalenduBhooshanUpadhyay – Participated and presented a research paper in the 2019 Spring Joint Central Western Section Meeting of American Mathematical Society (University of Hawai, Honolulu, USA) March 22 – 24, 2019
5. Pratibhamoy Das - For Alumni Meet and Strategy Workshop (TechnischeUniversitat Berlin, Germany) 13-15th May, 2019

Invited Lectures by Faculty Members

1. Matlab for graphing and ODEs *by* Prashant Kumar Srivastava (Two days workshop on MATLAB at LNJPIT Chapra, Bihar)
2. Delayed Information Induces Oscillations in an Infectious Disease Model *by* Prashant Kumar Srivastava (4th International Conference On Recent Developments In Theory, Computation & Application of Differential Equations (on 70th birthday of Prof. M.K. Kadalbajoo) held at South Asian University, New Delhi.)
3. Impact of information on treatment as well as on disease dynamics *by* Prashant Kumar Srivastava (106th Indian Science Congress held at Lovely Professional University, Jalandhar, Punjab)
4. Nonlinear Dynamics of Infectious Diseases via Information-Induced Vaccination and Saturated Treatmen *by* Prashant Kumar Srivastava (International conference On Mathematical Modelling and Computations (ICMMC-2018) held at South Asian University, New Delhi)
5. Role of Optimal Screening and Treatment on Infectious Diseases Dynamics in Presence of Information I *by* Prashant Kumar Srivastava (MoDSIP-ID organized jointly by ASU and GMU, USA and Sri Sathya Sai Institute of Higher Learning (SSSIHL), India during held at SSSIHL, India)
6. Rings, Modules and Coding Theory *by* Om Prakash (Central University of Punjab, Bathinda), April 27, 2018
7. Fundamental of Algebraic Coding Theory *by* Om Prakash (Bhagalpur College of Engineering, Bhagalpur), July 7, 2018
8. Generalization of Jordan derivation over some algebras, *by* Om Prakash (Department of Mathematics, Magadh University, Bodh Gaya), September 18-19, 2018
9. Applications of mathematics in coding theory and its utility in science and technology *by* Om Prakash (GLA College, Medininagar, Palamu), Dec. 6-7, 2018
10. *Optimal convergent a posteriori analysis for a nonlinear system of delay differential equations with multiple layers by* Pratibhamoy Das (NIT Rourkela)
11. Delivered lecture on Matlab under TEQIP at LNJPIT Chapra on 29th January 2019. *by* Amit Kumar Verma (LNJPIT Chapra)
12. Fermats last theorem in DST Inspire camp from 15th June 2018 to 19th June 2018. *by* Amit Kumar Verma (IET Sitapur)
13. On Generalized Vector Variational Inequalities and Nonsmooth Vector Optimization Problems via Convexificator by BalenduBhooshanUpadhyay (University of Hawai, Honolulu, USA)
14. On Generalized Vector Variational Inequalities and Nonsmooth Vector Optimization Problems via Convex *by* BalenduBhooshanUpadhyay (University of Hawai, Honolulu, USA)
15. Combinatorial Manifolds *by* Ashish Kumar Upadhyay (Varanasi)
16. PL Structures : Work of Prof B L Sharma *by* Ashish Kumar Upadhyay (B N College)
17. Activities as a DAAD Research Ambassador *by* Pratibhamoy Das (TechnischeUniversitat Berlin, Germany)

Mechanical Engineering

Faculty Members

Dr. Akhilendra Singh Associate Professor	FEM, XFEM, Meshfree Method, Computational Mechanics, Fracture and Fatigue, Thermal Engineering.
Dr. Karali Patra Associate Professor	Smart materials and smart systems; Micromachining; Condition Monitoring; Robotics and Mechatronics.
Dr. Manabendra Pathak Associate Professor	Computational fluid dynamics and heat transfer; Turbulence modeling; Two-phase flow in micro and minichannels; Dispersion of particles, droplets and bubbles at micro- and nano-scales; Rheological and heat transfer characteristics of viscoplastic fluids; Nuclear materials; Solar thermal technology.
Dr. Mayank Tiwari Associate Professor	Tribology, Gear, bearing wear and dynamics, Vacuum Tribology, Machine Dynamics, Rotor dynamics, Vibrations, Acoustics.
Dr. Mohd. Kaleem Khan Associate Professor	Nuclear Reactor Safety; Two-phase flow in microchannels; Solar Thermal Technology;Non-Newtonian fluids
Dr. Probir Saha Associate Professor	Conventional and non-conventional machining, Welding, Soft computing in manufacturing process
Dr. Somnath Sarangi Associate Professor	Continuum Mechanics
Dr. Sudhanshu Sekhar Panda Associate Professor	Tool condition monitoring, Soft Computing, Metal Cutting and Machining, Industrial application of Soft computing technique in Machining, Designing of experiments, Statistical modelling,Bio Machining, Sensors Calliberation
Dr. Atul Thakur Assistant Professor	Bio-inspired robotics, physics-aware planning of robotic systems, and application of robotics techniques for micro-manipulation of biological cells
Dr. Rishi Raj Assistant Professor	Phase Change Heat Transfer, Micro-/Nano-Scale Transport, Energy, Surface Science, Microgravity Science
Dr. Somnath Roy Assistant Professor	Computational Fluid Dynamics, Turbulence, Mixing and Heat Transfer, High Performance Computation
Dr. Subrata Kumar Assistant Professor	Heat transfer, Laser Material Processing, Flow of Granular Materials, CFD
Dr. Anirban Bhattacharya Assistant Professor	Incremental sheet metal forming, Rapid prototyping, Conventional machining, Grinding, Non-conventional machining, Welding, Modeling and simulation of Manufacturing processes and systems
Dr. Anirban Mahato Assistant Professor	In situ analysis, High Speed Imaging, Manufacturing processes; Materials Processing; Tribology
Dr. Chiranjit Sarkar Assistant Professor	Magnetorheological (MR) Fluids and Devices, Tribology, CFD of Grease flow
Dr. Murshid Imam Assistant Professor	Friction stir welding, Hot deformation of metallic materials, Additive manufacturing
Dr. Deepu P Assistant Professor	Hydrodynamic stability, Bio-physical aerodynamics, Multiphase flow
Dr. Surajit Kumar Paul Assistant Professor	Computational plasticity, fatigue and fracture, sheet metal forming, crashworthiness, finite element analysis, molecular dynamics

Academic Programmes

- B.Tech. in Mechanical Engineering
- M.Tech in Mechatronics
- M.Tech. in Mechanical Engneering
- Ph.D Programs

Research & Development Activities

Papers Published in Journals

1. Deepak Kumar, Somnath Sarangi, Electro-magnetostriction under large deformation: Modeling with experimental validation, Mechanics of Materials, 128 1-10 (2019).
2. Deepak Kumar, Somnath Sarangi, Instability analysis of an electro-magneto-elastic actuator: A continuum mechanics approach, AIP Advances, 8, 115314 (2018).
3. The change in surface topography , Surface Topography: Metrology and Properties, 6 (4), 045006 (2018).
4. PriyabrataSahoo, TejPratap and KaraliPatra , A hybrid modelling approach towards prediction of cutting forces in micro end milling of Ti-6Al-4V titanium alloy , International Journal of Mechanical Sciences, Vol. 150, pp. 495-50 (2019).
5. SS Panda and Pintu Kumar, A review on properties and microstructure of micro-extruded product using SPD and as-cast material, Sadhana, (2018).
6. SK Paul, S Roy, S Sivaprasad, S Tarafder, , A simplified procedure to determine post-necking true stress-strain curve from uniaxial tensile test of round metallic specimen using DIC. , Journal of Materials Engineering and Performance, 2018, 27 (9), 4893 (2018).
7. S Kumar, H Krishnaswamy, RK Digavalli, SK Paul , Accounting Bauschinger effect in the numerical simulation of constrained groove pressing process , Journal of Manufacturing Processes , 2019 38, 49-62 (2019).
8. A Garg, K Shankhwar, D Jiang, V Vijayaraghavan, BN Panda, SS Panda , An evolutionary framework in modelling of multi-output characteristics of the bone drilling process , eural Computing and Applications, (2018).
9. SS Panda and Pintu Kumar, An innovative method to join two polymer rods through Y-shape extrusion channel, Measurement, (2018).
10. Mikolajczyk, T. Paczkowski, T. Pimenov, D.Y. Mia, M. Patra, K. Krolczyk, G. Gupta, M.K. Zdrojewski, J. , Analysis of the Deviation in a Low-Cost System for Stepless Digital Control of Conventional Lathe Spindle Speeds , Applied Science, 9, 12 (2019).
11. Kumar, N., Raza, M. Q., Seth, D., and Raj, R. , Aqueous Ionic Liquid Solutions for Boiling Heat Transfer Enhancement in the Absence of Buoyancy Induced Bubble Departure , International Journal of Heat and Mass Transfer, 122 (2018).
12. SS Panda and Pintu Kumar, Assessment of thermoplastic weldability using deormation technique, welding journal, (2019).
13. Deepak Prajapati and MayankTiwari, Assessment of Topography Parameters During Running-in and Subsequent Rolling Contact Fatigue Tests , Journal of Tribology, Vol. 141 (2019).
14. Sinha, K. N. R., Ranjan, D., Raza, M. Q., Kumar, N., Kaner, S., Thakur, A., and Raj, R., In-situ acoustic detection of critical heat flux for controlling thermal runaway in boiling systems, International Journal of Heat and Mass Transfer, Vol. 138, pp. 135-149 (2019).
15. Chaitanya, B., Bahadur, V., Thakur, A. D., and Raj, R., Biomass-gasification-based atmospheric water harvesting in India, Energy, Vol. 165, pp. 610-621 (2018).
16. Kumar, N., Raza, M. Q., Seth, D., and Raj, R., Aqueous Ionic Liquid Solutions for Boiling Heat Transfer Enhancement in the Absence of Buoyancy Induced Bubble Departure, International Journal of Heat and Mass Transfer, 122, pp. 354-363 (2018)
17. Gundupalli, S., P., Hait, S., and Thakur, A. , Classification of metallic and non-metallic fractions of e-waste using thermal imaging-based technique , Procefety and Environmental Protection, 118:32-39 (2018).
18. P Deepu, Cochlear mechanics with fluid viscosity and compressibility, Physical Review E, 99, 032417 (2019).
19. Yang Guoa, AnirbanMahato, Narayan K. Sundaram, Controlling surface strain distribution in copper using plane strain wedge sliding, Journal of Materials Processing Technology, 258, 106-115 (2018).
20. Surajit Kumar Paul, Correlation between hole expansion ratio (HER) and notch tensile test , Manufacturing Letters , 2019, 20, 1-4 (2019).
21. Ravi Shankar Anand and KaraliPatra , Cutting Forces and Hole Quality Analysis in Micro-drilling of CFRP , Materials and Manufacturing Processes, Vol. 33, pp. 1369-13 (2018).
22. D.S. Reddy, M.K. Khan, M.Z. Alam, and H. Rashid , Design charts for Scheffler reflector , Solar Energy, vol.163, pp.104-112. (2018).
23. Ahmed, S., Saha, Probir., , Development and testing of fixtures for friction stir welding of thin aluminium sheets, , Journal of Materials Processing Technology, Vol.252,pp.242-248 (2018).
24. TejPratap, KaraliPatra , Direction dependent dynamic wetting of semi-hemispherical end micro-groove textured Ti-6Al-4V surface , Surface and Coating Technology, Vol. 356, pp 138–1 (2018).
25. Deepak Kumar, SomnathSarangi , Dynamic response of dielectric elastomer under electrical loading condition , Procedia Computer Science, 133, 691-696 (2018).
26. Surajit Kumar Paul , Effect of twist boundary angle on deformation behavior of ⟨1 0 0⟩ FCC copper nanowires. , Computational Materials Science, July 2018, 150, 24-3 (2018).
27. Pankaj Kumar and Akhilendra Singh , Experimental and Numerical Investigations of Cyclic Plastic Deformation of Al-Mg Alloy , Journal of Materials Engineering and Performance, 28(3), 1428-1440 (2019).
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33. Pankaj Kumar, Akhilendra Singh , Investigation of Fracture Behaviour and Low Cycle Fatigue Properties of Cryorolled Al-Mg Alloy , Theoretical and Applied Fracture Mechanics, 98,78-94 (2018).

34. Deepak Prajapati, MayankTiwari , Investigation on metallic contact conditions using ECR technique by performing rolling/sliding experiments , Surface Topography: Metrology and Properties , 7 (1) (2019).

35. MadhavRaturi, AshuGarg, Anirban Bhattacharya , Joint strength and failure studies of dissimilar AA6061-AA7075 friction stir welds: Effects of tool pin, process parameters and preheating , Engineering Failure Analysis, Vol 96, page 570-588 (2019).

36. TejPratap, KaraliPatra , Mechanical micro-texturing of Ti-6Al-4V surfaces for improved wettability and bio-tribological performances , Surface and Coating Technology, Vol. 349, pp 71–81 (2018).

37. TejPratap, KaraliPatra , Micro Ball-End Milling - An Emerging Manufacturing Technology for Micro-feature patterns , International Journal of Advanced Manufacturing Technology, Volume 94,pp 2821– (2018).

38. P Deepu, Modeling the production of belly button lint , Scientific Reports, 8 (1), 14472 (2018).

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42. KuldeepAwasthi and M.K. Khan, Performance evaluation of coiled tube receiver cavity for a concentrating collector , Renewable Energy, 138, pp. 666-674. (2019).

43. R. Gouda, M. Pathak and M.K. Khan , Pool boiling heat transfer enhancement with segmented finned microchannels structured surface , International Journal of Heat and Mass Transfer, 127, pp. 39-51 (2018).

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46. Deepak K Prajapati, MayankTiwari, The relation between fractal signature and topography parameters: a numerical and experimental study , Surface Topography: Metrology and Properties , 6 (4) (2018).

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48. Deepak K Prajapati, Krishnamurti Singh and MayankTiwari , Tribological investigation of copper and AISI 304 steel during dry sliding wear , Surface Topography: Metrology and Properties, 7 (2019) 015021 (2019).

49. Bimal Das and Akhilendra Singh, Understanding strain controlled low cycle fatigue response of P91 steel through experiment and cyclic plasticity modeling, Fusion Engineering Design, 138, 125-137 (2019).

50. Deepak Kumar, Somnath Sarangi, Variable stiffness modeling of smart cantilever beam under the electrical loading condition , Procedia Computer Science, 133, 697-702 (2018).

51. Raza, M. Q., Kumar, N., and Raj, R. , Wettability-Independent Critical Heat Flux during Boiling Crisis in Foaming Solutions , International Journal of Heat and Mass Transfer, 126(A) (2018).

Papers Presented in Conferences

1. Deepak Kumar Prajapati, MayankTiwari , 2D Numerical wear model for determining change in surface topography with number of wear cycles , Proceedings of Asia Tribology conference 2018 , Kuching Malaysia (2018)

2. AshuGarg, Anirban Bhattacharya , Characterizing various zones formed in friction stir spot welding with different tool pins , International Conference on Aluminum Alloys (ICAA16) , McGill University, Montreal, Canada (2018)

3. M K Thakur, C Sarkar, Development and Performance Analysis of a Magnetorheological Fluid Clutch , COMSOL Conference , Bangalore, India. (2018)

4. D.S. Reddy and M.K. Khan , A simplified frame design for Scheffler Reflector , 11th International Conference on Sustainable Energy & Environmental Protection (SEEP-2018) , UWS, Paisley, Scotland, UK. (2018)

5. A.M. Sharan, M. Pathak and M. Verma , An analytical investigation of solar water heater performance during winter period in Jharkhand region , International Conference on Recent Innovations and Developments in Mechanical Engineering , NIT Meghalaya (2018)
6. Agrawal, K., Jain. K., Gupta, D., Shrivastav, R., Agnihotri, A., and Thakur, A. , Bayesian optimization based terrestrial gait tuning for an 12-dof alligator-inspired robot with active body undulation , ASME Mechanisms and Robotics Conference , Quebec City, Canada (2019)
7. Kumar, N., Raza, M. Q., Seth, D., and Raj, R. , Bubble Dynamics during Boiling with Foaming Ionic Liquid Solution , CHEMCON 2018: 71st Annual Session of Indian Institute of Chemical Engineers , NIT Jalandhar (2018)
8. Raza, M. Q., Kumar, N., and Raj, R. , Critical Heat Flux Enhancement during Subcooled Pool Boiling with Foaming Solution , CHEMCON 2018: 71st Annual Session of Indian Institute of Chemical Engineers , NIT Jalandhar (2018)
9. Raza, M. Q., Kumar, N., and Raj, R. , Critical Heat Flux Mechanisms during Pool Boiling with Nanofluids , 10th International Conference on Boiling and Condensation Heat Transfer , Nagasaki, Japan (2018)
10. Bimal Das and Akhilendra Singh, Cyclic mean stress relaxation behavior of P91 steel: Experiments and constitutive modeling. , Second International Conference on Structural Integrity and Exhibition (SICE 2018) , Hyderabad (2018)
11. Rahul Kesharwani, Murshid Imam, ChiranjitSarkar , Design and conceptualization of friction stir additive manufacturing tool for the development of multi-layered gradient structure , Indo Japan Bilateral Symposium on Futuristic Materials & Manufacturing , IIT Madras (2018)
12. SwetaSaroj, Murshid Imam, Yufeng Sun2 , Hidetoshi Fujii, SeiichiroTsutsumi, Ninshu Ma, HidekazuMurakawa , Ductilization and strength trade off in functionally graded material using multi-pass friction stir processing , Indo Japan Bilateral Symposium on Futuristic Materials & Manufacturing , IIT Madras (2018)
13. P. Kumar and M. Pathak , Effect of High Viscosity and Wall Contact Angle on Droplet Formation in a Microfluidic T-Junction , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP-2018), , IIT Bombay (2018)
14. Pankaj Kumar and Akhilendra Singh , Evaluation of Strain Controlled and Crack Growth Behaviour of Al-3.4Mg Alloy , Nineteenth (XIX) International colloquium of mechanical fatigue of metals (ICMFM 2018) , Porto,Portugal. (2018)
15. Pankaj Kumar and Akhilendra Singh , Experimental and Numerical Investigations of Low Cycle Fatigue Behavior of Cryorolled AA 5754 Alloy , Second International Conference on Structural Integrity and Exhibition (SICE 2018), Hyderabad, , Hyderabad (2018)
16. SatyabrataSahoo, Pankaj Kumar, Sai Manish B and Akhilendra Singh , Experimental And Numerical Investigations of Low Cycle Fatigue Behavior of Stepped Ageing Al-3.4Mg Alloy , ICMPC 2019 , Hyderabad (2019)
17. Behera, D., Mohanty, D., Ghosh, D. P., Saha, S.K., and Raj, R. , Experimental Investigation of Single-Phase Heat Transfer on Scalable Nanostructured Microchannels , 4th World Congress on Mechanical, Chemical, and Material Engineering , Madrid, Spain (2018)
18. K Singh, M Tiwari, A Mahato , Fretting wear characteristics of AISI 1040 steel alloy , ASIATRIB 2018 , Kuching Malaysia (2018)
19. Kumar, A., Gunjan, M. R., Jakhar, K., and Raj, R. , Interface Shape Evolution during Buoyancy Induced Droplet Detachment , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power , IIT Bombay (2018)
20. Shah, M.S and Saha, Probir, , Investigation and evaluation of erosion efficiency in micro-EDM dressing of biocompatible Ti-6Al-7Nb materia , In Proceedings of the 7th International & 28th All India Manufacturing Technology, Design and Research Conference (AIMTDR) 2018 , Anna University, Chennai-600025, India (2018)
21. Bimal Das and Akhilendra Singh, Low cycle fatigue life estimation of P91 steel by strain energy approach. , Nineteenth (XIX) International colloquium of mechanical fatigue of metals (ICMFM 2018), Porto, Portugal. (2018)
22. Ahmed, S. and Saha, Probir , On demands of ultra-thin workpieces for obtaining a sound friction stir weld , 12th International Symposium on Friction Stir Welding , Chicoutimi, Canada (2018)
23. M.S.Shah and ProbirSaha, , Online Experimental Characterization of Micro-EDM Dressing on Ti6Al7Nb Biomedical Material , In National Conference on Advanced Materials, Manufacturing and Metrology (NCAMMM-2018) , CSIR-CMERI, Durgapur, India (2018)
24. Thati, S., Raj. A., and Thakur, A. , Optimal and dynamically feasible path planning for an anguilliform fish-inspired robot in presence of obstacles , ASME Mechanisms and Robotics Conference , Quebec City, Canada (2018)
25. SS Panda , PCA based mim damage , ICM , Phuket (2019)
26. V. Kumar, M.Pathak and M.K. Khan , Performance Enhancement of a Closed Loop Two Phase Thermosyphon at High Heat Flux , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP-2018) , IIT Bombay (2018)
27. K. Awasthi and M.K. Khan , Performance evaluation of coiled tube receiver cavity for a concentrating collector , 11th International Conference on Sustainable Energy & Environmental Protection (SEEP-2018) , UWS, Paisley, Scotland, UK. (2018)
28. A. Ranjan, M.Pathak and M.K. Khan , Pool Boiling Heat Transfer Characteristics of a Plasma Sprayed Coated Surface , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP-2018) , IIT Bombay (2018)
29. Kumar, N., Raza, M. Q., Seth, D., and Raj, R. , Pool Boiling with Aqueous Ionic Liquid Solution , 10th International Conference on Boiling and Condensation Heat Transfer , Nagasaki, Japan (2018)
30. Md Anwar Ali Anshari, Hidetoshi Fujii, Murshid Imam , Properties enhancement in low carbon steels and Al0.5CoCrCuFeNi high entropy alloy using friction stir processing , Indo Japan Bilateral

Symposium on Futuristic Materials & Manufacturing , IIT Madras (2018)

31. R. Gouda, M. Pathak and M.K. Khan , Role of Structured Surface in Enhancement of Critical Heat Flux in Pool Boiling , National Conference on Critical Heat Flux and Multiphase Flow , IIT (BHU), Varanasi (2018)
32. K. Awasthi and M.K. Khan , Thermohydraulic Performance of Single Stage and Multistage Conical Receiver Cavities , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP-2018) , IIT Bombay (2018)
33. AmitChaudhary, Chiranthan Ramesh, ViswanathChinthapenta, Murshid Imam , Tool durability and weldability in hybrid friction stir welding of high strength materials , 2nd International Conference on Computational Methods in Manufacturing , Indian Institute of Technology Guwahati, (2019)
34. R. Kumar, M. Pathak and M.K. Khan , Transient Simulation of a Three Dimensional Single Pair of Thermoelectric Cooler , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP-2018) , IIT Bombay (2018)
35. Gunjan, M. R., Kumar, A., and Raj, R. , Wettability of Lubricant-Infused Surfaces (LIS) , 7th International and 45th National Conference on Fluid Mechanics and Fluid Power , IIT Bombay (2018)

Sponsored Research Projects

1. A self AdaptiveCooling System by enhanced pool boiling (DST(SERB), Rs.36.25 Lakhs) (PI : ManabendraPathak and Mohd. Kaleem Khan)
2. Acoustic Detection of Leidenfrost Dynamics on Scalable Micro-/Nanostructured Surfaces (DST Nanomission, Rs.27.00 Lakhs) (PI : Rishi Raj)
3. Controlling the vibrational dynamics of fluid-carrying flexible tubes via acoustic irradiation (SERB-DST, Rs.26.55 Lakhs) (PI : Dr. Deepu P)
4. Design of an Integral Squeezed Film Damper (Aeronautics R&D Board, Rs.36.41 Lakhs) (PI : Dr. MayankTiwari)
5. Design of Asperity for Textured Metal Surfaces to Improve Tribological Characteristic in Sliding: An In Situ Imaging Approach (SERB, Rs.28.96 Lakhs) (PI : Dr. AnirbanMahato)
6. Developing interfacial characterization facilities (DST, Funds for Improvement of S&T Infrastructure, (FIST), Rs.290.00 Lakhs) (PI : Head, Mechanical Engineering Department).
7. Development of an agricultural waste based off-the-grid climate control unit for storage and processing of agricultural produce (IMPRINT IIA, Rs.108.00 Lakhs) (PI : Rishi Raj)
8. Development of cryogenic micromachining for fabrication of soft and stretchable polymer based artificial skin with multi-modal sensing capability (AMT program, DST (approved, fund yet to receive), Rs.48.00 Lakhs) (PI : Dr. KaraliPatra)
9. Development of lizard-like robotic spy surveillance system (SERB, Rs.132.00 Lakhs) (PI : Dr. RajuHalder)
10. Development of Low Cost, Efficient, Mechanism for Collection of Garbage and Dirt for Municipal Corporations, Panchayats (Swacchta Action Plan, MHRD, Rs.16.71 Lakhs) (PI : Dr. MayankTiwari)
11. Development of Multi-layered Microstructure Gradient Functionally Graded Composite Material using Friction stir Additive Manufacturing (Science & Engineering Research Board (SERB), Rs.2496100.00 Lakhs) (PI : Dr. Murshid Imam)
12. Development of novel SMA bearing performances and durability of rotating machinery (UAY , Rs.182.26 Lakhs) (PI : Dr. MayankTiwari)
13. Development of Novel SMA Bearing Supports and Retrofit for Enhanced Performance and Durability of Rotating Machinery (MHRD,Ministry of Power, General Electric, Rs.100.00 Lakhs) (PI : Dr. MayankTiwari)
14. Experiments and modelling of wall bounded flow of lubricating magnetorheological grease (DST SERB, Rs.19.20 Lakhs) (PI : Dr. ChiranjitSarkar)
15. FIST (DST, Rs.297.00 Lakhs) (PI : HoD, ME)
16. Improvement of fatigue and ductile fracture behavior of steel and Aluminium alloy specimens by application of pulsed electric current (SERB, DST, Rs.20.72 Lakhs) (PI : Surajit Kumar Paul)
17. Influence of Secondary Heat in Friction Stir Welding: Mechanical Properties and Metallurgical Observations (SERB, DST, Rs.16.03 Lakhs) (PI : Anirban Bhattacharya)
18. Passive Two-Phase Heat Spreader for Hotspot Mitigation in Microgravity of Space (ISRO, Rs.20.00 Lakhs) (PI : Rishi Raj)

Consultancy Projects

1. Analysis of Rolling Element bearing Friction Torque (National Engineering Industry Jaipur, Rs.4.62 Lakhs) Consultant Name: Dr. MayankTiwari
2. Design, Fabrication and Installation of Motorized Sliding Security Gate at Reserve Bank of India, Patna (Reserve Bank of India, Patna, Rs.3.14 Lakhs) Consultant Name: Atul Thakur
3. Establish correlation between specimen level fatigue and cornering fatigue test (Tata Steel Limited, R&D, Jamshedpur, Rs.17.70 Lakhs) Consultant Name: Surajit Kumar Paul
4. Frequency Based Vibration Analysis (Prophecy Sensorlytics India Private Limited, Rs.2.00 Lakhs) Consultant Name: SomnathSarangi
5. Pre-delivery inspection of 03 Nos. Dulevo Road Sweeping Machine (Lion Services Pvt. Ltd., Rs.2.77 Lakhs) Consultants' Name: Dr. ManabendraPathak, Dr. M.K. Khan, Dr. A. Bhattacharya, Dr. A. Mahato and Dr. C. Sarkar
6. Predelivery inspection of 04 Nos. Ceksan Road Sweeping Machine (American Road Technology & Solutions Pvt Ltd, Rs.2.79 Lakhs) Consultant Name: Dr. Mohd. Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya, Dr. A. Mahato, and Dr. Murshid Imam

7. Predelivery inspection of 06 Nos. Cattle catcher vehicle (ENSOL MulticleanEquipmentsPvt Ltd, Rs.0.45 Lakhs) Consultant Name: Dr. Mohd. Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya and Dr. A. Mahato
8. Predelivery inspection of 06 Nos. Tata Hitachi Ex200LC Super with rock breaker (Tata Hitachi Construction Machinery Company Pvt Ltd, Rs.1.79 Lakhs) Consultant Name: Dr. ManabendraPathak, Dr. M.K Khan, Dr. A. Bhattacharya, Dr. A. Mahato, Dr. M. Tiwari and Dr. Rishi Raj
9. Predelivery inspection of 119 Nos. TATA 3 cu.m. Tipper LPK407 (Tata Motors Limited, Rs.5.62 Lakhs) Consultants Name: Dr.Mohd. Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya and Dr. A. Mahato
10. Predelivery Inspection of 182 Nos. Greencart Electric tipper (CLH GASEOUS FUEL APPLICATIONS PVT. LTD, Rs.1.17 Lakhs) Consultant Name: Dr. Mohd. Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya, Dr. A. Mahato, and Dr. Ranjan K. Behera
11. Predelivery inspection of 37 Nos. JCB Skid Steer Loader (JCB India Ltd, Rs.2.65 Lakhs) Consultant Name: Dr. Mohd. Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya, Dr. A. Mahato, Dr. M. Tiwari and Dr. Rishi Raj
12. Predelivery inspection of 375 Nos. Tata Super Ace 3.2 cu.m. Tippers (Tata Motors Limited, Rs.9.40 Lakhs) Consultant Name: Dr. ManabendraPathak, Dr. M.K Khan, Dr. A. Bhattacharya, Dr. A. Mahato, Dr. M. Tiwari and Dr. Rishi Raj
13. Predelivery inspection of 75 Nos.JCB Backhoes 3DX Super Loaders (JCB India Ltd, Rs.7.57 Lakhs) Consultants Name: Dr. Mohd.Kaleem Khan, Dr. ManabendraPathak, Dr. A. Bhattacharya, Dr. A. Mahato, Dr. M. Tiwari and Dr. Rishi Raj
14. Third party quality assurance of construction of academic and residential complex under phase II at IIT Patna campus (CPWD, Rs.85.00 Lakhs) Consultants' Name: PradiptaChakraborty,VaibhavSinghal and all other faculty members of CEE department, M.K. Khan of ME Department, and S. Subramani of EE Department.

Patents (filed / granted)

1. Patent Name:A method of joining polymer rod through deformation technique; Patent Owner: SudhansuSekhar Panda
2. Patent Name:A System and Method for Controlling the Buoyancy of an Underwater Submersible; Patent Owner: Atul Thakur and Rishi Raj
3. Patent Name: An apparatus and a method for cryogenic machining for polymer materials; Patent Owner: A. K.Sinha and K.Patra
4. Patent Name:An Improved Heat Sink System for Suppressing Two-Phase Thermal and Flow Instabilities and a Method Thereof; Patent Owner: Rishi Raj
5. Patent Name: Biaxial planar tensile device; Patent Owner: S. K.Sahu, A. Javed, D. Ahmad and K.Patra,
6. Patent Name:Stepped Microchannel Heat Sink for cooling an Electronic Device; Patent Owner: Sumit Raj, Anurag Shukla, Manabendra Pathakand Mohd. Kaleem Khan
7. Patent Name:System and Method for Heat Recovery in Gasification Process, Application filed with the Indian Patent Office; Patent Owner: Rishi Raj

Other Activities

Member - Professional Bodies

1. Akhilendra Singh (0) Society of Automotive Engineers
2. Akhilendra Singh (2012) Indian Society of Theoratical and Applied Mechanics
3. AnirbanMahato (2019) Society of Automotive Engineers INDIA
4. Atul Thakur (2008) ASME
5. Atul Thakur (2011) IEEE
6. KaraliPatra (2011) International International Association of Engineers
7. ManabendraPathak (2010) American Society of Mechanical Engineers (ASME)
8. ManabendraPathak (2013) Indian Society for Heat and Mass Transfer (ISHMT)
9. ManabendraPathak (2018) National Society of Fluid Mechanics and Fluid Power
10. MayankTiwari (2006) Tribology Soceity of India
11. MayankTiwari (2018) ASME
12. Mohd. Kaleem Khan (2011) American Society of Mechanical Engineers
13. Mohd. Kaleem Khan (2010) Americal Society of Refrigerating and Air Conditioning Engineers
14. Mohd. Kaleem Khan (2018) International Solar Energy Society
15. Mohd. Kaleem Khan (2018) Society of Fluid Mechanics and Fluid Power
16. Rishi Raj (2016) Indian Society of Heat and Mass Transfer

Member - Editorial Board

1. KaraliPatra (2016) Member - Bulletin of South Ural State University, Series: Mechanical engineering
2. SudhansuSekhar Panda (0) Editor - Universal Journal of Surgery
3. SudhansuSekhar Panda (0) Editor - JCOT
4. Surajit Kumar Paul (2018) Academic Editor - Mathematical Problems in Engineering

Awards & Honours

1. Rishi Raj (2018) Best paper award in 10th Boiling and Condensation Heat Transfer Conference in Japan
2. Murshid Imam (2018) Bharat Vikas Award
3. Mohd. Kaleem Khan (2018) Bharat Vikas Award by Institute of Self Reliance, Bhubaneswar
4. Mohd. Kaleem Khan (2018) Full travel support by the Department of Science Technology, Govt. of India for attending SEEP 2018 Conference at UWS, Paisley Campus, Scotland, UK.
5. Rishi Raj (2018) IAScAssociateship
6. ManabendraPathak (2018) IEI-FCRIT Academic Excellence award under the category of best HOD
7. Rishi Raj (2018) receivedINAE Young Engineer Award
8. Akhilendra Singh (2018) Nominated as best Teacher from the Mechanical Department in UG category
9. Mohd. Kaleem Khan (2018) Oustanding reviewer, Experimental Thermal and Fluid Science
10. Mohd. Kaleem Khan (2018) Oustanding reviewer, International Journal of Thermal Science
11. ManabendraPathak (2018) Outstanding reviewer, Heliyon
12. ManabendraPathak (2018) Outstanding reviewer, International Journal of Thermal Sciences
13. ManabendraPathak (2018) Outstanding reviewer, Journal of Nuclear Materials

Fellowships

1. Rishi Raj (2018) Associate, IASc
2. Rishi Raj (2018) Young Associate, INAE

Visits Abroad by Faculty Members

1. Mohd. Kaleem Khan - Participated in SEEP-2018 conference (University of the West of Scotland, Paisley Campus, UK.,) 8-11 May 2018
2. SomnathSarangi - Conference (BITS Pilani Dubai Campus,) 4-8 December 2018
3. MayankTiwari - ASIATRIB 2018 (Kuching Malaysia) 4 days
4. Rishi Raj - To attend GRC Conference on Micro and Nanoscale Phase Chnage Transport Processes (Barca, Lucca, Italy,) March 3-8 2019
5. KaraliPatra - Joint Research work (South Ural State University (SUSU), Chelyabinsk, Russia) 15-19 June, 2018
6. KaraliPatra - Joint Research work (NUS, Singapore,) 27-29 June, 2018

Invited Lectures by Faculty Members

1. Recent Advancements in Solar Thermal Technology in TEQIP-III sponsored short term course *by* Mohd. Kaleem Khan (NIT Patna)
2. Agricultural Waste Based Gasifier Heating System for Various Energy and Environment Applications *by* Rishi Raj (NIT Patna)
3. Two-Phase Heat Spreader for Hotspot Mitigation in Reduced Gravity Applications at *INAE Annual Convention by* Rishi Raj (RCI Hyderabad, December 13-15, 2018).
4. Variation based Finite Element Method and its application *by* Akhilendra Singh (MNIT Jaipur)
5. Simulation of fluid-structure interaction during blood flow through stenotic artery, *by* Manabendra Pathak (Keynote lecture, National conference on Recent development in mechanical engineering, National Institute of Technology (NIT) Rourkela, 27-29 July 2018)
6. Scopes of few renewable energy integrated technologies for solving socio economic problems of Biha *by* ManabendraPathak (Engineers day celebration on Role of engineering on conservation of energy and environment, organized by Institute of Engineers India (IEI), Bihar center, Patna, 5 August 2018)
7. Nanofluids enhanced solar thermal energy storage system *by* ManabendraPathak (TEQIP-III sponsored short term course at MNNIT Allahabad)
8. Solar tracking mechanism for portable parabolic collector *by* ManabendraPathak (TEQIP-III sponsored short term course at NIT Patna)
9. Porous media for heat transfer enhancement in solar water heaters *by* ManabendraPathak (TEQIP-III sponsored short term course at NIT Patna)
10. Nanofluids Assisted Solar Receiver Tube *by* Manabendra Pathak (TEQIP-III sponsored short term course at MNNIT Allahabad)
11. Autonomous Underwater Robotics at Various Size Scales: Challenges and Opportunities *by* Atul Thakur (IIT Bombay)
12. Soft and Stretchable Materials for Robotics and Mechatronics Applications *by* Karali Patra (TEQIP-III sponsored short term course on "Mechatronics and Manufacturing Automation 2018 (MMA-2018)', NIT Arunachal Pradesh)
13. Surface Topography Variation During Wear Process *by* MayankTiwari (Tribology Society of India Summer School, Indian Institute of Petroleum Management Gurgaon)
14. Introduction to Mechanical Micromachining Techniques for Fabrication of Micro-featured Products *by* KaraliPatra (TEQIP-III sponsored short term course on "Mechatronics and Manufacturing Automation 2018 (MMA-2018)', NIT Arunachal Pradesh)
15. Soft and Stretchable transducers for Robotics and Mechatronics Applications *by* KaraliPatra (Workshop on 'Robotics and Automation, New Government Polytechnic, Patliputra, Patna)

16. Grease Flow CFD *by* ChiranjitSarkar (Tata Steel Jamshedpur)

Short-Term Courses, Training Programmes and Workshops organised

1. Introduction to Robotics: Mechanics Control and Programming (26-10-2018 to 28-10-2018)
2. Stretchable transducers for soft robotics and energy harvesting by Prof. Adrian Koh, NUS Singapore (May 7- May 11, 2018)

Physics

Faculty Members

Dr. Manoranjan Kar Associate Professor	Condensed Matter Physics, Nanomaterials, Materials Science
Dr. Naveen Kumar Nishchal Associate Professor	Applied Optics (Optical Information Processing, Image Encryption, Watermarking,Digital Holography, Fractional Fourier Transform-based Signal Processing, Correlation-based Optical Pattern Recognition)
Dr. Utpal Roy Associate Professor	Bose-Einstein condensate, Nonlinear Optics, Quantum Optics
Dr. Ajay D. Thakur Assistant Professor	Earth abundant elements based advanced electronic materials for energy and sensing applications. Here the emphasis is on nanomaterials for energy harvesting and sensing applications
Dr. Alpana Nayak Assistant Professor	Condensed matter physics (experimental) Nanoionic devices; atomic switches; Scanning probe microscopy; Organic thin films
Dr. Awalendra K. Thakur Assistant Professor	Renewable Energy Resources, Composite Nano Structures, Solid State Ionics, Dielectrics and Ferroelectrics, Super Capacitors, E.M.I. Shielding
Dr. Ayash Kanto Mukherjee Assistant Professor	Transport in Conjugated Polymer, Metal-Organic Semiconductor interface, Organic electronic Devices, Molecular Electronics
Dr. Jobin Jose Assistant Professor	Computational atomic and molecular physics: Photoionization / Scattering from atoms and molecules; Electronic structure properties of confined atomic systems; Strong field ionization
Dr. Manas Kumar Sarangi Assistant Professor	Biophysics and Ultrafast spectroscopy, Structure function relation in biopolymers
Dr. Raghavan K Easwaran Assistant Professor	Quantum Optics (Theory and Experiment)
Dr. Soumya Jyoti Ray Assistant Professor	Condensed Matter and Nonoscale Physics, Nanoelectronics, Spintronics, Superconductivity, Magnetism, 2D Materials
Dr. Venkata R. Dantham Assistant Professor	Bio-Photonics, Nanophotonics, Ultrasensitive optical biosensors, Photonic atoms
Dr. Prashant Kumar Ramanujan Faculty	Laser-based photo-chemical and photo-physical transformations; Graphene and its analogues, CNTs and Nanodiamond; Hybrid nanomaterials; Nanoplasmonics; Trace level molecular detection; Straintronics

Academic Programmes

- M.Tech. in Nano Science and Nano Technology
- M.Sc. in Physics
- Ph.D Programs

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57. SubhashishSaha, AfsalThuppilakkadan, HariVarma, Jobin Jose , Time delay in photoionization of confined atoms , National conference on atomic molecular material and nano science , Aliah university (2019)
58. N Kundu and Utpal Roy , Two-component BEC in a Poschl-Teller potential , Quantum Collisions & Confinement of Atomic & Molecular Species, and Photons , Springer, IISER Tirupati (2018)
59. Yatish, A. Fatima, and N. K. Nishchal , Two-stage optical hierarchical authentication based on interference with sparse phase information , The Int'l. Confer. on Fiber Optics and Photonics , IIT Delhi (2018)
60. N K Nishchal, Vector beam with required phase-only functions for asymmetric image encryption, XLII Annual Meeting of the Optical Society of India-Int'l. Symp. on Optics , IIT Kanpur (2018)

Sponsored Research Projects

1. Study of Optical Image Fusion Techniques for Securing Multispectral Data (CSIR, Rs.21.24 Lakhs) (PI : Naveen K Nishchal)
2. Applications of Graphene and other 2D materials (SERB, Rs.92.00 Lakhs) (PI : Dr. Prashant Kumar)
3. Design and Development of an Agricultural Waste Based Gasifier Heating System for GreenCHILLTM (DST under UAY scheme, Rs.95.07 Lakhs) (PI : Dr. Rishi Raj, Co-PI : Dr. Ajay D. Thakur)
4. Design and Implementation of Orbital Angular Momentum (OAM) Assisted Spectrally Efficient Wavelength Division Multiplexed Communication System Using C (IMPRINT – II, Rs.73.00 Lakhs) (PI : Dr. Sumanta Gupta, Co-PI: Dr. VenkataRamanaiahDantham)
5. Development of an agricultural waste based off-the-grid climate control unit for storage and processing of agricultural produce (DST SERB under IMPRINT 2, Rs.98.35 Lakhs) (PI : Dr. Rishi Raj, Co-PI : Dr. Ajay D. Thakur)
6. Electromagnetically Induced Transparency and Slow Light in a Two dimensional Magneto Optical Trap (2D MOT) (SERB, DST, Rs.21.20 Lakhs) (PI : RaghavanK.Easwaran)
7. Enhancement of Raman scattering signal of single molecules using photonic nanojet mediated surface enhanced Raman scattering (SERS) technique (CSIR, Rs.22.00 Lakhs) (PI : Dr. VenkataRamanaiahDantham)
8. Fluctuation in DNA for molecular recognition (SERB, Rs.43.00 Lakhs) (PI : Manas Kumar sarangi)

9. Generation, Imaging and Control of Novel Coherent Electronic States in Artificial Ferromagnetic-Superconducting Hybrid Structures and Devices (DST-SERB, Rs.50.00 Lakhs) (PI : Dr. SoumyaJyoti Ray)
10. Investigations on thin films of discotic liquid crystal molecules for applications in organic electronics (DST-ECRA, Rs.45.90 Lakhs) (PI : AlpanaNayak)
11. Novel spin-triplet superconductivity using ferromagnetic superconducting heterostructure (UGC-DAE , Rs.1.35 Lakhs) (PI : Dr. SoumyaJyoti Ray)
12. Photoionization and Electron Scattering Dynamics of Free and Confined Atomic Systems (DST-SERB, Rs.25.00 Lakhs) (PI : Jobin Jose)
13. Real-time detection and sizing of single protein molecule using a nanoplasmonic-whispering gallery mode hybrid microresonator (SERB (DST), Rs.54.40 Lakhs) (PI : Dr. VenkataRamanaiahDantham)
14. Superconducting Spintronics using hybrid Superconducting-Ferromagnetic Metamaterial (Department of Science and Technology - INSPIRE, Rs.35.00 Lakhs) (PI : Dr. S. J. Ray)
15. Valleytronics in Gapped Dirac Materials (DST-SERB, Rs.35.45 Lakhs) (PI : PrakashParida)

Patents (filed / granted)

1. Patent Name:Multiple Materials Coatings on Flat Surfaces in Enclosed Environment; Patent Owner: ManoranjanKar
2. Patent Name:System and Method for Heat Recovery in Gasification Process; Patent Owner: Ajay Thakur

Other Activities

Fellow - Professional Bodies

1. Naveen Kumar Nishchal (2005) Optical Society of India

Member - Professional Bodies

1. Ajay Thakur (2012) Indian Physics Association
2. Ajay Thakur (2016) Magnetics Society of India
3. Jobin Jose (2009) Indian Society of Atomic and Molecular Physics
4. Manas Kumar Sarangi Indian Biophysical Society
5. Manas Kumar Sarangi ISRAP Indian Society for Radiation and Photochemistry
6. ManoranjanKar (2016) Indian Crystallographic Crystallography
7. ManoranjanKarMaterials Research Society India
8. ManoranjanKar (2015) Magnetic Society of India
9. Naveen Kumar Nishchal (2015) SPIE USA
10. Naveen Kumar Nishchal (2003) Lasers and Spectroscopy Society of India
11. Naveen Kumar Nishchal (2009) Indian Science Congress Association
12. Naveen Kumar Nishchal (2015) OSA The Optical Society
13. Prashant Kumar (2013) Royal Society of Chemistry
14. Prashant Kumar (2011) American Physical Society
15. Prashant Kumar (2012) American Nano Society
16. Prashant Kumar (2012) SPIE
17. Utpal Roy Indian Society of Optical, Atomic & Molecular Sciences
18. Utpal Roy Indian Society of Atomic Molecular & Optical Physics

Member - Editorial Board

1. Naveen Kumar Nishchal (2019) *Member* - Asian Journal of Physics
2. Prashant Kumar (2013) *Member* - Adv. Nat. Sci.
3. Prashant Kumar (2016) *Editor* - Journal of Nanoscience and Engineering
4. Utpal Roy (2018) *Editorial Board Member* - International Journal of Recent Developments in Sciences (IJRDS)
5. Utpal Roy (2018) *Associate Editor* - World Research Journal of Applied Physics

Awards & Honours

1. VenkataRamanaiahDantham (2018) *2nd MERIT AWARD for the poster presentation on the occasion of National Science Day – 2018, at IIT Patna.*
2. ManoranjanKar (2018) *Best 1% cited article IOP publisher*
3. Naveen Kumar Nishchal (2018) *Best Paper Prize sponsored by OSA-The Optical Society, for the paper entitled "Generation of orbital angular momentum of light using liquid crystal spatial light modulator*
4. Jobin Jose (2018) Award of *Best teacher (PG category)in Physics Department of IIT Patna*
5. Ajay Thakur (2018) *Best UG Teacher (Physics)*

6. Utpal Roy (2018) *Bharat Vikas Award, Subject-Physics: by ISR-India*
7. SoumyaJyoti Ray (2018) *Bharat Vikash Award*
8. ManoranjanKar (2018) *DMS best teacher award by IAPT*
9. SoumyaJyoti Ray (2018) *Early Career Research Award*
10. VenkataRamanaiahDantham (2018) *MERIT AWARD for the oral presentation given in "Young Scientist Secession" which is a part of the conference (ASTM-2018) held at IIT (ISM), Dhanbad.*
11. Naveen Kumar Nishchal (2018) *Outstanding Reviewer Optics and Laser Technology (Elsevier)*
12. Naveen Kumar Nishchal (2018) *Outstanding Reviewer Optics and Lasers in Engineering*
13. AlpanaNayak (2018) *OUTSTANDING SCIENTIST IN PHYSICS under the Science Discipline (Venus International Foundation)*
14. Utpal Roy (2018) *Paper-Best Oral Presentation Award, Modulated Frequency Generation in Bose-Einstein Condensate in a Perturbed Optical Lattice Trap, 125th Birth Anniversary Celebration of Prof. S N Bose, Centenary Celebrations of Patna University, Patna*
15. Naveen Kumar Nishchal (2019) *Research paper included in the Top Downloaded Articles in Fourier Optics and Signal Processing from JOSA A (over the past year)*
16. Utpal Roy (2018) *Research paper, Best poster Award, International Conference on Quantum & Atom Optics, IIT Patna*
17. Utpal Roy (2018) *Research Work got 3rd Best Poster Award, Phase-space structures and Isotope Separation of Bromine Molecules, One day workshop on the National Science Day Celebration & 125th Birth Anniversary of S. N. Bose*
18. Utpal Roy (2018) *Research work got Best Poster Award, Two Components Bose-Einstein Condensate in a Frustrated Optical Lattice, Research Scholar Day, IIT Patna*
19. Utpal Roy (2018) *Research Work received 2nd Best Oral Presentation Award, Workshop on National Science Day & 125th Birth Anniversary Celebration of Prof. S N Bose, IIT Patna (2018).*

Visits Abroad by Faculty Members

1. Naveen Kumar Nishchal - Conference (Berlin Muenster Germany,) Sept 10-15, 2018
2. Naveen Kumar Nishchal - Examiner PhD thesis (Universite Bretagne Occidentale Brest France,) Dec 2018
3. Neha Shah - invited speaker at Hadron Interactions and Polarization from Lattice QCD, Quark Model, and Heavy Ion (Yukawa Institute of Theoretical Physics, Kyoto University, Japan,) 24/03/2019-30/03/2019
4. Utpal Roy - International conference on "Quantum & Nonlinear Optics (QNO-2018), (Kuala Lumpur, Malaysia,) Feb 2-5, 2018

Invited Lectures by Faculty Members

1. Vector beam with required phase only functions for image encryption *by* Naveen Kumar Nishchal (WestfalischeWilhelms-Universitat Muenster GERMANY)
2. Physical optics and holography *by* Naveen Kumar Nishchal (DPS Patna)
3. Tools and techniques of space exploration *by* Naveen Kumar Nishchal (SrikrishnaVigyan Kendra Patna)
4. Optics for information security *by* Naveen Kumar Nishchal (IIT ISM Dhanbad)
5. Information optics *by* Naveen Kumar Nishchal (IIT ISM Dhanbad)
6. Efficient Thermoelectric Materials: Band Gap Engineering, Spin Entropy, 3D-superlattices and beyond *by* Ajay Thakur (IISER Mohali)
7. Friction and Harmony *by* Ajay Thakur (IAPT Three Day RESPECT-KV Workshop, IIT Patna)
8. Ikigaki, Teaching Physics, Intuition and beyond *by* Ajay Thakur (IAPT Three Day RESPECT-KV Workshop, IIT Patna)
9. Nanocomposite for energy harvesting *by* ManoranjanKar (Government college Rourkela)
10. Polymer nanocomposite *by* ManoranjanKar (NIT Durgapur)
11. Electron Microscopy *by* ManoranjanKar (IIT Dhanbad)
12. Magnetic Nanocomposite *by* ManoranjanKar (G M University Sambalpur)
13. Surface interaction in magnetic nanomaterials *by* ManoranjanKar (NISER Bhubaneswar)
14. Magnetic exchange interaction between bi-magnetic materials *by* ManoranjanKar (NIT Durgapur)
15. Motivation for science and technology *by* ManoranjanKar (Science centre Patna)
16. Value of project work on science education *by* ManoranjanKar (G.D. Goenka public school)
17. Undergraduate physics teaching through project work *by* ManoranjanKar (Ranchi university)
18. Electronic/Thermal Transport in Half-metallic Materials *by* Dr. PrakashParida (International Conference, ICMAGMA, at NISER, Bhubaneswar)
19. Modeling and Solving Physical Systems: Concepts and Applications *by* Jobin Jose (Amity University, Patna)
20. Quantum Scattering: A Computational Approach *by* Jobin Jose (Central University of Kerala, Kasargodu)
21. SoumyaJyoti Ray delivered a talk at ABV-IIITM, Gwalior.
22. Working group Coordinator in "Higgs Boson and beyond the Standard Model" group *by* Dr. ArghyaChoudhury (Institute of Physics (IOP), Bhubaneswar)

23. MATLAB *by* SoumyaJyoti Ray (IIT Patna, PG Orientation)
24. Production of Quantum Mescopic Structures in Bose-Einstein Condensate *by* Utpal Roy (International conference on "Quantum & Nonlinear Optics Conference (QNO-2018), Kuala Lumpur, Malaysia)
25. Breathing Dynamics of Ultracold Atoms in a Vibrated Optical Lattice *by* Utpal Roy (Topical Conference-07, Indian Society of Atomic & Molecular Physics, IISER Tirupati)
26. Quantum Mechanics at the Coldest Temperature of the Universe *by* Utpal Roy (Workshop on the Centenary Celebration of Patna University, Title: 125th Birth-anniversary Celebration of Prof. S.N. Bose, Patna University)
27. Condensate of Atom & Photon by Utpal Roy (RESPECT-KV workshop for KendriyaVidyalay Physics Teachers)
28. Bose-Eintein Condensate in Frustrated Systems by Utpal Roy (Young Investigator Meet on Quantum Condensed Matter Theory, S. N. Bose National Centre for Basic Sciences, Kolkata)
29. Bose-Einstein Condensate Trapped in a Vibrating Optical Lattice by Utpal Roy (International Workshop on Bose-Einstein Condensation and Related Phenomena (IWBECRP), S. N. Bose National Centre, Kolkata)

Centralized Services, Programmes and Units

Central Library

The Central Library of IIT Patna has become an advanced library in a very short span of time. It has acquired a large collection of books and e-journals and provides excellent services to its users. Central Library caters the information needs of its highly demanding faculty members, research scholars, students as well as staff of the Institute by offering a wide range of knowledge based (and value added) services and products. The Central Library, IIT Patna has a collection of 20,479 books till date. During the reporting year (2018 – 2019), 1418 new books have been added to the Central Library. All books are RFID tagged and duly processed before use or circulation. Within this period Central Library has also subscribed various new e-resources in the form of full-text e-journals and e-books to disseminate the requirement of the users. Central Library has added archive collection of various e-journals collection i.e. backfiles of Elsevier Journals (Physics, Chemistry & Mathematics Collection), Thieme Journals and also procured e-books Collection of IoP, RSC and Springer (Comp. Sc. Collection), to satisfy the information need of the users of IIT Patna. Being a core member of E-Sodh Sindu Consortium Central Library is also getting access of various e-resources from the consortium. Central Library is subscribing Forty-nine e-journals packages and fourteen e-books packages of different publisher in total, which facilitate various knowledge based needs of the users. Central Library has also procured a good number of books in Hindi language. The Central Library has been also procuring few popular magazines and eight daily news paper of English and Hindi languages. Central Library successfully organized user awareness programmes for various e-resources such as Proquest, Web of Science, SCOPUS, Turnitin etc.

The Central Library has upgraded its library management software "LIBSYS 4" to "LIBSYS 10" and also subscribed the "Grammarly S/w" in this reporting year.

Computer Center

Faculty in Charge:

Dr. Joydeep Chandra (Head of Department, Computer Center)

Dr. Abyayananda Maiti (Ass. Head of Department, Computer Center)

Staff:

Mr. Sandip Kishore, Scientific Officer

Mr. Rajender Kumar, STS

Mr. Ajay Kumar Sharma, JTS

Mr. Arpit Ashok, JTS

Contents

1. Preface

IIT Patna has a state of the art computer center. There are two computer center labs, CC-1 and CC-2. CC-1Lab is equipped with 172 desktopshaving smart audio-video system and CC-2 Lab is equipped with 42 Desktops. These labs operate from 9:00 AM till midnight on all seven days. Additionaly, there are twelve UNIX/Linux/VMware based servers that caters to the institute IT services like Mail, Institute Webserver, Intranet, Online recruitment, admissions and students' academic requirements and research purpose.Availabilty of the servers and resources is ensured with power back up provided by UPS grid.

A local area network with IP telephony is catering to the needs of students, faculty and staff in academic as well as residential areas. Dedicated NKN (National Knowledge Network) link provides for state of the art virtual classroom service as well as internet. High speed and uninterrupted internet access is provided across the campus to everyone through multiple ISP (Internet Service Provider) leased lines provided by RailTel, Reliance and NKN. The bandwidth details of these leased lines are as follows:

Sl. No.	ISP	Bandwidth (Mbps)
1	RAILTEL	75
2	Reliance PRI	--
3	NKN	1000*

*Shared for virtual classroom and internet

CC LAB-1

CC LAB-2

Server Room

2. Hardware Resources

Newstate of the art hardware resources were added to Computer Center inventory. These resources align with the requirements of faculty, staff and students.

Following is the list of major hardware resources procured in addition to other:

Sl. No.	Item	Unit	Price (INR)
1	Desktop Computer(Dell)	80	41,36,076
2	Audio-video System for CC Lab-1	01	23,66,748
3	HP Laserjet Printer	10	2,05,320
	Total		**67,08,144**

Overall, hardware resources of value INR 67, 08,144 only were procured under major heads to cater for needs of computer Center.

3. Maintenance and Software Resources

Maintenance and renewal of existing H/W and S/W resources was taken up and new Software resources were added to Computer Center inventory. These resources align with the requirements of faculty, staff and students.

Following is the list of Software resources procured:

Sl. No.	Item	Unit	Price (INR)
1	1 year maintainence contract of online UPS	4	1,41,600
3	Railtel ISP renewal	1	12,81,500
4	Matlab Campus wide License	1	9,02,700
6	Institute Website Upgradation (Under implementation)	-	4,82,620
7	Microsoft Campus Wide License-renewal	1	7,62,317
	Total		**67,54,706**

Overall, Maintenance &Software resources of value INR 67, 54,706 only were procured through Computer Center to cater for needs of Institute.

4. Network

Network Services provide LAN, internet and telephone service access across the campus of 550 acres.The technical solution being maintained by IBM and CC jointly (CISCO as Original Equipment Manufacurer for active components) has following salient features:

- The complete solution has 3 layers viz. Core with redundancy, Dual homed Distribution layer with redundancy and dual homed PoE(Power on Ethernet) enabled Access layer.
- Interconnection upto access layer is on OFC (Optical Fibre Cable). The bandwidth planned from core to distribution is 10G+10G upgradable to 40G, from distribution to access is 2G+2G upgradable to 10G and from access to LAN ports is 1G.
- Laying of 16 KM outdoor 48 core 4 tubes armored OFC backbone with 3 rings having enough dark fibers for future expansion. 6/12/24 core OFC cables are planned for indoor cabling.
- Around 130 wireless access points with redundant wireless controller.
- UPS (with 1+1 redundancy for core and distribution) and earthing for all active components with total 159 KVA capacity with 120 min. backup for core, 60 min backup for distribution and 30 min backup for access layer.
- Call Manager with 2000 capacity with redundant voice gateways to support 4 PRI lines and 854 IP telephones.
- NMS, VPN, firewall, Network access control, Identity service engine etc for management and control and network security.
- 24X7 operation & maintenance with 1 site manager+ 3Engineers+1 reliever.
- There are around 5000+ end points for LAN/Internet and IP telephones

The above network is being extended to upcoming buildings.

Sl. No.	Item	Unit	Price (INR)
1	Active components for Girl's Hostel	1	40,00,000
2	Active Components for Boy's Hostel, C-type building, Gym Khana-Under planning phase	Under Process	1,20,00,000 (projected)
3	Misc. Network extensions	1	5,00,000 (approx)
4	Renewal of campus Data and Telephone network maintenance	1	1,60,00,000
	Total		**3,25,00,000**

5. Application Services:

Computer Center is actively involved in development of software applications, web portals and automated solutions to facilitate and support different sections of the institute. During this period, following activities in this area were undertaken:

Sl. No.	Application developed	Description
1	File tracking system	For tracking the physical files circulating inside the institute
2	Stock Distribution system	For tracking laptop, desktop and printers in CC
3	Guest House Booking System	For Guest house booking and tracking
4	Online Complaint Portal for different sections like IWD, CC, Academics etc	For raising and tracking user complaints and issues
5	SAIF Web portal	Public Web portal for SAIF
6	GIAN web portal	Public Web portal for GIAN
7	CEP web prtal	Public Web portal for CEP
8	Intranet	Intranet services for IITP Community
9	Institute Public Website maintenance and updates	
10	Hospital patient record system	For IITP Hospital
11	Web portal and application hosting	Assistance to IITP community for hosting and publishing their web content, portals etc

6. Mailing System

Computer Center has implemented state-of-art mailing system which has been commissioned successfully on 24th Oct, 2018 by M/S Locuz Enterprises. It has following salient features:

A. Warranty, Operations and Maintenance for 3 years with SLA.

B. Enterprise grade mail gateway.

C. Load balancing and failover.

D. Physical servers for mailing solution.

E. Unified Storage for mail.

F. Mailing and collaboration suite.

G. Administration, Security, management and monitoring.

H. Wide range accessibility and user friendliness – Mobile, Desktop, Laptop, tablet, web, thick client etc.

I. Backup and restore.

J. Handling crash, failures, disasters etc.

K. Networking, cabling and connectivity.

L. Directory Services.

M. Complete migration from existing mailing solution.

N. Training and handholding – End users and technical team of IIT Patna

Project Value: ₹1, 30, 22,409.00

7. Services and Support

- 365 X 24 X 7 support services for Network.
- Desktop/Laptop/Server support on all working days during office hours.
- Institutte Website and e-mail support.
- VPN for remote access.
- Internet access.

- Wifi (Boy's Hostel).
- Intranet, Leave portal, online academic module.
- Exam related services (GATE, JEE etc).
- Support during Student Placement.
- Conference Site Maintainance.
- Support for training programs organization.
- Support for student Gymkhana website for events like anwesha, celesta, reverberanceand other extra cocurricularactivities.
- Support for Desktop, Laptop, Printer, network etc related issues.
- Library libsys software support.
- License server support (MATLAB, Mathematica, ANSYS, and Tecplot 360 etc).
- Support for institute meeting resources like web conferencing, internet access etc.
- Support for procurement of departmental and institute assets (Computer and accessories, LAB, furniture and other infrastructure related items).
- Online Application services.

Sophisticated Analytical Instrument Facilities

Personnel

Dr. Subrata Chattopadhyay

Head, SAIF, Assistant Professor, Department of Chemistry,

Phone: 0612-302-8686, Email: sch@iitp.ac.in

Dr. Manas Kumar Sarangi

Associate Head, SAIF, Assistant Professor,

Department of Physics, Phone: +91-612-302 8617, Email: mksarangi@iitp.ac.in

Dr. Vidhi Chaudhary

Scientific Officer, SAIF

Phone No.0612-302-8244, Email: vc@iitp.ac.in

Sophisticated Analytical Instrument Facility (SAIF) at IIT Patna is a Science and Engineering Research Board (SERB), DST & Govt. of India sponsored facility for data collection/characterization of research samples/materials by paying nominal charges. This facility is open for internal (IIT Patna users) as well as external researchers from academia, research laboratories as well as industries. Presently, SAIF IIT Patna is equipped with two major analytical instruments (i) Single Crystal X-Ray Diffractometer(SC-XRD) and High Resolution - Liquid Chromatography Mass Spectrometry (HR-LCMS) having HPLC & UHR-TOF mass spectrometer. The other sanctioned instrument is a 500 MHz NMR, which is under purchase process.

Research vision:

-To provide the facility of data acquisition on SC-XRD and HR-LCMS for samples received from academic institutes, R & D laboratories and industries for Research work.

-Train technicians/students in maintenance and operation of the equipments.

-To organize workshops on the use and application of above analytical instruments/techniques for students, teachers and personnel from other Laboratories, Universities and Industries.

Labs - Facilities details given below:

Detail of Instruments:

1. **High Resolution Liquid chromatography–mass spectrometry (HR-LCMS)**

   Make: *Bruker Germany*

   Model: Impact HD UHR-TOF mass spectrometer

HR-LCMS, SAIF IIT Patna

Sample preparation for HR-LCMS, SAIF IIT Patna

Applications: HR-LCMS is a powerful technique that has very high sensitivity and selectivity and so is useful in many applications. Its application is oriented towards the separation, general detection and potential identification of chemicals of particular masses in the presence of other chemicals.

2. Single Crystal X-Ray Diffractometer(SC-XRD)

Make: Bruker Germany

Model: AXS D8 QUEST

Applications: Single-crystal X-ray Diffraction is a non-destructive analytical technique, which provides detailed information about the internal lattice of crystalline substances, including unit cell dimensions, bond-lengths, bond-angles, details of site-ordering and crystal structure.

SC-XRD, SAIF IIT Patna

Data /structure on SC-XRD SAIF IIT Patna

Microscope, SAIF IIT Patna

Highlights

- **Procurement of 500 MHz NMR:** is under process
- **SAIF website-** It is available with the following link: **https://www.iitp.ac.in/saifiitp/**

Technical Progress of both equipment (From 01.04.18 to 31.03.2019)

		Internal		External		Total
		HR-LCMS	SC-XRD	HR-LCMS	SC-XRD	
(i)	No. of users	13	15	02	02	28
(ii)	No. of samples processed	489	116	33	3	641
(iii)	Earning	Nil	Nil	Rs 27,258.00	Rs 7,788.00	Rs 35,046.00

List of publications (2018-2019) acknowledging SAIF-IITP

1. Singh, K.; Gangrade, A.; Bhowmick, S.; Jana, A.; Mandal, B. B.; Das, N., Self-Assembly of a [1 + 1] Ionic Hexagonal Macrocycle and Its Antiproliferative Activity. *Front. Chem.,* **2018**, *6* (87).
2. Mohan, B.; Jana, A.; Das, N.; Bharti, S.; Choudhary, M., Syntheses, crystal structures, antioxidant SOD-like properties and in-vitro antimicrobial studies of Cu(II) and Ni (II) complexes with 2-((E)-(4-bromo-2-chlorophenylimino) methyl)-6-bromo-4-nitrophenol and (E)-1-(3, 5-dichloro-2-hydroxybenzylidene)-4, 4-dimethylthiosemicarbazide. *J. Mol. Struct.,* **2018**, *1171,* 94-109.
3. Jana, A.; Bhowmick, S.; Kumar, S.; Singh, K.; Garg, P.; Das, N., Self-assembly of Pt(II) based nanoscalar ionic hexagons and their anticancer potencies. *Inorg. Chim. Acta.,* **2019**, *484,* 19-26.
4. Mohan, B.; Jana, A.; Das, N.; Bharti, S.; Choudhary, M.; Muhammad, S.; Kumar, S.; Al-Sehemi, A. G.; Algarni, H., A dual approach to study the key features of nickel (II) and copper (II) coordination complexes: Synthesis, crystal structure, optical and nonlinear properties. *Inorg. Chim. Acta.,* **2019**, *484*, 148-159.
5. Singh, K.; Kumari, S.; Jana, A.; Bhowmick, S.; Das, P.; Das, N., Self-assembled neutral [2+2] platinacycles showing minimal DNA interactions. *Polyhedron* **2019**, *157*, 267-275.
6. Singh, K.; Gangrade, A.; Jana, A.; Mandal, B. B.; Das, N., Design, Synthesis, Characterization, and Antiproliferative Activity of Organoplatinum Compounds Bearing a 1,2,3-Triazole Ring. *ACS Omega* **2019**, *4* (1), 835-841.
7. Jana, A.; Mandal, S.; Singh, K.; Das, P.; Das, N., Heterobimetallic (FeII/PtII)-Based Supramolecular Coordination Complexes Using 1,1′-Ferrocene Dicarboxylate: Self-Assembly and Interaction with Carbon Dots. *Inorg. Chem.,* **2019**, *58* (3), 2042-2053.
8. Jana, A.; Mishra, P.; Das, N. Polymorphic self-assembly of pyrazine-based tectons at the solution–solid interface. *Beilstein J. Nanotechnol.* **2019**, *10,* 494–499.
9. Singh, K.; Jana, A.; Lippmann, P.; Ott, I.; Das, N., Pyrimidine Derivatives with Terminal Pyridyl Heterocycles: Facile Synthesis and Their Antiproliferative Activities. *J. Heterocyclic Chem.,* **2019**.
10. Noorussabah; Choudhary, M.; Jana, A.; Das, N.; Mohan, B.; Ahmad, K.; Sangeeta; Bharti, S.; Mishra, M. K.; Sharma, S. R., Synthesis, characterizations, crystal structures, BSA-binding, molecular docking and cytotoxic activities of nickel(II) and copper(II) coordination complexes with bidentate N,S-chelating ligand. J. Coord. Chem., 2019, 1-11.
11. Synthesis of spirooxindoles fused with pyrazolo-tetrahydropyridinone and coumarin-dihydropyridine-pyrazole tetracycles by reaction medium dependent isatin-based multicomponent reactions. Richa Mishra, Asim Jana, Anoop Panday and *Lokman H Choudhury, New Journal of Chemistry,* 2019, 43, 2920-2932
12. Synthesis of fused pyrroles containing 4-hydroxycoumarins by regioselective metal-free multicomponent reactions. Richa Mishra, Asim Jana, Anoop K. Panday and *Lokman H. Choudhury, Organic & Biomolecular Chemistry,* 2018, 16, 3289-3302.
13. Lemon juice mediated multicomponent reactions for the synthesis of fused imidazoles, Argha Saha, Asim Jana and *Lokman H. Choudhury, New Journal of Chemistry,* 2018, 42, 17909-17922
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Incubation Centre

1. Introduction

The journey of Incubation Centre IIT Patna began in 2014 when IIT Patna has proposed to establish a centre for promoting entrepreneurship by technology commercialization focused on electronics and medical electronics devices.Ministry of Electronics and Information Technology, Government of India and Government of Bihar has extended the hand of collaboration to IIT Patna to make the project a reality by allocating a total project outlay of INR 47.10 Cr.

Subsequent to the administrative approval and release of funds, Incubation Centre started the ground work by registering the centre as non-profit society and constituted the governing board by inviting experts in the ESDM and Medical devices area. The centre went on to establish policies and processes, recruited staff, set up sate of the art laboratoriesand on-boarded companies by mid 2016.ICIITP is recognised by DST as a technology business incubator.

The primary objective of IC is to promote innovation and entrepreneurship among students, faculty and other innovators with the aim to identify, nurture and translate technology ideas and innovation in the broad area of Electronics System Design and Manufacturing (ESDM) with a focus on Medical Electronics.

The centre is operating from 10,000 sq ft interim space provided in IIT Patna premises and is constructing a 30,000 sq ft permanent facility.

ICIITP aims for excellence in technology business incubation in the ESDM and Medical Electronics sector and is poised to act as a launching pad for many successful ventures while promoting the culture of innovation and entrepreneurship in Bihar and Eastern part of the country.

2. Major Achievements in 2018-19

2.1 Incubation Programs

Regular incubation program

This is a one year (extensible up-to 2 years based on performance and need) incubation program offered to registered start-up companies (or teams who will be willing to register a company). IC receives technical and business proposals from prospective incubatees through national level call for proposals and also through the startup portal of Bihar Udyog Vibhag (BUV). The proposals will be put through a preliminary scrutiny and the shortlisted proposals will be invited for a presentation before the Project Evaluation Team that comprises of experts from medical, technology, entrepreneurship and investment areas. This panel evaluate the proposals and selects companies to be admitted to these programs. In FY 18-19, IC has conducted 4 evaluation cycles and 5 companies have joined incubation taking the total to 17 companies under incubation support.

Considering the difficulties in getting products into market in the ESDM sector, ICIITP has been able to help three companies to launch their products and services in the market in a little more than two years and to see them securing orders. Many of the companies are progressing well in their productdevelopment and ICIITP will see more success stories in the year to come.

Progress made by some of the incubated companies at ICIITP

1. 4 Mirrortech Innovatives, a company that has already entered the market with 'Aura', its smart washroom and facility management suite of products (Figure 1), was selected as the winner of Buzzwings competitions by NSRCEL of IIM Bangalore with a 1 Lakh cash award. The company has also secured three orders (Indore Airport, IITM Gwalior and Paid PoC at Bangalore airport) and are pursuing orders with many airports, smart cities and cinema halls.

2. Bionic Hope Private Ltd, a company developing active prosthesis (as shown in Figure 2) has received BIRAC grant of 43.40 lacs under IIPME scheme. They were in the top 40 in National Bio Entrepreneurship Competition by BIRAC. Priyanka Kumari, a co-founder in Bionic Hope won Top 15 Women in Entrepreneurial Research by Tie Delhi & BIRAC with a cash award of Rs. 5 lakhs. The team came first in SMC Select B Plan competition (Figure 4) held at IIT Patna and organized by IIT Kanpur Alumni Association.

3. Wityliti Automation has entered the market with 'Roommate' (Figure 3), a product from its suite of home automation products. It enables the user to automate home switch board controls. Team is working on its next product.

4. AtlamedicoTechsolutions Pvt Ltd was selected as the best technology startup in Bihar in the Y4BIZ event held at Patna and was among the top 10 in Y4BIZ finals. They are progressing towards the MVP completion

5. Techprolabz has entered the market with their robotics education kits (Figure 5) and is working with schools and technical education institutions to set up robotics labs. The team has secured many orders already and is preparing for early scaling.

In addition, six of the companies have received funding support from Govt. of Bihar in the form of soft loans.Companies under incubation support during FY 18-19 is listed below

Sl. No.	Company	Product
1	Bionic Hope Pvt Ltd	Active Prosthesis
2	Electro CurieTechPvt Ltd	Cataract Screening Device
3	4Mirrortech Innovative	Smart washroom applications
4	Atlamedico Tech Solutions	Critical patient monitoring system
5	Wityliti Automation	Home Automation Solutions
6	Rishabh Kishore&Team	High efficiency LiS battery
7	Wellth Solutions	Preventive healthcare devices
8	Sujith Sahu& Team	Knee Energy Harvester
9	AmrenjeetSurenjeetConsultancy Pvt Ltd	Magnetic Engine
10	TechproLabz	Robotics Training Kits, Labs
11	Avronica Solutions	Fonoclock based timers
12	Ganesh Engineering Works	Biofules / renewable energy solutions
13	Sybilline Technologies	Automated cleaning solutions
14	Techgait Innovation	Smart Irrigation Systems
15	Earn By Share	Smart equipment sharing solutions
16	Urinalytics	Smart urine analysis device for early screening of diseases
17	Sanju Raju and Justus Raju*	Posture detection device with hand gesture inputs

**Onbaording process ongoing*

Short Term pre-incubation program

This is a 3 month (extensible up-to 6 months) program aimed at supporting start-up teams to refine their business plans. This is offered to start--ups who applied to regular incubation program but are not fully ready for regular incubation. The teams are provided access to the amenities at ICIITP subject to availability and are also provided coaching on refining their business plan, so that they can subsequently apply for regular incubation. In the last FY, IC offered pre-incubation to 8 teams.

2.2 New programs started in FY 2018 - 19

Winter and Summer Schools on Health Technology Innovation: This is a one week paid training program offered to start-ups, students of technology/medicine and faculty of technology/medicine who aspire to enter into entrepreneurship in health technology. The participants are given a holistic picture of what it takes to identify, evaluate, define, design, implement and commercialize a concept in health technology. The first training was conducted from 24th to 29thDec 2019 (Figure 6). IC will be continuing to offer this training during summer/winter breaks, at least once in an year. This training is expected to bring more quality start-ups to IC and also to add skills to students of IIT Patna.

Fig 6 : Medtech School 2018

Pre-incubation Training for applicants from Bihar Startup Portal : This is a 50 Hr paid training program offered to start-ups who have applied for incubation support in Bihar Startup Portal under Bihar Startup Policy. The participants are given a holistic picture of entrepreneurship and business plans. The first training was conducted from 25th to 29th March 2019. This program was initiated based on the request from Department of Industries, Govt of Bihar. The first batch had 22 participants. After the training, the participants will be evaluated and quality startups will be offered incubation.

2.3 Facilities Available At ICIITP

ESDM Labs : ICIITP being focussed on ESDM and Medical Electronics has set up state of the art laboratories that will help the incubated companies to move from Concept to Product Prototype in house. IC has set up the following labs to achieve this:

- Electronic System Design and Prototype Lab with design software, electronic components, micro controller based rapid prototyping kits and electronic work bench set up for design and initial hardware prototyping.

- PCB Design and Manufacturing Lab (Figure 7) helps the incubated companies to implement their hardware at board level with the help of sophisticated machines for milling, drilling, routing, rubout, through hole plating, component pick and place, soldering, masking and lithography. The lab can support creation of PCBs up to 8 layers in house.

Fig 7 : PCB Design & Manufacturing Lab

- Testing and Calibration Lab (Figure 8) enables the characterization of PCB prototypes using advanced oscilloscopes, Function Generator, RSA, Logic Analyser, source meter and the like.

Fig 8 : Testing & Calibration Lab

- Mechanical Packaging and Product Prototype Lab (Figure 9) enables the prototyping of form factor, enclosure designs and parts. The lab is well equipped with many multi-material 3D printers and other tools.

Fig 9 : Mechanical Packaging Lab

New additions to the lab in FY 2018-19

1. RF DC Sputtering unit was installed as part of micro nano fabrication facility, for those companies who would like to work on sensors and mems level fabrication (Figure 10).

Fig 10: RF DC Sputtering Unit

2. Electronic System Design and Prototype Lab was enhanced with Matlab licenses and 15 new DSOs in the FY 18-19
3. PCB Design and Manufacturing Lab received PCB short circuit locator machine

Office: The companies are provided access to work space that has professional grade furniture, computers, internet connectivity, ample storage, printers and housekeeping. In the last FY, seating capacity was increased by 16 work slots to cater to the increasing number of Incubatees.

Mentoring: Guidance is provided to incubatees by angels, successful CEOs,doctors, IIT Professors and IC administration on a variety of topics including technology, pricing, marketing, developing effective business process, IPR Strategy etc.IN the last FY, mentors have been invited on a regular basis (once in 4-6 weeks on an average) to mentor companies. In addition, IC has organized training programs on topics such as regulatory compliances, product design, marketing etc. In addition, an MoU is in place with AIIMS Patna for support on trials and for guidance of medical practitioners on device developments. Two trainings organized for incubatees on Marketing with the support of CIMP in May 2018 and July 2018 is noteworthy.

Funding support: In the FY 18-19, ICIITP received recognition by DST as a technology business incubatorwhich enabled IC to take equity in supported companies by signing a share subscription agreement. IC has also revised its policies to release seed funding in the form of soft loans, equity investments or as grants.Approvals for funding of Rs 102 Lakhs are in place for 11 incubated companies.

2.4 *Ecosystem Building Activities, Events and Training Programs*

ICIITP works closely with Bio design school of AIIMS Delhi, Indian Angel Networks, CII Bihar, Department of IT and Department of Industries of Govt of Bihar and other incubators in the region. Work is in progress to forge more partnerships which will benefit the incubated companies and the ecosystem as a whole.

ICIITP actively takes part in the ecosystem development activities in the region and works closely with Govt. of Bihar in its implementation of Bihar Startup Policy. Members of IC management gets invited frequently for interviews, presentations and seminars on entrepreneurship at various forums and educational institutions in and outside Bihar such as the workshop organized by Bihar Skill Development Mission for entrepreneurs in Bihar. ICIITP contributes to innovation councils in many technical education institutions in the state.

ICIITP organized various events and training programs for startups and ESDM enthusiasts. 'Hack-e-thon 2018', a Medtech hackathon (Figure 11) saw more than 500 applications from all over India. ICIITP also hosteda two days event called Startup Master Class along with IIT Kanpur Alumni association in Oct 2018.In addition, the centre has conductedstartup conclaves and partnered in similar events organized by Govt of Bihar.

Fig 11 : Hack-e-thon 2018

ICIITP has conducted outreach to many educational institutions such as Muzzafarpur Institute of Technology and Nalanda College of Engineering within Bihar and IIT(ISM) Dhanbad, BMS College, RV College and Ramaiah university at Bangaloreetc outside Bihar. IC has also hosted students from Nalanda College for exposure visits.

Visits of eminent personalities to the centre to interact with Incubatees

In the 2018-19 FY, ICIITP was visited by Hon'ble Union Minister Shri Ravi Shankar Prasad, Hon'ble Dy CM of Bihar Shri Sushil Kumar Modi and Hon'ble Minister for Roads, Bihar Shri Nand Kishore Yadav. ICIITP also hosted Shri Rahul Singh, Secretary of Department of IT, Govt of Bihar, Shri Jitendra Srivastava, Chairman of Bihar Rajya Pull Nirman Nigam Ltd (BRPNNL), Shri Umesh Kumar, MD of BRPNNL, Director of AIIMS Patna and many other dignitaries from various IITs and institutions of national importance.

Media Coverage

ICIITP has received excellent coverage in national and state level print media (both English and Hindi) and visual media such as Hindustan Times, Times of India, Hindustan, Dainik Bhaskar, DainikJagaran, DD Bihar etc. All events and programs are reported in the print media on a regular basis. Media houses also report on various incubated companies and their progress.

2.5 *Progress of construction of permanent Building of Incubation Centre*

The ground breaking ceremony of the IC permanent facility has been carried out by HonbleDy CM of Bihar Shri Sushil Kumar Modi on 24th November 2018 (Figure 12.a). The construction activity has commenced immediately afterwards. At present, the foundation of the building is complete and super structure is progressing (Figure 12.b) and is expected to completeby end of 2019.

Fig 12.a: Construction Progress

Fig 12.b: Construction Progress

As per the MoU, BRPNNL has demanded for Rs 49,221,000/- (Rupees Four Crores Ninety Two Lakhs and Twenty One Thousand only) which is 30% of the total estimated cost. The same has been released on 31 Dec 2018.BRPNNL subsequently reported 30% completion of the construction and informed utilization of Rs 344.92 lakhs and has raised demand for Rs 492.21 Lakhs.

Sponsored Research and Industrial Relations Unit [SRIRU]

196 Sponsored projects, **82** consultancy projects worth Rs. 13025.72 (In lakh) {Rs. 12228.70 + Rs. 797.02} are currently being undertaken at IIT Patna as on 05.05.2019.

Some of the notable centersor research facilities include:

(a) Incubation Centre

(b) Electronic System Design and Manufacturing (ESDM),

(c) Technology Business Incubator,

(d) Centre for Earthquake Engineering Research,

(e) Pandit Madan Mohan Malviya National Mission on Teachers and Teaching (PMMMNMTT) for Internet-of-Things,

(f) Sophisticated Analytical Instrumentation Facility(SAIF) Centre,

(g) Centre for Endangered Language Studies,

(h) Elsevier Centre of Excellence for Natural Language Processing etc.

(i) Scheme for Promotion of Academic and Research Collaboration (SPARC)

Sponsored Projects sanctioned in FY 2018-19

Sl. No.	Project code	Name of Investigators	Department	Project Title	Funding Agency	Year	Total Granted Fund
1	268	Dr. Mayank Tiwari Dr. Akhilendra Singh	**ME**	Development of novel SMA bearing support and retrofit for enhanced performances and durability of rotating machinery (UAY)	MHRD	2018-19	102.9
2	270	Dr. Jawar Singh Dr. Jimson Mathew	**EE**	Exploration of 8/9 nano-meter process variation immune doping and junction free devices and their circuits	SERB	2018-19	31.4468
3	271	Dr. Jawar Singh	**EE**	Design and Development of RF Energynharvesting circuits for low power electronics devices	SERB	2018-19	43.5042
4	272	Dr. Prashant Kumar Srivastava	**Math**	impact of information of disease prevalance on the dynamics of disease A mathematical study	SERB	2018-19	6.6
5	273	Dr. Nalin Bharti	**HSS**	Indo Japan trade and FDI : What Next after CEPA	ICSSR	2018-19	11.524
6	277	Dr. Jimson Mathew, Dr. Jawar Singh	**CSE**	Interoperable Intelligent System and Network Security Framework	MIcroSec, Singapore	2018-19	7.2
7	279	Dr. Shehasisi Daschakraborty	**Chemistry**	Mechanism of hydroxide ion transfer through anion exchange nenbrane in anion exchange membrane fuel cell investigation using molecular dynamics simulation	SERB	2018-19	23.65
8	280	Dr. Soumya Jyoti Ray	**PHY**	Novel spin-triplet superconductivity using ferromagnetic superconducting hererostructure	UGC-DAE	2018-19	0.45
9	282	Dr. Surajit Kumar Paul	**ME**	Improvement of fatigue and ductile fracture behaviour of steel and alumunium alloy specimens by application of pulsed electric current	SERB	2018-19	20.724
10	283	Dr. Tamoghna Chakraborty	**MME**	Study on the densification and fracture properties of piezoelectric ceramics produced by novel flash sintering technique	DST	2018-19	35

Sl. No.	Project code	Name of Investigators	Department	Project Title	Funding Agency	Year	Total Granted Fund
11	284	Dr. Sushant Kumar	**CBE**	Low pressure ammonia synthesis using nitrides as catalysts	SERB	2018-19	33.0849
12	286	Dr. Sriparna Saha	**CSE**	SERB Women Excellence Award	DST	2018-19	18
13	287	Dr. Chiranjit Sarkar	**ME**	Experiments and modelling of wall bounded flow of lubracating magnetorheological grease	DST	2018-19	19.206
14	289	Dr. Surajit Kumar Paul Dr. Akhilendra Singh	**ME**	Establish correlation between specimen leval fatigue and cornering fatigue test	Tata Steel	2018-19	17.7
15	290	Dr. Anirban Mahato	**ME**	Design of asperity for textured metal surfaces to improve tribological characteristics in sliding : An in situ imaging approach	SERB	2018-19	28.9652
16	293	Dr. Sriparna Saha	**CSE**	Development of Adaptive Alogrithms for solving Many-Objective Optimization Problems: Application in Machine Learning	DST	2018-19	19.9724
17	294	Dr. Jose V Parambil	**CBE**	Continuous polymorphic crystallisation of active pharmaceutical ingredients in a slug flow cooling crystalliser	DST	2018-19	32.076
18	301	Dr. Prolay Das Dr. Sarita Kumari IISc Bangalore	**Chemistry**	Development of carbon-Dot and DNA apdamar based nanobiosensers for concurrent visual detection of food toxins in solution phase and micro fluid chip format	DBT Research Associateship program in biotechnology and life sceinces	2018-19	23.94
19	303	Dr. Sanjoy Kumar Parida Dr. Ranjan Kumar Behera	**EE**	National Resource Centre on Internet of Things	MHRD	2018-19	19.7
20	304	Prof. Pushpak Bhattaccharyya, Dr. Asif Ekbal Dr. Sriparna Saha		Developing Systems for Sentiment, Emotion, Sarcasm and Hate Speech Detection (SESH)	CDOT New Delhi	2018-19	37.21
21	308	Dr. Prakash Parida	**Physics**	Valleytronics in gapped Dirac Materials	SERB	2018-19	35.4552
22	309	Dr. Sriparna Saha	**CSE**	Indo-US WISTEMM Fellowship 2019-0366	DST	2018-19	10.1175
23	310	Dr. Alpana Nayak	**Physics**	Investigations on Thin Films of Discotic Liquid Crystal Molecules for Applications in Organic Electronics	SERB	2018-19	45.6
24	311	Dr. Sumanta Gupta	**EE**	Design Development and characterization of blue LED and visible laser based underwater optical wireless communication system for audio and video signals	NRB	2018-19	23.6126
25	312	Dr. Asif Ekbal, Dr. Sriparna Saha, Prof. Pushpak Bhattacharyya	**CSE**	Dynamic Natural Language Response To Task-Oriented User Utterances	Samsung	2018-19	14.50
26	313	Dr. Anup Kumar Gupta	**CBE**	Design and optimization of systems containing micro-encapsulated phase change materials (MPCMs) for efficient thermal energy storage and heat transfer	DST	2018-19	35

Sl. No.	Project code	Name of Investigators	Department	Project Title	Funding Agency	Year	Total Granted Fund
27	318	Dr. Pratibhaymoy Das	**Math**	parameter uniform numerical analysis for singularly perturbed differential equations based on mesh adaptivity	SERB	2018-19	24.2701
28	319	Dr. Rajiv Misra Dr. Asif Ekbal	**CSE**	Low-cost energy efficient cloud for cyber physical disaster management systems	DST	2018-19	18.545
29	322	Dr. Shovan Bhaumik	**EE**	Decentralized consensus filtering for underwater target motion analysis	NRB	2018-19	8.832
30	329	Prof Pushpak Bhattacharyya	**CSE**	Research Study on DPR for Development of Ek Bharat Shrestha Bharat Development Tools - regarding	NITI Ayog	2018-19	22
31	332	Dr. Samrat Mondal Dr. Jimson Mathew Dr. Arijit Mondal	**CSE**	Development of planning and designing tool for smartly adopting electric vehicles in Indian Cities.	SERB	2018-19	57.42
32	337	Dr. Anup Kumar Kesari Dr. Anirban Chowdhury	**MME**	Development and optimization of cost effective and scalable near net shape plasma spray membrane with graded porosity for microfiltration application	SERB	2018-19	65.4467
33	338	Dr. Sumanta Gupta Dr. Venkata Ramanaiah Dantham	**EE**	Design and implementation of orbital angular momentum (OAM) assisted spectrally efficient wavelength division multiplexed communication system using conventional optical fibres	SERB	2018-19	55.65
34	339	Dr. Soumya Jyoti Ray	**Physics**	Generation imaging and control of novel coherent electronic state in artificial ferromagnetic-superconducting hybrid structures and devices	SERB	2018-19	48.1041
35	342	Dr. Yogesh Mani Tripathy	**Math**	Estimation and Prediction with Constrained and Unconstrained Observations	SERB	2018-19	3.96
36	346	Dr. Debajit Sarma	**Chemistry**	Rational Design and Synthesis of functinalized metal-organic frameworks/ gels for biomimetic Heterogeneous Catalysis.	SERB	2018-19	24.31
37	347	Dr. Rishi Raj, Dr. Ajay D Thakur	**ME**	Development of an agricultural waste based off-the-grid climate control unit for storage and agricultural produces	SERB	2018-19	98.3554
38	348	Dr. Snehasis Daschakraborty (Mentor), Shakkira E	**Chemistry**	Dynamics of water near Biomolecules	DST	2018-19	18.4
39	349	Dr. Arijit Monal Dr. Jimson Mathew	**CSE**	V2D Video-to-video Description Generation using Deep Learning	DST	2018-19	24.976
40	350	Dr. Sudhan Majhi	**EE**	Design of Build Modulation Classification for MIMO-OFDM and MIMO-SC-FDMA System through FPGA Module and Testbed Implementation	SERB	2018-19	21.34
41	352	Dr. Asif Ekbal (Lead)Prof. Pushpak Bhattacharyya IITP Dr. Manish Srivastava IIITH Dr. Amitava das IIIT chitoor Dr. Dipankar Das CSE Dept Jadavpur University	**CSE**	Sevak- an Intelligent Indian Language Chatbot.	SERB	2018-19	98.643

Sl. No.	Project code	Name of Investigators	Department	Project Title	Funding Agency	Year	Total Granted Fund
42	353	Dr. B. B. Upadhayay	**Math**	Towards new platform on generalized vector variational inequalities scpe in optimization and bilevel programming	SERB	2018-19	14.9435
43	354	Dr. sandipa Indra, Mentor Dr. Ranganathan Subramanian, IITP	**Chemistry**	Capturing Volatile organic compounds by room temperature ionic liquids a molecular perspective.	DST	2018-19	26.9
44	355	Dr. Vaibhav Singhal	**Civil**	Seismic design and performance verification of confined masonry walls for medium rise buildings.	SERB	2018-19	26.3996
45	357	Dr. Deepu P	**ME**	Controlling the vibrational dynamics of fluid-carrying flexible tubes via acoustic irradiation	SERB	2018-19	26.5485
46	358	Dr. Sandip Khan	**CBE**	Wetting behavior of iconic liquids on different surfaces Insight from molecular dynamic simulation.	SERB	2018-19	33.264
47	359	Dr. Murshid Imam	**ME**	Development of Multi-Layered microstructure gradient functionally graded composit material using friction stir additive manufecturing.	SERB	2018-19	24.961
48	360	Prof. Pushpak Bhattacharyya	**CSE**	Information Retrieval Via Knowledge Graphs Develop for Aircraft Accidents Database and Aircraft Manuals	SERB	2018-19	54

Consultancies sanctioned in FY 2018-19

Sl. No.	Consultancy Code	Name of Consultants	Department	Consultancy Title	Funding agency	Year	Total Granted Fund
1	266	Prof. Pushpak Bhattacharya	CSE	Research Advisory assignment no.1	TCS	2018-19	11.33
2	267	Dr. S. K. K. Hussaini	Civil	Vetting of design of slip road side drain	BRPNNL	2018-19	3.25
3	269	Dr. Anup Kumar Kesari	MME	Plasma Sprayed Nanostructured Coatings with Improved Mechanical Adhesion, Thermal shock, Hot Corrosion and Tribological properties	Tata Steel	2018-19	12.5
4	274	Dr. Vaibhav Singhal Dr. Hemant (IIT Guwahati)	CEE	Seismic strengthening of Bihar State chief ministers residence at 1- anne marg, patna	Building construction Dept, Govt of Bihar	2018-19	5.16
5	276	Dr. Amarnath Hedge Dr. Vaibhav Singhal	CEE	Proof checking of the structural geotechnical design and drawing of the club building(G+7) at railay officers colony at dighaghat patna	Lord Vishnu Constructions Pvt Ltd, Patna	2018-19	3.835
6	278	Dr. Vaibhav Singhal Dr. Amarnath Hedge	CEE	Structural vetting of collectrate building at Patna	Building construction Dept, Govt of Bihar	2018-19	6.26875

Sl. No.	Consultancy Code	Name of Consultants	Department	Consultancy Title	Funding agency	Year	Total Granted Fund
7	285	Dr. Avik Samanta Dr. Vaibhav Singhal	Civil	Tensile tests of reinforcement for M.G. Setu	TPF Engineering Pvt Ltd, Patna	2018-19	0.6372
8	288	Dr. Subrata Hait	Civil	Preparation of water audit and mass balance report of M/s MPM Pvt Ltd	M/s MPM Pvt. Ltd.	2018-19	1.3275
9	291	Prof. Pushpak Bhattacharyya	CSE	Technological development industrial/consultancy	Scribtech (India) Healtcare Pvt. Ltd.	2018-19	14.75
10	292	Prof. Pushpak Bhattacharyya Dr. Asif Ekbal Dr. Sriparna Saha	CSE	LG-Soft Restaurent Recommendatuin Project	LG Soft	2018-19	15.93
11	295	Dr. Avik Samanta Dr. Syed K. K. Hussaini	CEE	Proof checking certification of compliance for RCC box culvert and RCC Hume pipe culverts	Ultra Tech Cement Patna	2018-19	2.006
12	296	Dr. Vaibhav Singhal	CEE	Physical test of TMT bars with coupler for MG setu over Ganga River	TPF Engineering Pvt Ltd, Patna	2018-19	0.6372
13	297	Dr. Avik Samanta Dr. Vaibhav Singhal	CEE	Physical test of TMT bars	TPF Engineering Pvt Ltd, Patna	2018-19	0.5428
14	298	Mohd Kaleem Khan Dr. Manabendra Pathak Dr. Mayank Tiwari Dr. Rishi Raj Dr. Anirban Bhattacharya Dr. Anirban Mahato	ME	Inspection of 75 units (JCB make backholes 3DX Super loaders SSL 135) to be delivered to Patna Municipal Corporation	JCB India Ltd	2018-19	7.57087
15	299	Mohd Kaleem Khan Dr. Manabendra Pathak Dr. Mayank Tiwari Dr. Rishi Raj Dr. Anirban Bhattacharya Dr. Anirban Mahato	ME	Inspection of 37 units (JCB make skid steer loaders SSL 135) to be delivered to Patna Municipal Corporation	JCB India Ltd	2018-19	2.6538
16	302	Dr. Manabendra Pathak Dr. M K Khan Dr. M. Tiwari Dr. R. Raj Dr. A. Bhattacharya Dr. A. Mahato	ME	Inspection of 375 units (Tata Super Ace 3.2 Cum Tippers) to be delivered to Patna Municipal Corporation	Tata Motors	2018-19	9.4412
17	305	Dr. Manabendra Pathak Dr. M. K. Khan Dr. M. Tiwari Dr. R Raj Dr. A Bhattacharya Dr. A Mahato	ME	Inspection of 06 Units (Tata Hitachi) EX200LC Super with rock breaker) to be delivered to Patna Municipal Corporation	Tata Hitachi Construction Machinery Company Pvt Ltd	2018-19	1.79308

Sl. No.	Consultancy Code	Name of Consultants	Department	Consultancy Title	Funding agency	Year	Total Granted Fund
18	314	Dr. Subrata Hait	Civil	Third party inspection of sewerage projects under Namami Gange Program	Govt Of Bihar	2018-19	230.1
19	316	Dr. Anirban Chowdhury	MME	Compositional characterization of investment casting powders	Maharaja Jewellery Tools Mumbai	2018-19	0.3
20	317	Dr. Vaibhav Singhal Dr. Amarnath Hegde	CEE	Structural Vetting of the Storm Water Drainage at EPIP Industrial Area, Hajipur	Infrastructure Development Authority	2018-19	3.0975
21	323	Dr. Kaleem Khan Dr. Manabendra Pathak Dr. Ranjan Behera Dr. Anirban Bhattacharya Dr. Anirban Mahato	ME	Inspection of 182 Units (Greencart Tipper be delivered to patna Municipal Corporation)	CLH Gaseous Fuel Applications Pvt Ltd	2018-19	1.16584
22	324	Dr. Kaleem Khan Dr. Manabendra Pathak Dr. Anirban Bhattacharya Dr. Anirban Mahato	ME	Inspection of 06 units (Cattle Catcher vehicle) to be delivered to patna Municipal Corporation	Ensol Multiclean Equipment Pvt Ltd	2018-19	0.4491
23	325	Dr. Avik Samanta Dr. Koushik Roy Dr. Pradipta Chakraborty Dr. Amarnath Hedge Dr. Ramkrishna Bag	Civil	Proof checking of structural design for construction of constable barrac at New police Line, patna	Bihar Police Building Construction	2018-19	5.99735
24	326	Dr. Anirban Mahato	ME	Testing in SEM-EDS system	Mr kundan Singh AFCONS House, Mumbai	2018-19	0.059
25	327	Mohd Kaleem Khan Dr. Manabendra Pathak Dr. Anirban Mahato	ME	Inspection of 119 Units (Tata 3 Cu,M Tipper on LPK 407Ex/27 BS IV) to be delivered to patna Municipal Corporation	Tata Motors Ltd	2018-19	5.62649
26	328	Dr. Vaibhav Singhal Dr. Vaibhav Singhal	CEE	Structural Vetting of the ground solar mounting structure for MES Birchgunj, Portblair	Rishab Constructions Pvt Ltd	2018-19	1.121
27	331	Dr. Ranjan Kumar Behera	EE	Vetting of the electrical drawing of solar plant including cable,earthing and components for MES Birchgunj, PortBlair	Rishab Constructions Pvt Ltd	2018-19	1.2685
28	333	Dr. Manabendra Pathak Dr. M K Khan Dr. A Bhattacharya Dr. A Mahato Dr. C Sarkar	ME	Inspection of 03 units (sweeping machine 5 cu. M) to be delivered to patna Municipal Corporation	Lion Services Ltd Delhi	2018-19	2.77475

Sl. No.	Consultancy Code	Name of Consultants	Department	Consultancy Title	Funding agency	Year	Total Granted Fund
29	334	Dr. Mohd Kaleem Khan Dr. Manabendra Pathak Dr. Anirban Bhattacharya Dr. Anirban Mahato Dr. M Imam	ME	Inspection of 04 Units(Self Propelled Hydro static Driven Compact Sweeper) to be delivered to Patna Municipal Corporation	American Road Technology & Solutions Pvt Ltd	2018-19	2.78721
30	335	Dr. Avik Samanta Dr. Vaibhav Singhal Dr. Koushik Roy	CEE	Physical Test of ACC Bricks	Satya Swarna Enterprises, Bihta-801106	2018-19	0.05
31	336	Dr. Vaibhav Singhal Dr. Pradipta Chakraborty Dr. Subrata hait Dr. Syed K K Hussaini Dr. Avik Samanta Dr. Koushik Roy Dr. Amarnath Hedge Dr. Trishikhi Dr. Ramakrishna Bag Dr. Vishal Deshpande Dr. Sudhir Verma Dr. Mohd Kaleem Khan Dr. S Sivasubramani	CEE	Third party quality asssurance of construction of academic and residential complexes under phase II	CPWD, GoI	2018-19	85.904
32	340	Dr. Avik Samanta Dr. Vaibhav Singhal Dr. Koushik Roy	CEE	Physical test of TMT bars for development of officrs colony at Digha-Ghat Patna	ECR Hajipur	2018-19	0.5664
33	341	Dr. Jimson Mathew	CSE	Architectural Audit for Blockchain	IT Centre Federal Bank Bangalore	2018-19	1.475
34	344	Dr. Avik Samanta Dr. Koushik Roy Dr. Vaibhav Singhal	CEE	Test of TMT bars and concrete cubes	Urban Development and housing Dept, Govt of Bihar	2018-19	0.5074
35	345	Dr. Sudhir Varma	CEE	Approval of drawing for the work of development of Veerchand Patel Marg as Model Rd in ABD area with streetscape design, beautification, landscaping, junction improvement and infrastructure upgrades under smart cities mission	M/s Dayanand Prasad Sinha & Co, Janta Path, Kankarbagh, Patna	2018-19	1.10625
36	356	Dr. Mayank Tiwari Dr. Surajit K Paul Mr. Sudhanshu Kumar	ME	Analysis of Rolling Element Bearing Friction Torque	National Engineering Industry Jaipur	2018-19	4.6

Training and Placement Cell

Training and Placement Cell (TPC) of IIT Patna aims at building a strong interface between the corporate world and the Institute. The Cell's initiatives include continuous interaction withthe prospective recruiters to understand their requirements of knowledge and skill sets and to prepare our students accordingly. TPC works in close co-ordination with the student placement committee comprising of student coordinators chosen from various departments. The institute's excellent infrastructure supports each and every stage of the placement process in arranging pre-placement talks, written test, group discussion and interviews while assisting our guests in the best possible manner.

This is the 8th Placement Season for IIT Patna and we are moving forward setting new benchmark with each passing year. We have reached a milestone of 200 offers for the session 2018-19.A total of 112 B.Tech students have been placed in this session and overall 152 students have grabbed the opportunities from various sectors for different profiles. Two students have bagged International offers from FUJIFILM Software Co. Ltd, Japan and Google, Poland.

The highest package of 33.50 Lakhs per annum has been offered by DE Shaw, followed by Arcesium and CodeNation which has offered 32.50 Lacs and 31 Lacs each to the students. Apart from this, students have received tempting offers from Microsoft, Samsung, Mathworks, Goldman Sachs, MakeMyTrip, Sapient, Addverb, Optum, Cadence, Force Motors, ZS Associates, TCS R&D, Strand Life Science, LTI, LinkedIn,Saavn, Future First, Cognum, L&T ECC, Uber, L&T Heavy Engineering, Infosys, Wipro,Capgemini,Aakash Institute and many more.Among the PSUs, ISRO and IOCL have visited the campus and offered job to the students.

We have also seen a rise in the trend of PPO. This year around 27 students have grabbed PPOs from their internship. The pre-final year B.Tech and M.Tech students have received summer internship offers various companies in India and abroad. Few of the names are Intel, STMicroelectronics, Webstaff, Amazon, Mathworks, Optum, ezDI, TCS Research, etc.

TPC is also catering to the needs and interests of the students who are willing to go for UPSC and GATE preparations. It conducted workshops related to Career in Civil Servicesand GATE preparations. TPC has also conducted the workshop on "interview preparation"in association with Thinkers & Fillers, Patna this year. In addition, TPC has also successfully organized "Japanese Language Workshop" in association with Websatff, a Japanese consultant.

The motivated team of Training and Placement Cell is actively following Kaizen-the Japanese word for "improvement", in all spheres.

TPC team with volunteers of the year 2018-19

Health Facilities

Health care is an important tool in the development of Institute.IIT Patna Hospital has been running with the help of Ruban Memorial Hospital. We have associated ourselves with local hospitals such as MahavirVatsalayaAspatal,SahayogHospital, Kurji Holy FamilyHospital, Heart Hospital Kankarbag Patna, Ford Hospital andParas HMRIHospital to cater to the basic needs of our employeesand students on cashless basis. Hospitalization expenses of all students are covered under a medical insurance policy.A Medical Officer and Pharmacist and an Assistant are available on a full-time basis to provide emergency first-aid, and for routine medical services. Institute has as a panel of specialist doctors in different specialization namely gynecology, paediatrician, physician and psychiatrics who are regularly visiting institute hospital on routine basis for specialized treatment of student, staff and faculty. Institute hospitals which run with the help of Ruban Memorial Hospital has fully equipped facilities like X- ray, PharmacyandPathology services for proper investigation of student, staff and faculty within the campus. Institute hospitalan Ambulance Service 24 hrs is also available to provide emergency needs to student, staff and faculty. The IIT Hospital Patna is functional with primary basic health care facilities for employees and students.

Unnat Bharat Abhiyan Cell

1. Introduction

In the previous report of Unnat Bharat Abhiyan, we had discussed about the mission vision, goals and strategies, etc. of work under the project as per the MHRD guidelines. In continuation to the above, The UBA Team of IIT Patna came up with few solutions to the technical issues identified during the survey of the villages through various Gram Sabha meetings. With the help of these interactions we got to understand the key areas of intervention and their implementation possibilities of solution and we also look forward to incorporate the same as applicable. In this report, we will discuss the details of the activities that took place in the Year 2018-2019.

2. Unnat Bharat Abhiyan 2.0

It started with a new funding pattern and objectives where the team worked according to the mentioned instruction.

Under UBA 2.0 few internal meetings were organised in IIT patna were the members present mainly comprised of the core committee of UBA and the working staffs. For planning and decision making.

- A proposal to involve Raj Jal Mantri was also decided to help resolve water issue in the village with his direct involvement, initially through Village meting and later at Village by providing definite solution on the ground level.
- Jal Minar Yojna was also introduced in the meeting to set up an example to have innovative move for resolving water issue.
- One of the most important concern raised in the meeting on the village life style was that , the washrooms set- up during the Swachh Bharat Abhiyan are converted to store rooms for keeping goods, and the trend of going to toilets still lye on the road side and agricultural land.
- As a resolution to the above problem, 'Awareness' comes out to be the only resolution to help people utilize the benefit of the Abhiyan.

After all the above discussion in the internal meeting a final date was finalized for Gram Sabha meeting in each village to interact with the members of the village and the help to get a clear picture of problems prevailing in the village with their possible solutions and was organised.

3. Activities under UBA 2.0 of IIT Patna

The UBA cell of IIT Patna is one of the participating institutes which has formed an inter– disciplinary team of faculty members, support staffs and students.

The villagers played an important role in helping us get a clear picture about the problems pertaining in the village and discussed possibility of implementation of its solution .Under this project the team had carried out Participatory Rural Appraisal of the villages and identified the few most priority issues like- Possibility of use of Biomass as an alternative to other means for sources of energy in these houses, Safe and Clean Drinking Water as well as Installation of Solar Street Lights in the streets of the villages and as well as others also.

Few Images of the meeting at these villages are shown below.

4. Field level experiences of Gram Sabha Meeting held at Villages under UBA 2.0.

Dilawarpur-Rajpur

The household and Village level surveys were conducted. A formal meeting was organized by the UBA team of IIT Patna along with the villagers of Dilawarpur –Rajpur held in "Thakur Bari" of the village to discuss about UBA's objectives and plans.

IIT Patna contacted IIT Professors of specialized fields, District Administrators, Corporate like SBI, Canera bank, Oriental bank of Commerce and Skill Development centers to attend the meeting.

The meeting was well attended by UBA Team, Teacher of the Village school, The Village head along with the villagers and Professors of IIT Patna. The village people present in the meeting provided valuable inputs to get a clear picture of the entire village, available resource and problem faced.

Problems identified:

1. Natural resource like Cow dung ,wood and human excreta as waste are available in substantial quantity
2. Most of the people are farmers and depend on agriculture as their only livelihood and rice and heat is the only crop that they grow.
3. No modern machinery techniques present apart from tractors for field agriculture.
4. Animals like cow, buffalo and some amount of goats are only 'Animal Husbandry' here.
5. There are no cooperative banks, or agricultural officers to look after the agriculture methods or provide proper training to the farmers,they also don't have their 'Kisan Credit Card' made due to various reasons .
6. No proper soil testing and modern agricultural method awareness programme held in the village to educate the farmers. Fertilizers available are not easily available and are costly
7. Communication gap between the local political bodies and village people are reported by them to address their problems time to time.
8. People reported that soil quality is supportive in growing cash crops but farmers being unaware of it stick to only 'ParamparikKheti' resulting in limited productivity.
9. People migrating mainly unskilled labour, in other cities resulting in low manpower to meet agricultural productivity level and also for some employment in various fields
10. One of the major problems faced by BPL people is that they do not have BPL cards made and also not receive their rights due to government frequent change policy.
11. Electricity however prevails in 70 % of the houses on but 30 % of the houses still remains deficient of power supply. Also, no street lights on connecting points, community gathering places and internal streets.
12. Existing transformers could not stand fluctuations of voltage and are also in insufficient numbers to provide proper electricity.
13. There are only two schools in the village and offers education till 10th resulting in lack of higher education within the village. People have to migrate to other city for higher education where generally women are left behind. Lack of seriousness towards education of both teachers and students were reported.
14. Major Problem of lack of water reported for cooking, agriculture and drinking purpose. State Tube wells failure has resulted in scarcity of water for agriculture and damaged hand pumps resulting in shortage of dinking or cooking water. Houses are not fitted with water taps and people are only dependent on few working community hand pumps.
15. Community hand pumps are left unmaintained in case of any damage caused to it. There is no water tank, river or open well in the village as an alternate drinking water source
16. Women are experiencing poor education and lack of employment activities also lack of skills too. They also consider themselves to as the weaker section of the society and find themselves unskilled and low in status as that of men. Girl child are basically engaged in household work with the mentality and are not given much preference as compared to the boys in education or employment.
17. Government schemes started for the benefit of people are not utilized properly for example: - Ujawala Yojna started by the government has proven to be benefiting only few people and majority left deprived of it.

Possible solution discussed to few problems

1. Biogas decided as a first proposal by UBA IIT Patna on a trial basis to be strated for few houses having availability of good quantity of cow dung and animal waste for meeting an alternate resource of energy power for the villagers to reduce air pollution and help in ease of bio fuel availability. Training to be provided to some skilled labour on per day labour payment basis to encourage small level employment for atleast few people.
2. Solar Lights to be setup on main connecting points and community area of the road in the village.
3. A proposal for repairing state tube wells and hand pumps to be raised to the concerned for their installations and maintenance to help reduce water scarcity problem
4. A proposal from the villagers for setting up transformers in satisfactory number to meet remaining scarcity of electricity in 30% of the remaining houses and also for state tube well-functioning also to stabilize the voltage fluctuations of the existing transformers to help reduce failure.
5. District administrators to be requested and tracked from time to time for issuing BPL cards to the Poor people below Poverty Line to help them access government yojnas.
6. Agriculture to be implemented with the involvement of various modern machines of engineering to meet up the scarcity of production of grains and also to meet up the absence of skilled manpower
7. Unemployed youth of village to be engaged in skill development centers for their skill development and future job opportunities.
8. Regular addressing and meeting with women of the village to help them enroll in various skill developments, problem solving discussions and activities.
9. Special counseling and Regular discussions to be held with village school teachers to help understand the problems prevailing in the education field as reported by the students .

Amhara

The meeting at Amhara was well attended by the people of the village and the UBA team. The people helped us to give a clear picture of major issues prevailing in the village and its possible solution.

Problems identified

1. This village consist of 10 wards out of which 4 of the wards (1,2,9 and 10) are suffering from major drinking water issue.

2. Infrastructure & Staff are present in the Primary Health Centre but lack of basic amenities
3. There are 7 Aganwadi Centres active in the village in 7 different wards of Amhara where there is no facility for light, fan or furniture.
4. The village Library was working 10 years before and was not not-functioning now due to shortage of books, furniture, light and fan.
5. Lack of Computer Teachers in the village school for children.
6. No Street Lights in community places or roads .
7. The village still lacks in private toilets and open defection method comes out to the priority.
8. No proper water drainage infrastructure present in the village for major houses 9.Irrigation done by borewell as the only method is resulting in lowering of underground
9. Water Level which will have an adverse effect on water availability in the long run.

Possible solution discussed to few problems (Sequentially):-

1. Installation of hand pumps as a possible solution to drinking water problem in each ward.
2. Providing basic amenities to help the Primary Health Center be up and running in coordination with Dr. Krishna Kumar Singh who is presently looking after "Bihta Referral Hospital."
3. Installation of lights, fan and furniture in each Aganwadi Centres.
4. Setting up of useful books, lights, fan and furniture for village library.
5. IIT students through NSS programme to provide computer education on behalf of non availability of computer teachers in the school.
6. Installation of solar street light in the village roads or community places.

With the above study and field experiences by the PIC, members of the Core Committee of UBA, IIT Patna and the project staffs a final list of few selected issues were decided and highlighted to be started working for solutions and few selective problems which can be helped in resolving by the District administrators were send via letter and mail to the DM, SBI Corporate, HPCL head, Oriental Bank of Commerce and the Canara Bank, all in Bihta.

Kanchanpur-Kharagpur

People present in the Gram Sabha Meeting at Kanchanpur-Kharagpur were head of the village; vice head of the village people of different wards were present for discussion on identification of technical issues in the village and its corresponding solution.

With a proper discussion and interaction of the team with the village people, two of the major problems were identified and were considered as on priority basis for their solution.

Problems identified

1. Drinking water issue
2. No Biofuel used.

Possible solution discussed to few problems (Sequentially):-

1. Installation of hand pumps as a possible solution to drinking water problem in each ward.
2. Implementation of biogas on trial

Parev

Parev is basically known for its efficient work in Brass metal cluster unit holders.

Problem Identified:-

1. Lack of training for product diversification

Possible solution discussed to few problems (Sequentially):-

1. Product diversification: training for spinning m/c needed so that gada, bucket etc can be made from the sheet.

5. The Regional Workshop

IIT Patna was also selected for conducting "Regional Workshop for Orientation of Participating Institutes to Initiate Work in Adopted Village Clusters" in December last year. The objective of this workshop was to engage colleges of the Eastern Region near of by IIT Patna to accelerate work for implementation of the technical solutions in the adopted villages. IIT Patna was chosen to organize the workshop inviting colleges of Jharkhand, Bihar, West Bengal and Odisha (Eastern Zone). A total of above 90 colleges were invited from the Eastern Zone were most of them showed their active interest and became a part of the workshop.

It was a one-day workshop where Project investigators of individual colleges actively took part for sharing their field experience during the course of the Abhiyan. Few dignitaries were also invited to make the event successful. The UBA team along with students of NSS took the initiative for the successful execution of the workshop. The UBA Team of IIT Delhi, as a national coordinator demonstrated and orientation program for all the participants including Technical and Non-Technical colleges over Eastern India to join as members of the UBA Program globally. They demonstrated the working and implementation strategies for this program through PPT and speeches. IIT Patna had also put up its success stories and achievements in the field of rural development as a Power point presentation. Similarly, other colleges came forward to discuss their achievements and doubts related to the Abhiyan.

Through this workshop the Work Plan of Action was well covered and discussed as well as presented in front of all the participants. All together, the workshop was an interactive session amongst the IIT Delhi (The National coordinator), IIT Patna (The Regional Coordinator) and UGC (The Region al Coordinator).Few Photographs of the event are shown below.




6. Future Plan of Action

It was proposed in the funding pattern of UBA 2.0 that After Verification of the proposed solution by SEGs, assistance would be recommended by SEG up to Rs. 1 lakh per technology for the selection of technical solutions and up to Rs. 50,000/- per village for customization of any existing solution in the village

Following this and base on our analysis, we had successfully uploaded the required proposals of technical intervention against the issues identified, on the Reporting Portal of UBA for seeking funds from MHRD.

Details regarding the identified issue and it's corresponding solution along with the respective villages are given below.

Sl . No.	Village Name	Issue	Technical solution
1.	Dilawarpur-Rajpur	1. No Bioufuel used 2. Drinking Water Issue 3. No Street Light present	1. Biogas 2. Installation of Hand pumps. 3. Installation of Solar Street Lights.
2.	Amhara	1. Drinking Water Issue 2. No Lights and fans in Aganwadi Centres. 3. Non availability of basic amenities in the village library.	1. Installation of Hand pumps. 2. There is a requirement and installation of lights & fans in these Centres. 3. Rennovation of village library
3.	Kanchanpur-Khragpur	1. No Bioufuel used 2. Drinking Water Issue	1. Biogas 2. Installation of Hand pumps.
4.	Parev	1. Lack of training for product diversification	1. Product diversification: training for spinning m/c needed so that gada, bucket etc can be made from the sheet.

As a first step towards, we had sent proposal both online and offline for implementation of these technical solutions in the villages. The details of the proposal are shown in the below snapshots.

Proposals sent and their Responses

Technology development proposals

Serial no.	Title of the proposal	Status of the proposal	Comments from SEG
1	Implementation of Biogas Plants	Waiting at SEG	
2	Installation of Hand Pumps	Waiting at SEG	
3	Setting up of solar lights.	Waiting at SEG	
4	Installation of Hand Pumps	Waiting at SEG	
5	Setting up of lights and fans in 7 Aganwadi Centres.	Waiting at SEG	
6	Setting up of Village Library	Waiting at SEG	
7	Installation of Submersible Pump	Waiting at SEG	
8	Implementation of Biogas Plants	Waiting at SEG	
9	Setting up of Community Public Toilets	Processed by SEG, waiting at CI	Dear Sir/Madam, As the SEG for Sanitation & Solid-Liquid Waste Management, IITM UBA has received and perused your project proposal dated 2018-08-15. We appreciate your efforts in building a stronger India through UBA. However, we would encourage you to kindly resubmit the proposal since it was found lacking in certain key areas. As a baseline, we approve proposals that can adhere to any one or more of the categories mentioned below. For Technology based proposals # Novel Technical solution # Adaptation/ customization of existing technology to required local context # Assembly of various existing technologies to required local context # Fabrication by participating institute using institutional resources # Training in Technology operations For Non technology based proposals # Awareness programmes Please elaborate on the population of Kanchanpur-Kharagpur and why & how your institute arrived on the number of 4 toilets, a break up of your financials, and how you will ensure that the villagers will continue to keep the toilets in accessible/clean condition. Also, please mention if your institute has had any prior experience in the field you intend to work on. Kindly resubmit by Nov.25.2018

Out of these 9 proposals that were made, two got shortlisted for implementation whereas others are still awaiting response. Implementation of Biogas Plants did received fund from MHRD for installation in Dilawarpur- Rajpur and Kanchanpur Kharagpur. ***The funds were released in the beginning of this year and the implementation strategies are in process as our future goals.***

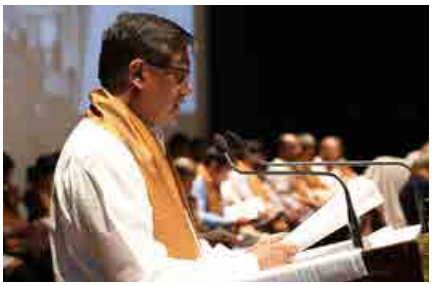
Considering the present status of the "proposal tracking column" as on the reporting portal, it clearly highlights that the recommendations are pending from the Subjet Expert Group for verification. Once there is update regarding the same, then the reflected results will be further taken care of. Also, as per the guidelines of MHRD also with close coordination of the UBA Team of IIT Delhi, the implementation of the remaining issues will soon take place once we have received the fund for each of them in the coming years.

Various Activities at IIT Patna

The 6th Convocation of IIT Patna was held on 13 Sept. 2018 at GyanBhawan in Patna. Year 2018 was special since as it marked a decade of IIT Patna's existence and this convocation was special because the first batch of M.Sc. students received their degrees along with B.Tech., M.Tech. and Ph.D. students. The Chief Guest for the convocation was Padma Shri ShriManas Bihari Verma, the brain behind TEJAS – India's light combat aircraft. The Guest of Honour on this occasion was Padma Shri Prof. Mandindra Agrawal, Deputy Director, IIT Kanpur and famous for developing the Algorithm – the AKS Primality Test. In this conovation, 172 B.Tech. students, 22 M.Sc. students, 67 M.Tech. students and 15 Ph.D. students were awarded their degrees.

While the President of India Gold Medal for academically best student went to JatinKalra, B. Tech. from Department of Mechanical Engineering, the Institute Silver Medal for securing highest CPI in each course went to Naman Agrawal, Durgesh Kumar, JatinKalra, S. Pranav and AkshaySukumarAjagekar. The KedarNathDas Memorial Award was given to Naman Agrawal of Dept. of Computer Science and Engineering. It is an award of Rs. 10,000/- The Aryabhatta Gold Medal in M.Sc. was awarded to Rohit Kumar of Dept. of Physics. The Institute Silver medals in M.Sc. were awarded to Rohit Kumar, SumanKumari and ArghaSaha of Physics, Mathematics and Chemistry respectively. The Chairman's Gold Medal awarded to academically best student for M.Tech. students was awarded to Kumar NishantUjjwal from Department of Civil and Infrastructure Engineering and the Institute Silver Medal for securing highest CPI in each course was awarded to Kumar NishantUjjwal, Ankur Pandey, S. Ryan Thomas, Mansi Maheshwari, Saurabh Srivastava, Anurag Shukla, KanikaChoudhary, and PrakharVerma. Apart from these medals, B.Tech. and M.Tech. Students were awarded "proficiency in project work prize" of Rs. 5000/- and Rs. 7500/- respectively, for the best project works in their departments.The chief guest, Padma Shri Manas Bihari verma exhorted the students to be enthusiastic about the future and make an effort to face challenges thrown to them by the outside world. He laid stress on encouraging the culture of innovation and industry – academia collaborative research. The Chairman of the Board of Governors, Padma Bhushan Shri AjaiChowdhry congratulated the students on their success. The Director of the Institute, Shri PushpakBhaatcharyya dwelt at length over the growth of the Institute during the recent years. On the whole, it was a time of festivities and happy faces and emotional moments with group photos, selfies, and celebrations adding to the mood. Family members exchanged notes of the success of their wards and immensely enjoyed the graduation ceremony. Dr. Ajay D. Thakur and Dr. Anirban Bhattacharya, the conveners for the Convocation 2018 received immense support from the IIT Patna fraternity in the successful organization of the event.






Nebula 2018

The fresher's party continued its legacy of success. This edition of the event proved to be the most successful Nebula in the history of IITP welcoming around 240freshers this year. The party began with a lamp lighting ceremony shortly followed by formal introductory speeches by the Chief Guest. Beginning with a plethora of events, first performance to be showcased was a classical dance and then a group song by first year and second year students. Next on the stage was an unprecedented performance. A group of first year students formed a fusion band and performed with a keyboard, an acoustic guitar and synthesizer in the background and marked the formation of a new band IITP. After this; IIT Patna witnessed the super awesome Mime performance in the institute aptly acted by the freshers depicting the varied mindset of a person in different situations. The excitement augmented to a joyful high when the fashion show embarked on. Beginning the charismatic show, the fresh batch put up an attractive fashion show in which gorgeous looking girls and smartly dressed boys walked the ramp for the coveted Mr and Miss Fresher's title. The contest, held in a number of rounds was keenly contested and judged the students on different parameters. Ms.Shreya Sinha and Mr.Shashwat Mahajan were adjudged as Ms. Fresher & Mr. Fresher respectively. As the mercury began to rise, the dance floor was left open for some unbridled energy and the night concluded with a DJ-Night.

Independence Day '18

The function started with the flag hoisting ceremony by Honourable Director of IIT Patna, Prof. Pushpak Bhattacharyya. This was shortly followed up by an inspiring speech by the director. Lined up next were the jingoistic events organized by the students of IIT Patna. The intellectual minds presented a mélange of cultural activities, which created an atmosphere of national pride on the premises of the institute's campus on Thursday. House of Socio-Cultural Affairs, IIT Patna organized a street play which imparted a very inspiring social message. Other events encompassed the patriotic songs sung by the students. The entire atmosphere was filled with songs full of nationalism highlighting India's flight to progress in spite its diversity.

Republic Day 2019

The 70th Republic day was celebrated at IIT Patna with vigour and enthusiasm. Flag hoisting by the Director was followed by cultural performances by the students.

Spic Macay Events 2018- 19

With the intentions of cherishing traditional Indian culture, IIT Patna has organized five cultural evenings with Spic Macay. The series event started with the legendary vocal artist Vidushi Tulika Ghosh performing on 2nd August, followed by the divine and enthusiastic dance performance of Gotipua by the young dancers on 4th August. Their beautiful dance performance won the hearts of each and every member of IIT Patna present in the audience. This event was followed by a breath-taking performance by the Grammy award winner Pandit Vishwa Mohan Bhatt who spread the magic of his art through his instrument the "Mohan-Venna" on 6th August, 2019 marking the Foundation Day celebration of the institute.

Vidushi Tulika Ghosh

Gotipua performance

Pt. Vishwa Mohan Bhatt

Pt. Ronu Majumdar

The fourth Spic Macay evening was organised in the month of January 2019, with the flute performance of Pandit Ronja Majumdar on 11th January along with other artists. The final SPICMACAY performance for 2018-19 session was organized on the occasion of Institute Research Scholars' Day where noted semi- classical vocalist Vidushi Shibhra Guha from Agra Gharana mesmerized the crowd with her art.

Institute faculty members with Vidushi Shubhra Guha and team

Foundation Day 2018

Passing through every ups and downs, IIT Patna has completed its decennial year gracefully bloomed by laying its first stone on 6th August, 2008 to its tenth anniversary on 6th August, 2018. The foundation was celebrated by a series of events on Extemporary, Sketching, Short-Film Making and Photography. The day was further celebrated by the talk of the Chief Guest, the renowned personality Professor Shankar K. Pal from Indian Statistical Institute, Kolkata.

Flip-Toe : The Intra-College Dance Competition

An Inter Hall Dance competition was organised on 4th September, named Flip-toe. Including some spine-chilling performances, the event provided a great opportunity for the freshers to blossom up as well as the seniors to prove their superiority. The events was organised in the Foundation Acadmay with great enthusiasm. The categories among which the competition held was Solo as well as Duet. In Solo the position was occupied by Rishab (First Position), Bhavani Susmita (Second), Grace Rawat (Thired Position). The battle of Duet was won by Bhavani Sushmita and Shanu Madhukar.

Gandhi Jayanti, Saadhna & Swachh Bharat Abhiyaan

On the auspicious occasion of 150th Gandhi Jayanti, aseries of three days event was including Saadhna Diwas was celebrated in IIT Patna. Students and faculties came together with a magical and patriotic musical performance with Honourable Director Sir Pushpak Bhattacharyya also performing alongside. A campus cleanliness drive was organized in the morning where all the students of the campus alongwith the faculties actively took part in cleaning the campus under the flagship of NSS. Cycle Yatraand a Pad yatra were also organised to increase awareness in the society, in which students actively participated. Cultural events were also organised which included film making competition and monoact with the theme of 'Gandhigiri' to introduce and inspire others with the ideals of Gandhiji. A quiz was also organised on the auspicious occasion in which the students participated actively.

Reverberance

Diwali is one among those festivals which is most awaited at IIT Patna. To mark and celebrate the festive spirit of Diwali, House of Socio-Cultural Affairs and House of Literature and Fine Arts presents Reverberance, the Inter-Hall Cultural Tournament.

Competitions are the core of any fest and Reverberance is no different. The Inter-Year Cultural Competitions at Reverberance have been a bastion of opportunities to showcase the talent in any genre of cultural proficiency. Covering the genres of Dance, Dramatics, Design and Gaming, Fine Arts and Music, Reverberance have something for everyone. Events are planned out for two days and evenings are ended by college bands performances and a mind blowing DJ-Night.



Anwesha 2019

Anwesha – The Impeccable Showman's Odyssey "Think. Dream. Live." The motto for Anwesha truly describes its spirit and the reason for its existence. In 2019, the decennial year of Anwesha was celebrated with overwhelming zest and vigour. The grandest show in the North East of India just got grander with the arrival of thousands of college students visiting the IIT Patna campus from colleges in Bihar and neighbouring states, leading to a footfall of over 15,000 in the span of three days!The 1st to the 3rd of February were packed with fun events that entertained participants and handsomely rewarded the winners. The first day of the fest kicked off with an inaugural ceremony headed by our beloved Director, Prof. Pushpak Bhattacharyya. This was followed by a mesmerizing performance by renowned artists under the SPICMACAY Programme, who enchanted the audience with their classical tunes and rhythms! A famous stand-up comedian, Mr. Sundeep Sharma, next took the stage and his hilarity caused the audience to burst into laughter. Finally, the night came to an end with a beat-thumping performance by DJ Carnivore. Day 2 was marked by games and competitions for the students. Satanz Tantrum had various bands playing their songs, Heel Turn had dancers showing off their moves on stage to the tunes of popular songs, and Verve, the fashion walk, was the ultimate highlight of the night, where participants from different colleges flaunted their fashion styles and wowed the crowd! The final day presented a grand closure to the fest, with tremendous performances from two renowned bands. First, we had After Acoustics and then we had Mr. Raghu Dixit and his band.


THE ACTIVITIES PERFORMED UNDER NSS (2018-2019)

In context to the activities conducted by National Service Scheme of Indian Institute of Technology Patna, we feel proud to submit the hard work of our team.

About NSS IIT Patna:

The national service scheme of IIT PATNA is an initiative to bring about a change in the social and economic forms of the society. NSS believes that "service to mankind is service to God " and with this mindset, the members of NSS are ever ready to carve humanity out of every social cause.

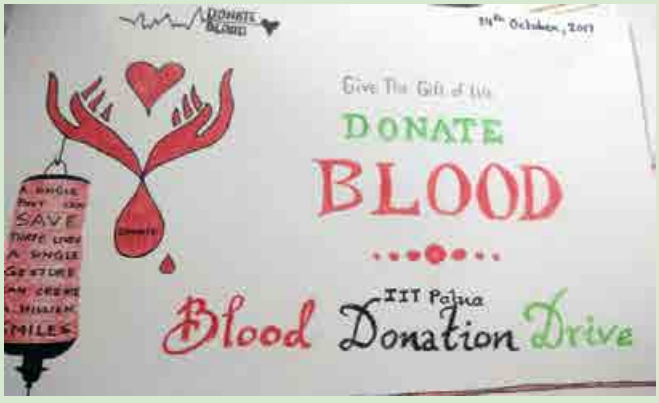
Headed by PIC NSS and supported by general secretary and mentors, the scheme functions in five cells with its centre of activity being the Amhara village.

1) The Teaching Group conducts regular classes and weekly tests for the children of Amhara village.
2) The Technical Skills Group is responsible for upgrading the children's knowledge about computers and improving their fluency in English so that they remain at par with the fast progressing world.
3) The Environment Group conducts activities like plantation drives, cleanliness drives, etc.
4) The Rural Development Group is concerned with the progress of the youth of the villages by making them aware of the various job opportunities available.
5) The Chetna Group organises multiple events and drives, blood donation camps and social awareness programs.

Apart from these, Prayatna plays a significant role. It is an initiative to bring about a change in the lives of children who are the future of the country. It teaches them and provides them with basic knowledge of the topics of their school curriculum. These committees together function to make NSS what it is.

Events:

1. We organised a blood donation drive in association with Bihar State Aids Control Society on 8th of September. It led to a staggering collection of 81 units of blood. To ensure massive participation, many events related to this drive were organised. These include Slogan Writing Competition, Painting Competition and an Online Quiz. All these events were conducted to raise awareness about the ultimate goal of blood donation. We aim to conduct many more such drives which would solve the ever-increasing need for healthy blood.



2. In collaboration with Cultural Affairs, we had organised a cycle and pad yatra on 1st October to commemorate the 150th birth anniversary of Mahatma Gandhi. The Director, IIT Patna joined the procession, leading faculties, staff members and the student community, flagging off the drive at 6 am early morning. The drive concluded with an on-spot competition in which the students were encouraged to speak about their favourite quote by Gandhiji, and how it had an impact on their lives.

3. Ashraya, an initiative for underprivileged kids, was undertaken by Celesta, IIT Patna, the Techno-Management fest of IIT Patna in association with NSS IIT Patna at Amhara High School on 10th October 2018. We organised a drawing competition which garnered an enthusiastic response from the gathering as almost 168 kids took part in it. Prizes followed for their encouragement. Then there were fun activities like poem recitation which were simply a joy in themselves. That was followed by the distribution of copies, geometry sets and pens amongst students currently studying in 6th to 9th standards to support the ideology of providing everyone with the means to continue their studies. The highlight of the event was the installation of a water purifier in the school which provided access to clean and safe drinking water to the students that was not available before. A separate task of repairing school blackboards has also been initiated through the collected funds.

4. We, on 18th November 2018 made a small effort to bring smiles on the faces of the not so privileged ones, by donating clothes to them. This attempt was made a success with the support from the faculties and staff of IIT Patna who donated around 200 pieces of clothing for this purpose.


5 'Prayas' was an effort from the IIT Patna community to share happiness with the people of Amhara village who are from a poor background and cannot afford basic necessities. Many competitions such as drawing, singing, dancing, spell bee, essay writing and spoon race were organised to indulge the kids in fun activities, keep their spirits high and their enthusiasm on a roll. Prizes were distributed amongst the winners. The Nukkad Mandli constituted by our volunteers concluded the event by captivating the crowd with their entrancing performance and messages. The initiative was undertaken jointly by NSS and Anwesha, IIT Patna on 27th January 2019.


6. We have kick startedawareness campaign on segregation of the dry and wet wastes at source. We have audited the campus to check if two separate bins are present. Consequently, we have procured and placed the bins where we found that the bins are necessary. To promote this initiative, we had organised a video-making competition and a poster-making competition open to the IIT Patna fraternity.

7. We celebrated Women's Day with great zeal and enthusiasm. We organised a Rangoli Making Competition in Amhara School on 9th March 2019 which witnessed the participation of over 120 people divided into 17 teams. After that, we played some videos of successful women in our society. On 10th March, we organised a guest lecture by two eminent female entrepreneurs of Patna, who by their efforts have proved that if we are determined enough, barriers are just myths. Mrs Kalpana Kumari, Founder and President of Women Entrepreneur's and Co-Operative Society, and Mrs Amrita Singh, Founder of Nav-Astitwa Foundation, were invited to deliver inspiring speeches on the empowerment of women and on their journeys to become successful entrepreneurs. It was followed by an open-mic event where students gave highly motivating messages that left a profound impact on our heart and minds.

8. NSS IIT Patna Chetna awareness Cell & Developer Student Club - IIT Patna conducted a survey on 9th March 2019 in Amhara village to find out how much the villagers are connected with technology. We got to know that a lot of people use smartphones along with internet, so, we decided that we can help them learn development so that they, especially students, can work as freelancers to improve their economic conditions. This would open up new career options for them. Seeing the inadequate medical services, we decided that a referral medical service app can be deployed for them. For improving the irrigation facilities further, DSC IoT Society would look for solutions to limit the usage of water.

9. On 8th April, we hosted our official website on domain nss.iitp.ac.in. This will help us to establish better connectivity. From the website, one can: -

   a. Request Blood Donor Card

   b. Send feedback and Ideas

   c. Know about the teams

   d. Know about past and upcoming events.

10. On 14th April, our volunteers conducted an awareness drive in the nearby area of our campus to promote the participation of all eligible citizens in the General Elections 2019, with a display of various posters and by personal approach. This drive aims to strengthen our democracy which will directly impact the development of our nation.

    Apart from this various awareness camps , awareness related competitions like poster making , video making on waste management etc are organised on short intervals to keep the spirit of service high among the students.

Conferences, Seminars and Workshops

GIAN – Global Initiative of Academic Networks

The following courses took place in the last financial years.

Course Name	Waste Management and Health Care
Course Area :	Social Sciences
Foreign Faculty :	Pankaj Lal, United States of America
Host Faculty :	Dr. Papia Raj, Humanities and Social Science
Duration :	03-12-2018 to 08-12-2018

Course Name	Stretchable transducers for soft robotics and energy harvesting
Course Area :	Mechanical Sciences & Infrastructure
Foreign Faculty :	Adrian Soo Jin Koh, , Singapore
Host Faculty :	Dr. Karali Patra, Department of Mechanical Engineering
Duration :	07-05-2018 to 11-05-2018

Course Name	Cyber Security Trends and Technologies
Foreign Faculty :	Vijay Varadharajan, Australia
Host Faculty :	Dr. Somanath Tripathy, Computer Science and Engineering
Duration :	14-05-2018 to 18-05-2018

SPARC - Scheme for Promotion of Academic and Research Collaboration

The following proposals have been accepted by the Apex committee. Such projects will strengthen the institute's foreign collaboration.

Title : Development and Implementation of AI Driven Adaptive Microgrid Control and Protection Schemes
Indian PI: Dr. Sanjoy Kumar Parida (Indian Institute of Technology Patna)
Indian Co-PI(s): Dr. Jimson Mathew (Indian Institute of Technology Patna)
International PI: Prof. Zhe Chen (AALBORG UNIVERSITY, Denmark)
International Co-PI(s): Dr. Zhou Liu (AALBORG UNIVERSITY, Denmark)
Project value: INR 33, 83,422/-

Title : Improving regional transportation services using GPS data
Indian PI: Dr. Joydeep Chandra (Indian Institute of Technology Patna)
Indian Co-PI(s) : Prof. Niloy Ganguly (Indian Institute of Technology Kharagpur), Dr. Sourav Kumar Dandapat (Indian Institute of Technology Patna)
International PI: Dr. Joao Mendes Moreira (UNIVERSITY OF PORTO, Portugal)
International Co-PI(s): Dr. Maria Galvao Dias (UNIVERSITY OF PORTO, Potugal)
Project value: INR 53,49,054/-

CEP Courses Coordinated in 2018

Sl. No.	Title Of The Course	Coordinated By	Date
1.	Natural Language Processing (Focus on Sentiment Analysis in Indian Languages)	Prof. Pushpak Bhattacharyya	15th-20th Jan, 2018
2.	MOSFET Modeling & Simulation' MMS-2018	Dr. Pramod Kumar Tiwari, Dr. Jawar Singh	06th-08th July, 2018
3.	Applications of Biomedical Signal Processing Techniques in Healthcare	Dr. Maheshkumar H Kolekar	07th-09th Sept, 2018

Sl. No.	Title Of The Course	Coordinated By	Date
4.	Introduction to Robotics: Mechanics, Control, and Programming	Dr. Atul Thakur, Dr. Raju Halder	26th-28th Oct, 2018
5.	Understanding Your Data: Analytical Tools	Dr. Richa Chaudhary, Dr. Meghna Dutta	30thNov-01st Dec, 2018
6.	Big Data Computing: A Practical Approach	Dr.Rajiv Misra	03rd-07thDec, 2018
7.	Mediation, Moderation And Conditional Process Analysis	Dr. Richa Chaudhary	07th-08thDec, 2018
8.	Machine Learning and Deep Learning:Issues, Innovations and Interplays	Dr. ArijitMondal, Dr. J. Mathew, Dr. A. Maiti	09th-11thDec, 2018
9.	Analysis of Faulted Power System	Dr. Sanjoy K. Parida, Dr. S. Sivasubramani,	13th-15thDec, 2018

CEP Courses Coordinated in 2018

Sl. No.	Title Of The Course	Coordinated By	Date
1.	Failure Analysis of Engineering Products	Dr. Anirban Chowdhury Mr. Sabyasachi Roy, Director, ANTS Ceramics Pvt. Ltd.	10th-11th May, 2019
2.	Mediation, Moderation And Conditional Process Analysis	Dr. Richa Chaudhary	17th-18th May, 2018
3.	Effective Communication and Presentation Skills	Dr. Smriti Singh	21st-24th May, 2019

SAAR ANNUAL REPORT 2018-2019

It has been almost a year since SAAR (Students' Association for Alumni Relations) officially became a part of IIT Patna, thanks to our founding members. SAAR started with zero, and with not too many names to go on and now have a database that helps to connect with more than 280 alumni who have graduated from this prestigious institute. SAARhas not just bridged the gap between the students and the alumni community but has also built a relationship with them along the year.

Anusmriti

Providing alumni with all the insights about the changes and developments in the institute brings them a step closer to IIT Patna. With the support of Professor In-charge, Dr. Anirban Chowdhury and Abhay Kumar Verma, Staff, A. Dean (Resource) Office, the SAAR released its first edition of annual alumni newsletter 'Anusmriti' on 1st June 2018. Till now SAAR has released 2 editions of 'Anusmriti'.

Talk by Alumnus- Utsav Gautam, AIR 33 UPSC

SAAR organized a talk by a distinguished alumnus of IIT Patna, Mr. Utsav Gautam, who recently secured an AIR 33 in the Civil Services Examination 2017. He was invited to the Felicitation Program which was organized on 12thAugust, 2018. He offered his words of wisdom and gave us (i.e., the existing IITP students) the opportunity to felicitate him upon the occasion.

Lifetime Alumni Card and Coffee Mug

For years, alumni's degree has been the only memorabilia which has connected them to their alma mater. To strengthen these ties, SAAR team had decided to gift them with a Lifetime Alumni Card along with a memorabilia of the time they were in IIT Patna as a student.

SAAR team accordingly collected their details to be imprinted on the Alumni Card and on the day of Alumni Meet and Convocation day SAAR distributed Alumni Cards and Coffee mug.

Alumni Meet

The SAAR successfully organized an Alumni meet on 14thSeptember. It garnered enthusiastic response from alumni of IIT Patna who are currently excelling in their fields, be it corporate jobs or higher education all over the globe.

The Professor-In-Charge of Alumni affairs presented a captivating talk before the attendees explaining his vision and future plans to be executed for the growing role of alumni in this institute. A thematic group discussion on "Bridging the Gap: Contacts versus Connections" was held between the alumni and the current community of IIT Patna.

Various new views and points were presented by the alumni who also provided suggestions for its quick and effective implementation by SAAR.

The meet concluded with a felicitation program where the efforts of alumni for this college were lauded with a token of gratitude which also served as a memento for this grand meet. The alumni departed with an oath to gather for many more of such meets in the future. Thus, this meet was a showcase of promise by the alumni to contribute more towards their prestigious alma mater.

Interactive Session

SAAR has decided to initiate a new approach for open discussions with important personalities from Academia and Industry. To kickstart the initiative, SAAR organized a session with Dr. Siddhartha Pathak, faculty of University of Nevada on the theme of higher education status through live video interaction. The interaction enabled the aspirants to clear their doubts and queries regarding their academic direction.

SALAAH

SAAR organised SALAAH (Students Alumni Link for Advice and Help), where students interacted with the alumni in different fields through skype and got answers to all the queries.

MoUs Signed in 2018-19

KYOTO University

IIT Patna has signed up a general memorandum for Academic Cooperation with "The Graduate School of Informatics, Kyoto University," for research collaboration leading to patent rights, copyrights, or other intellectual property rights. **This MOU was signed by** Prof. Pushpak Bhattacharyya, **Director, IIT Patna and Dr. Yoshimasa Nakamura, Dean, Graduate School of Informatics Kyoto University, Yoshida Honmachi, Sakyo-Ku, Kyoto 606-8501, Japan on 25-11-2018.**

The purpose of this MOU is to promote student exchange between the two institutions based upon the General memorandum for Academic Cooperation and exchange between the parties. Both parties will promote in particular the following activities:

- Exchange of scientific materials, publications and information;
- Exchange of faculty members and researchers;
- Exchange of students;
- Joint research and meetings for research.

PHYSICAL EDUCATION AND SPORTS (GYMKHANA) IIT PATNA

The sports cell IIT Patna conducts physical education and various sporting events throughout the year. In 2018-2019 academic year national sports organization (NSO) course were introduced to the 1st year B. Tech students of the institutes. IIT Patna has participated in the 53rd Inter IIT Sports Meet 21st Inter IIT Staff Sports Meet held in IIT Guwahati in December 2018. IIT Patna have organised its very own sports fest "Infinito" in October 2018. Last year IIT Patna Employee Sports Club (ESC) was constituted and the club has organised PRARAMBH-18 in Nov-Dec 2018. IIT Patna has also celebrated on 6th April 2019 the "International Day of Sports and Physical Activity" by organizing a 5K/3K run in the campus.

The activities of the sports cell in the year 2018-2019 are summarized below under various categories –

1. National Sports Organization (NSO)

In sports council members meeting, it was decided to start compulsory NSO programme for 1st year B. Tech students from the academic year 2018-2019. The NSO program ran in two batches G-1 and G-2 where students have participated in different games like cricket, volleyball, basketball, football, skating and athletics. Every group had two morning sessions of two hours (6.00am to 8.00am) per week per day. The program was run successfully with total number of 140 students.

2. INTER IIT SPORTS MEET-2018

85 students including 79 boys and 6 girls participated in 53rd Inter IIT Sports Meet-2018 at IIT Guwahati from December 13,2018 to December 21, 2018 in various games and sports -Badminton, Tennis, Table Tennis(Men and Women), Basketball,

Volleyball, Football, Cricket and Athletics(Men and Women). The results and achievements of the contingent are -

Athletics

Manogna reaches finals in 800m women,

Rohit Kumar reached finals in Long jump men,

Rohit Kumar reached semifinals in 400m men,

Rahul Meena reached semifinals in 200m men,

Koushik reached semifinals in 100m men,

Ashish stood 2nd in Heats in 800m men

Table Tennis (Men)

Won against IIT Kanpur (3-1), IIT Gandhinagar, and lost to IIT Mandi and IIT Bombay.

Table Tennis (Women)

Lost to IIT Guwahati, IIT Hyderabad, and IIT Mandi.

Volleyball

Lost 3 matches in league stage with (IIT Gandhinagar, madras, Kanpur) and won against IIT Ropar.

Basketball (Men)

Won against Bhilai, Bhubaneswar, and lost to IIT Bombay and IIT Guwahati.

Football (Men)

Won against IIT Palakkad and lost to IIT Bhilai and IIT BHU.

Lawn Tennis (Men)

Lost to IIT Kharagpur, IIT Dhanbad and IIT Ropar.

Badminton (Men)

Lost to IIT Kanpur and IIT Ropar

Cricket (Men)

Lost to IIT Bhubaneswar and IIT Goa.

3. INTER IIT STAFF SPORTS MEET-2018

Volleyball

Won against IIT Kharagpur and IIT Bhilai, lost to IIT BHU.

Cricket

Won against IIT Bhubaneswar, lost to IIT Delhi.

Badminton (Men)

Won against IIT Hydrabad and IIT Palakkad, lost to IIT Kanpur.

Badminton (Women)

Won against IIT Guwahati, lost to IIT Kanpur.

Lawn tennis (Men)

Lost to IIT Bombay and IIT Roorkee.

4. INFINITO

IIT Patna sports cell host Infinito (sports fest) from 12.10.2018 to14.10.2018 in various games, in which huge number of students participated from different colleges/ nstitutions and made the event a great success. The results and achievements of the host IITP are -

Athletcs

1. Ashish had won Gold Medals in 800m (Men), 1500m (Men);
2. Rohit had won Gold Medals in 400m (men), Long jump (Men), Silver Medal in 100m men;
3. Koushik won Gold medal in 100m (Men) and Silver Medal in 200m (Men)
4. Rahul meena had won silver in 400m, Bronze in 800m;
5. Akshat had secured silver medal in 800m,
6. Bhanu had won silver medal in 1500m
7. Raj won Bronze medal in Shotput, Bronze in Discus Throw
8. Nikhil won Bronze medal in Javellin Throw

Basketball (Men)

Won against NIT Patna but lost to Ram Balak College.

Basketball (Women)

Won against NIT Patna but lost to ARA team (lost) and secured Runners position.

Volleyball (Men)

Secured runner up position and played with BIT Patna, NIT Patna and St. Xavier's college

Volleyball (Women)

Won against BIT Patna but lost to NIT Patna and St. Xavier's college.

Table Tennis (Men)

Winner, Won against BIT Patna, NIT Patna and St. Xavier's college.

5. PRARAMBH-18

IIT Patna Employee Sports Club (ESC) for the first time organized sports fest for staff team PRARAMBH-18 in various games like Volleyball, Cricket, Badminton and Table tennis, lawn tennis.

Badminton (Men)

Winner, Won against TIHS and BIT Patna.

Badminton (Women)

Runners up, won against BIT Patna but lost to TIHS.

Cricket

Winner, Won against Loyola, BIT Patna and THIS.

Volleyball (Men)

Won against Kanchanpur and lost to Danapur and THIS.

Table Tennis (Men)

Winner, won against TIHS and BIT Patna.

6. International Day of Sports and Physical Activity

IIT Patna also celebrated on 6th April 2019 the International Day of Sports and Physical Activity by organizing 5K/3K run. A large number of students/staff participated and enjoyed the spirit of sportsmanship. The results of the run are summarized below -

Student Boys (5K)	Student girls (3K)
First position - Ashish Kumar	First position- Manogna
Second position – Akshat	Second position – suyash sangwan
Third position – Mohit kumar	Third position – Nidhi

Employee Me	Emp. Women (3K)
First position – Ramprashad	First position- Chanda Sharma
Second position- Budhiram Kishku	Second position- Aishwarya
Third position- Raviranjan Yadav	Third position- Sweta Kumara

Consolation Prize

Priyanka Sharma **and** Ravinandan Kishor

INTER IIT 2018

INTER IIT 2018

PRARAMBH

International Day of Sports and Physical Activity

Statistical Information

Admission to Undergraduate Students

Admission to B.Tech.at IIT Patna were made through Joint Entrance Examination held in May, 2018. A department wise and category wise breakup of the students admitted to IIT Patna for the academic session 2018-19 is given below:

Students admitted through JEE 2018 in IIT Patna:

Course	Gen	OBC	PD	SC	ST	Grand Total
Computer Science & Engineering	33	16	1	9	4	63
Electrical Engineering	33	16	0	8	3	60
Mechanical Engineering	33	16	0	9	4	62
Chemical & Biochemical Engineering (Chemical Engineering)	16	7	0	3	1	27
Civil & Environmental Engineering (Civil Engineering)	19	8	1	3	1	32
Grand Total	**134**	**63**	**2**	**32**	**13**	**244**

Branch-wise list of students who enrolled for B.Tech at IIT Patna for the academic session 2018-19 is given below:

(I) Computer Science & Engineering:

Sl. No.	Roll No.	Candidate Name	Category	Gender
1	1801CS01	AARYA VARAT JOSHI	ST	Male
2	1801CS02	ABHIJEET SHIVAJI KHANDWE	OBC-NCL	Male
3	1801CS03	ABHISHEK CHOPRA	General	Male
4	1801CS04	AITHI TEJASWANI	OBC-NCL	Female
5	1801CS05	AMAN GUPTA	General	Male
6	1801CS06	AMARANENI NAVYASREE	General	Female
7	1801CS07	AMISH MITTAL	General	Male
8	1801CS08	AMMAAR AHMAD	General	Male
9	1801CS09	ANIRBAN NANDI	General	Male
10	1801CS10	ARYAN KOTHARI	General	Male
11	1801CS11	AYUSH PANDEY	General	Male
12	1801CS12	BABLU KUMAR	ST	Male
13	1801CS13	BALBEER YADAV	OBC-NCL	Male
14	1801CS14	BASA SAI ROHAN	OBC-NCL	Male
15	1801CS15	BHUMIKA SHIVANI	General	Female
16	1801CS16	CHANDRAWANSHI MANGESH SHIVAJI	General	Male
17	1801CS17	CHANTI SAI VENKATA REDDY	General	Male
18	1801CS18	DACHARLA VENKATA RAO	General	Male
19	1801CS19	DEVANSHU RAJ	OBC-NCL	Male
20	1801CS20	GARIMA JAIN	General	Female
21	1801CS21	HARSH GUPTA	General	Male
22	1801CS22	HRISHABH RAJ	General	Male
23	1801CS23	JELLA SRI HARSHA VARDHAN PRASAD	OBC-NCL	Male
24	1801CS24	JONISHBHAI BHARATBHAI SOLANKI	SC	Male
25	1801CS25	JOSHIKA	General	Female
26	1801CS26	KALLURI AMEETH	General	Male
27	1801CS27	KAMAL CHOUDHURY	General	Male
28	1801CS28	KOLAPARTHI VAMSI	SC	Male
29	1801CS29	KUNDARAPU HARSHAVARDHAN	OBC-NCL	Male

Sl. No.	Roll No.	Candidate Name	Category	Gender
30	1801CS30	KUNJ TANEJA	General	Male
31	1801CS31	MARAMREDDY MAHEETH REDDY	General	Male
32	1801CS32	MUSUKULA NITESH REDDY	General	Male
33	1801CS33	NISCHAL A	OBC-NCL	Male
34	1801CS34	OINDRILA BHADRA	General	Female
35	1801CS35	PABBATHI HAINDHAVI	General	Female
36	1801CS36	PEETHALA MAHESH BABU	SC	Male
37	1801CS37	PINGALI VENKATA SRIRAM	General	Male
38	1801CS38	PRANAY KUMAR GUPTA	OBC-NCL	Male
39	1801CS39	RITWIZ SINHA	General	Male
40	1801CS40	ROSHAN KUMAR	OBC-NCL	Male
41	1801CS41	SAHIL SHARMA	General	Male
42	1801CS42	SAMEER RAJ	OBC-NCL	Male
43	1801CS43	SAMRATHPREET SINGH RANDHAWA	General	Male
44	1801CS44	SAUBHIK KUMAR	General	Male
45	1801CS45	SAWAN KUMAR	OBC-NCL	Male
46	1801CS46	SHASHWAT MAHAJAN	General	Male
47	1801CS47	SHREYA SINHA	OBC-NCL	Female
48	1801CS48	SOHIL KUMAR LAMBA	OBC-NCL	Male
49	1801CS49	SOHIL YADAV	OBC-NCL	Male
50	1801CS50	SOMENATH SARKAR	SC	Male
51	1801CS51	SOUHARDYA DAS CHOWDHURY	SC	Male
52	1801CS52	SRIYANS	SC	Male
53	1801CS53	SUMIT RAJ	OBC-NCL	Male
54	1801CS54	SUNNY CHATURVEDI	General	Male
55	1801CS55	SURAJ BAKAWAT	ST	Male
56	1801CS56	SUSHANT KUMAR BHARTI	General	Male
57	1801CS57	TIRUPATHI GRACY HEPHZIBAH	SC	Female
58	1801CS58	VAIBHAV GAKHREJA	General	Male
59	1801CS59	VASIREDDY SIVA SUBHANG	General	Male
60	1801CS60	VINAY KUMAR MEENA	ST	Male
61	1801CS61	YARRAMALA DISHITH CHANDRA	SC	Male
62	1801CS62	YASH GARG	General	Male
63	1801CS63	YASH PRASAD	SC	Male

(II) Electrical Engineering:

Sl. No.	Roll No.	Candidate Name	Category	Gender
1	1801EE01	AAYUSH BANEESH SHAH	General	Male
2	1801EE02	ABHISHEK KUMAR	OBC-NCL	Male
3	1801EE03	AMAN JEE	General	Male
4	1801EE04	AMAN RAJ	OBC-NCL	Male
5	1801EE05	AMIT KUMAR	SC	Male
6	1801EE06	ANANYA VARSHNEY	General	Female
7	1801EE07	ANMOL CHADDHA	General	Male
8	1801EE08	APARSH GUPTA	General	Male
9	1801EE09	APOORV VERMA	OBC-NCL	Male
10	1801EE10	ARYAN KUMAR	OBC-NCL	Male
11	1801EE12	ASHISH ANJAN	General	Male
12	1801EE13	ASHWANI YADAV	OBC-NCL	Male

Sl. No.	Roll No.	Candidate Name	Category	Gender
13	1801EE14	ASHWIN GOYAL	General	Male
14	1801EE15	ATUL GUPTA	General	Male
15	1801EE16	AVIRAL AGRAWAL	General	Male
16	1801EE17	AVISHEK SINGH	OBC-NCL	Male
17	1801EE18	DEVYANI CHOUBEY	General	Female
18	1801EE19	DIVYA SHANKAR ANAND	OBC-NCL	Male
19	1801EE20	JAY KABRA	General	Male
20	1801EE21	KARTIK SINGH TOLIA	ST	Male
21	1801EE22	KISHAN KUMAR SINGH	General	Male
22	1801EE23	M MAHATHI	OBC-NCL	Female
23	1801EE24	MANIMELI RISHIKANTH	OBC-NCL	Male
24	1801EE25	MOHAMMAD BILAL KHAN	General	Male
25	1801EE26	MOHD UMAR SHAMSI	General	Male
26	1801EE27	NIKHIL KUMAR	SC	Male
27	1801EE28	OMKAR ANUSTOOP	General	Male
28	1801EE29	PANDRANKI KIRAN	OBC-NCL	Male
29	1801EE30	PAPPU SIVA KUMAR	General	Male
30	1801EE31	PARIMI SAI SYAMA SRIKAR	General	Male
31	1801EE32	PRAGATO BHAUMIK	General	Male
32	1801EE33	PRASHANT	ST	Male
33	1801EE34	PRASHANT KUMAR MEENA	ST	Male
34	1801EE35	PREM BHAWNANI	General	Male
35	1801EE36	PRINCE KUMAR	OBC-NCL	Male
36	1801EE37	RANVEER KUMAR	OBC-NCL	Male
37	1801EE38	RAUSHAN KUMAR	OBC-NCL	Male
38	1801EE39	RISHABH	SC	Male
39	1801EE40	RISHABH AGARWAL	General	Male
40	1801EE41	RISHABH SINGH	SC	Male
41	1801EE42	RIYA KUMARI	General	Female
42	1801EE43	ROHIT KUMAR	OBC-NCL	Male
43	1801EE44	SAIKAT HALDER	SC	Male
44	1801EE45	SAIYYAM MITTAL	General	Male
45	1801EE46	SAKSHAM JHA	General	Male
46	1801EE47	SAMRIDDHI KUMARI	SC	Female
47	1801EE48	SATYAM KUMAR	General	Male
48	1801EE49	SAUMYA PRAKASH	General	Male
49	1801EE50	SHIVANI DIXIT	General	Female
50	1801EE51	SHRESTHA WALIA	General	Male
51	1801EE52	SHREYANSH ANAND	SC	Male
52	1801EE53	SHUBHAM KUMAR	OBC-NCL	Male
53	1801EE54	SOHAM ROY	General	Male
54	1801EE55	SWASTIK DUTTA	General	Male
55	1801EE56	SWATI KUMARI	OBC-NCL	Female
56	1801EE57	VAIBHAV GOEL	General	Male
57	1801EE58	VAISHNAVI	General	Female
58	1801EE59	VANSHIKA SRIVASTAVA	General	Female
59	1801EE60	VIJAY KUMAR	SC	Male
60	1801EE62	YUVI DHELAWAT	General	Male

(III) Mechanical Engineering:

Sl. No.	Roll No.	Candidate Name	Category	Gender
1	1801ME01	ABDUL WAHID	OBC-NCL	Male
2	1801ME02	ABHAY SINGH	General	Male
3	1801ME03	ABHISHEK KUMAR SINGH	General	Male
4	1801ME04	ADIBA YASMIN	OBC-NCL	Female
5	1801ME05	AKSHAT JAIN	General	Male
6	1801ME06	AMAN KUMAR	General	Male
7	1801ME07	AMARTYA MONDAL	General	Male
8	1801ME08	AMGOTHU SANDEEP KUMAR	ST	Male
9	1801ME09	ANAND CHAUDHARY	OBC-NCL	Male
10	1801ME10	ANAND KISHORE	General	Male
11	1801ME11	ANISHA P B	General	Female
12	1801ME12	ANKIT KUMAR	OBC-NCL	Male
13	1801ME13	ANUSHKA VATS	General	Female
14	1801ME14	ANWAY BHATTACHARYYA	General	Male
15	1801ME15	ASHUTOSH ANAND	OBC-NCL	Male
16	1801ME16	ASHUTOSH MAURYA	OBC-NCL	Male
17	1801ME18	AYUSH RAY	General	Male
18	1801ME19	CHANDAN SHARMA	General	Male
19	1801ME20	DHEERAJ KANT	SC	Male
20	1801ME21	DIPTANIL SARKAR	General	Male
21	1801ME22	DURGESH SINGH	General	Male
22	1801ME23	GAURAV KUMAR SAXENA	OBC-NCL	Male
23	1801ME24	GAURAV MEENA	ST	Male
24	1801ME25	GOPAL SINGH RATHORE	General	Male
25	1801ME26	ISHAAN MISHRA	General	Male
26	1801ME27	JEEVANA ALLU	OBC-NCL	Female
27	1801ME28	KARTIKAY GUPTA	General	Male
28	1801ME30	KUNTLA THANMAI REDDY	General	Female
29	1801ME31	KYASA SAI SONAAL	General	Male
30	1801ME32	LAXMAN KUMAR	SC	Male
31	1801ME33	LUTFOR RAHMAN	General	Male
32	1801ME34	M JAGAN MOHAN CHOWDARY	General	Male
33	1801ME35	MARIYA JOJY	General	Female
34	1801ME36	NARENDHIRAN S	General	Male
35	1801ME37	NEERAJ GOYAL	General	Male
36	1801ME38	NEERAJ KUMAR GOND	ST	Male
37	1801ME39	NEMALIKANTI V M DHEERAJ	General	Male
38	1801ME40	NIKHIL ANAND	OBC-NCL	Male
39	1801ME41	PANDA AROHAN SWAPANKUMAR	General	Male
40	1801ME42	PRANAV LALIT BAJAJ	General	Male
41	1801ME43	PRANAY VIJAY WAGHMARE	SC	Male
42	1801ME44	PRANSHU PRAHLAD KAPRI	General	Male
43	1801ME45	PRIYANKA ANIL WALUNJ	General	Female
44	1801ME46	PURVA GOSWAMI	General	Female
45	1801ME47	RAHUL KUMAR	OBC-NCL	Male
46	1801ME48	RAHUL VERMA	OBC-NCL	Male
47	1801ME49	RAKESH MEENA	ST	Male
48	1801ME50	RISHI KUMAR	General	Male
49	1801ME51	SAHEBJEET SINGH GUJRAL	General	Male

Sl. No.	Roll No.	Candidate Name	Category	Gender
50	1801ME52	SHUBHAM KUMAR PASWAN	SC	Male
51	1801ME53	SHUBHOJIT DAS	SC	Male
52	1801ME54	SUJITH RAJ PILLIGUNDLA	SC	Male
53	1801ME55	SUMIT KUMAWAT	OBC-NCL	Male
54	1801ME56	TANMAY SRIVASTAVA	General	Male
55	1801ME57	TARAKANT	General	Male
56	1801ME58	THOLESAY HAREESH	SC	Male
57	1801ME59	THORAT ANJALI MESHRAM	SC	Female
58	1801ME60	THOTA VAMSIK	OBC-NCL	Male
59	1801ME61	UTSAV MAJHI	SC	Male
60	1801ME62	VARUN MURUGARAJ	OBC-NCL	Male
61	1801ME63	VENU MANIKANTA PAMULA	OBC-NCL	Male
62	1801ME64	VISHAL	OBC-NCL	Male

(IV) Civil Engineering:

Sl. No.	Roll No.	Candidate Name	Category	Gender
1	1801CE01	ABHISHEK KUMAR	SC	Male
2	1801CE02	ABHISHEK SINGH	General	Male
3	1801CE03	ADIVI YASASWINI HAINDAVI SARASWATHI	General	Female
4	1801CE04	ANANYA SINGH	OBC-NCL	Female
5	1801CE05	BHAVANAM JAYA TRIVIKRAM REDDY	General	Male
6	1801CE06	CHETRAM NAKWAL	ST	Male
7	1801CE07	DEEPANSH GUPTA	General	Male
8	1801CE08	GAYAM MAHESWAR REDDY	General	Male
9	1801CE09	GOURAV SHARMA	General	Male
10	1801CE10	HARDIK AGRAWAL	General	Male
11	1801CE11	HARSH SHAH	General	Male
12	1801CE12	HARSHIT KUMAR	OBC-NCL	Male
13	1801CE13	JAMISETTY G V S N SUSANTH	OBC-NCL	Male
14	1801CE14	KETAN KUMAR SINHA	General	Male
15	1801CE15	KOMANDURI KAUSHIK	General	Male
16	1801CE16	KRISTAM SRAVANI	General	Female
17	1801CE17	MAURYA BHATT	General	Male
18	1801CE18	PEDDAMILE SUSHMA	General	Female
19	1801CE19	PRASHANT KUMAR SINGH	SC	Male
20	1801CE20	PREETAM ABHINAY KAMAJI	General	Male
21	1801CE21	PREETAM KUMAR SINGH	General	Male
22	1801CE22	PUSHPENDRA PRAJAPAT	OBC-NCL	Male
23	1801CE23	PUSPESH KUMAR	General	Male
24	1801CE24	RAHUL GUPTA (PREPARATORY)	OBC-NCL	Male
25	1801CE25	RAJENDRA KUMAR	SC	Male
26	1801CE26	RAJVEER THOLIYA	OBC-NCL	Male
27	1801CE27	RAVI KIRAN	OBC-NCL	Male
28	1801CE28	ROOPESH PAL	OBC-NCL	Male
29	1801CE29	SHASHANK KUMAR	OBC-NCL	Male
30	1801CE30	SHASHWAT VIJAY	General	Male
31	1801CE31	VARANASI KAMAL KAUSHIK	General	Male
32	1801CE32	VIJAYA NIVRUTTI GONUGADE	General	Female

(V) Chemical Engineering:

Sl. No.	Roll No.	Candidate Name	Category	Gender
1	1801CB01	AJAY KUMAR	SC	Male
2	1801CB02	AKASH B	General	Male
3	1801CB03	AKASH DAS	SC	Male
4	1801CB04	ANKUSH	General	Male
5	1801CB05	ANUGULA RAMACHANDRA YOGESH	General	Male
6	1801CB06	ANUJ KUMAR YADAV	OBC-NCL	Male
7	1801CB07	AYUSHI JAIN	General	Female
8	1801CB08	GAURAV PRATAP SINGH	General	Male
9	1801CB09	GOPU LALITHYA NAGA KUMAR	OBC-NCL	Male
10	1801CB10	GRACE RAWAT	General	Male
11	1801CB11	GUDDETI HIMANSH	General	Male
12	1801CB12	HARSH KUMAR	General	Male
13	1801CB14	KHUSHI GOUR	General	Female
14	1801CB15	LAVANYA NARESH	General	Male
15	1801CB16	MANISHT PRATAP SINGH	SC	Male
16	1801CB17	PRANSHU GUPTA	General	Male
17	1801CB18	RAGHAV BHARADWAJ	General	Male
18	1801CB19	RAKESH KUMAR	OBC-NCL	Male
19	1801CB20	REYAN ALAM	OBC-NCL	Male
20	1801CB21	SAKSHI DARJEE	OBC-NCL	Female
21	1801CB22	SANDEEP SINGH SHEKHAWAT	General	Male
22	1801CB23	SHUBHAM KUMAR	ST	Male
23	1801CB24	SHUBHAM SUDHANSHU	OBC-NCL	Male
24	1801CB25	SRIJA KARMAKAR	General	Female
25	1801CB27	SYED INSHERAH AMIM	General	Male
26	1801CB28	TUNIKI SAISANTOSHKUMAR	OBC-NCL	Male
27	1801CB30	YOGESH DUBEY	General	Male

8.1 (B) Admission to Postgraduate Students (M.Tech)

Admission to M.Tech Courses at IIT Patna were made through GATE score (70% weightage) and Personal Interview (30% weightage) in May, 2018. A department / specialization wise and category wise breakup of the students admitted to IIT Patna for the academic session 2018-19 is given below:

Students admitted in M.Tech in 2018-19 in IIT Patna:

Course/Specialization	Category					Grand Total
	GEN	OBC	PD	SC	ST	
CIVIL & INFRASTURUCTURE ENGINEERING	06	05	00	02	00	13
COMMUNICATION SYSTEM & ENGINEERING	07	02	00	03	00	12
COMPUTER SCIENCE & ENGINEERING	05	05	01	03	02	16
MATERIALS SCIENCE & ENGINEERING	05	04	00	01	00	10
MATHEMATICS & COMPUTING	06	04	00	02	01	13
MECHANICAL ENGINEERING	07	04	00	00	00	11
MECHATRONICS	07	04	00	02	01	14
NANOSCIENCE AND TECHNOLOGY	06	03	00	02	00	11
VLSI & EMBEDDED SYSTEMS	05	02	00	01	00	08
Grand Total	**54**	**33**	**01**	**16**	**04**	**108**

Branch-wise list of students who enrolled for M.Tech at IIT Patna for the academic session 2018-19 is given below:

(I) Civil & Infrastructure Engineering:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811CE01	ABHISHEK ANAND	Male	OBC Non Creamy Layer
2	1811CE02	AMAN KASHYAP	Male	General
3	1811CE03	AMIT KUMAR SINGH	Male	General
4	1811CE04	ANAND MISHRA	Male	General
5	1811CE05	ARJUN MAHATO	Male	SC
6	1811CE06	AVINASH KUMAR RAI	Male	General
7	1811CE07	DIVYA GROVER	Female	OBC Non Creamy Layer
8	1811CE08	KUMAR UPVAN	Male	OBC Non Creamy Layer
9	1811CE10	MAYANK CHAUDHARY	Male	OBC Non Creamy Layer
10	1811CE11	PRITI KUMARI	Female	SC
11	1811CE12	RAHUL RAJ SINGH	Male	General
12	1811CE13	SUNNY MISHRA	Male	General
13	1811CE14	VIVEK KUMAR SINGH	Male	OBC Non Creamy Layer

(II) Communication System & Engineering:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811EE01	ABHISHEK KUMAR SINGH	Male	General
2	1811EE02	AGHAM KUNAL NARENDRA	Male	SC
3	1811EE03	AMIT KUMAR PATHY	Male	General
4	1811EE05	DEEPTANU DATTA	Male	General
5	1811EE06	KEERTHI KUMAR S	Male	General
6	1811EE07	MADHURI RAM	Female	SC
7	1811EE08	NILESH KUMAR	Male	General
8	1811EE09	RITESH KUMAR	Male	General
9	1811EE10	SHUBHAM SAXENA	Male	OBC Non Creamy Layer
10	1811EE11	SNEHA KUMARI	Female	General
11	1811EE12	VIVEK S KUMAR	Male	OBC Non Creamy Layer
12	1811EE13	WAGHMARE VISHAL KALYAN	Male	SC

(III) Computer Science & Engineering:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811CS01	AJOY KUMAR BISWAS	Male	SC
2	1811CS02	ANUPAM KUMAR	Male	OBC Non Creamy Layer (PwD)
3	1811CS03	APOORVA UPADHYAYA	Female	General
4	1811CS05	AVINASH KUMAR SINGH	Male	OBC Non Creamy Layer
5	1811CS06	CHANDRASHEKHAR KUMAR	Male	OBC Non Creamy Layer
6	1811CS07	CHANDRESH SHAMBHUBHAI KANANI	Male	General
7	1811CS08	MANISH KUMAR TIWARI	Male	General
8	1811CS09	MOHD SAAD SHAKIL	Male	General
9	1811CS10	NARENDRA SINGH LODHI	Male	OBC Non Creamy Layer
10	1811CS11	NIDHI THAKUR	Female	ST
11	1811CS12	RAJDEEP KUMAR	Male	OBC Non Creamy Layer
12	1811CS13	RAJEEV RAUSHAN	Male	OBC Non Creamy Layer
13	1811CS14	RAM PRATAP GAUTAM	Male	SC

Sl. No.	Roll No	Name of Candidate	Gender	Category
14	1811CS15	RAMAN KUMAR	Male	SC
15	1811CS16	SAYANTA PAUL	Male	General
16	1811CS17	SUSHIL KUMAR	Male	ST

(IV) Materials Science & Engineering:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811MS01	DIPAK KUMAR SHUKLA	Male	General
2	1811MS02	FAIQUE SHAKIL	Male	OBC Non Creamy Layer
3	1811MS03	KOMAL SINGH	Female	OBC Non Creamy Layer
4	1811MS04	MANOJ KUMAR DHAL	Male	SC
5	1811MS05	RAGHAV MUNDRA	Male	General
6	1811MS06	RAHUL VERMA	Male	OBC Non Creamy Layer
7	1811MS07	RAVI SHANKAR	Male	OBC Non Creamy Layer
8	1811MS08	SHIVANSH MISHRA	Male	General
9	1811MS09	SUMIT CHOUDHARY	Male	General
10	1811MS10	SUSHANT SHIV	Male	General

(V) Mathematics & Computing:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811MC01	ABHIJEET ANAND	Male	General
2	1811MC02	ANINDYA SUNDAR DAS	Male	General
3	1811MC03	ARITRA PAL	Male	General
4	1811MC04	AVINASH KUMAR	Male	General
5	1811MC05	DEBOJYOTI BHATTACHARYA	Male	General
6	1811MC06	KUNDAN SINGH	Male	OBC Non Creamy Layer
7	1811MC07	MANDEEP	Male	General
8	1811MC08	NARENDRA KUMAR	Male	OBC Non Creamy Layer
9	1811MC09	NAVNEET VERMA	Male	OBC Non Creamy Layer
10	1811MC10	PRANATI BEHERA	Female	SC
11	1811MC11	SANJAY MURMU	Male	ST
12	1811MC12	SUMAN SHEKHAR	Male	SC
13	1811MC13	SUSHEEL KUMAR MAURYA	Male	OBC Non Creamy Layer

(VI) Mechanical Engineering:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811ME01	ASHWANI VERMA	Male	OBC Non Creamy Layer
2	1811ME02	BAL KRISHNA RAJ VIJETA	Male	General
3	1811ME03	BALIRAM KUMAR	Male	OBC Non Creamy Layer
4	1811ME04	BRIJ MOHAN BHARTI	Male	OBC Non Creamy Layer
5	1811ME05	KONOK DAS	Male	General
6	1811ME06	MANOJ	Male	General
7	1811ME07	MD OWAIS ALAM	Male	OBC Non Creamy Layer
8	1811ME08	RAJNISH MISHRA	Male	General
9	1811ME09	SABYA SACHI	Male	General
10	1811ME10	VIJAY KUMAR	Male	General
11	1811ME11	VIVEK KUMAR	Male	General

(VII) Mechatronics:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811MT01	ABHISHEK KUMAR ANAND	Male	OBC Non Creamy Layer
2	1811MT02	ABHISHEK KUMAR GUPTA	Male	OBC Non Creamy Layer
3	1811MT03	ABHISHEK SHARMA	Male	General
4	1811MT04	ADITYA SUDEEP RATNAPARKHI	Male	General
5	1811MT05	ALOK KAMAL	Male	SC
6	1811MT06	ANURAG KUMAR JHA	Male	General
7	1811MT07	ATI DEV GAUTAM	Male	SC
8	1811MT08	AYUSH RAI	Male	General
9	1811MT09	LOKESH KUMAR	Male	OBC Non Creamy Layer
10	1811MT10	LOVE KUMAR	Male	ST
11	1811MT11	NISHCHAL HOYSAL G	Male	General
12	1811MT12	PAWAN KUMAR LULLA	Male	General
13	1811MT14	SAHIL SHARMA	Male	General
14	1811MT15	TARUN KUMAR SINGH	Male	OBC Non Creamy Layer

(VIII) Nanoscience & Technology:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811NT01	ADITYA DEY	Male	General
2	1811NT02	AKHIL K NAIR	Male	General
3	1811NT03	AMARTYA MANDAL	Male	SC
4	1811NT04	ANKUSH KUMAR BHARTI	Male	OBC Non Creamy Layer
5	1811NT05	EKTA KUMARI	Female	General
6	1811NT06	JAHARLAL PATI	Male	SC
7	1811NT07	MUDDAM RAJA SEKHAR	Male	OBC Non Creamy Layer
8	1811NT08	PUSHP RAJ	Male	General
9	1811NT09	SAURABH KUMAR SHARMA	Male	General
10	1811NT10	TANIA MAHATA	Female	OBC Non Creamy Layer
11	1811NT11	TRISHA	Female	General

(IX) VLSI & Embedded Systems:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1811EE14	AMIT KUMAR	Male	SC
2	1811EE15	ANURAG KUMAR	Male	OBC Non Creamy Layer
3	1811EE16	ARADHANA KUMARI	Female	General
4	1811EE17	JAGRITI	Female	General
5	1811EE18	MONIKA SINGH	Female	General
6	1811EE19	SOURABH SINGH	Male	General
7	1811EE20	UDAY MAURYA	Male	OBC Non Creamy Layer
8	1811EE21	UTPAL KANT	Male	General

8.1 (C) Admission to Postgraduate Students (M.Sc.)

Admission to M.Sc. Courses at IIT Patna were made through JAM score in June/July, 2018. A department wise and category wise breakup of the students admitted to IIT Patna for the academic session 2018-19 is given below:

Students admitted in M.Sc. in 2018-19 in IIT Patna:

Course/Specialization	Category					Grand Total
	GEN	OBC	PD	SC	ST	
MATHEMATICS	6	3	0	2	2	13
PHYSICS	3	3	0	2	0	8
CHEMISTRY	5	3	0	2	1	11
Grand Total	**14**	**9**	**0**	**6**	**3**	**32**

Branch-wise list of students who enrolled for M.Sc. at IIT Patna for the academic session 2018-19 is given below:

(I) Mathematics:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1812MA01	AAKASH	Male	SC
2	1812MA02	ABHISHEK KANAUJIYA	Male	SC
3	1812MA03	KUMAR ABHISHEK	Male	Gen
4	1812MA04	ADRI BHATTACHARYA	Male	Gen
5	1812MA05	AKASHDEEP SINGH	Male	OBC
6	1812MA06	ARINDAM BASAK	Male	OBC
7	1812MA07	GIRISH KUMAR SAHU	Male	OBC
8	1812MA08	KULDEEP JAIN	Male	Gen
9	1812MA09	MRIGANK SHEKHAR	Male	Gen
10	1812MA10	NILESH MEENA	Male	ST
11	1812MA11	PANDAV KUMAR CHAUDHARY	Male	Gen
12	1812MA13	SHEETAL SINGH	Female	Gen
13	1812MA14	SHIVRAJ MEENA	Male	ST

(II) PHYSICS:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1812PH01	ABHIRUP NAYAK	Male	Gen
2	1812PH04	BHUPESH KUMAR SHARMA	Male	Gen
3	1812PH05	HARSHIT GAUTTAM	Male	Gen
4	1812PH07	RAHUL KUMAR	Male	SC
5	1812PH08	RAJESH KUMAR	Male	OBC
6	1812PH09	RAKESH KUMAR	Male	OBC
7	1812PH10	SANTANU KANDAR	Male	SC
8	1812PH11	SHERLIN P JAMES	Female	OBC

(III) CHEMISTRY:

Sl. No.	Roll No	Name of Candidate	Gender	Category
1	1812CH01	AMIT SINGH	Male	Gen
2	1812CH04	ANJALI	Female	Gen
3	1812CH05	ANKIT CHAUDHARY	Male	OBC
4	1812CH06	ARNAB PATLA	Male	SC

Sl. No.	Roll No	Name of Candidate	Gender	Category
5	1812CH07	ARPIT SHARMA	Male	Gen
6	1812CH08	HEMANTA PEGU	Male	ST
7	1812CH09	KAMALJEET KUNDU	Male	Gen
8	1812CH10	NANDITA GHOSH	Female	OBC
9	1812CH11	SANDIP MONDAL	Male	SC
10	1812CH13	SUBRATA HAZRA	Male	Gen
11	1812CH14	YOGENDRA KUMAR SUMAN	Male	OBC

8.2 Students awarded Merit-Cum-Means (MCM) Scholarship

Under the Merit-Cum-Means (MCM) scheme, the following benefits are provided to the students:

(a) **For General & OBC category students:** Rs. 1,000/- per month for two semesters (8 months in a year) and Free Tuition Fee.

(b) **For SC & ST category students:** Free Messing (Dues of only basic menu), Exemption from Hostel Room Rent, Pocket allowance of Rs. 250/- per month.

Provided below are the details of the MCM scholarships awarded during FY 2018-19:

Batch	GEN+OBC	SC+ST	Total
2015 (B.Tech.)	36	08	44
2016 (B.Tech.)	23	02	25
2017 (B.Tech.)	28	01	29
2018 (B.Tech.)	19	00	19
2017 (M.Sc.)	05	04	09
2018 (M.Sc.)	04	05	09
Total	**115**	**20**	**135**

The following 117 undergraduate students (B.Tech.Programme) and 18 Postgraduate students (M.Sc. Programme) were selected for the award of the Merit-Cum-Means (MCM) scholarship in the academic year 2018-19 by the Institute:

Sl. No.	Name of the Student	Roll No.
1	ASHISH RAJ	1501CS11
2	SHIVAM TIWARI	1501EE43
3	KULKARNI ANIKET LAXMIKANT	1501ME31
4	SUMIT KUMAR NANDAN	1501CE20
5	UMESH KUMAR	1501EE49
6	SHASHWAT TIWARI	1501CS52
7	SAURABH DUBEY	1501ME51
8	SHIVPREET SHARMA	1501CE17
9	AUGUST DUBEY	1501ME12
10	MOHIT SINGH	1501CE09
11	ALOK BARANWAL	1501ME06
12	MOOLCHANDRA MRIDUL	1501CS29
13	NIPOON GUPTA	1501CE10
14	ASHISH KUMAR	1501ME11
15	AMAN KUMAR	1501CH04
16	AKHIL JAIN	1501CH03

Sl. No.	Name of the Student	Roll No.
17	VISHAL RAWAT	1501ME52
18	ABHISHEK MAURYA	1501ME02
19	SAIKAT SARKAR	1501CS41
20	AMAN KUMAR	1501CE02
21	ARPIT KUMAR	1501CH06
22	ASHUTOSH DUBEY	1501CS13
23	ALAPAN KAR	1501ME05
24	PRAVEEN SINGH DHAKED	1501CS35
25	THATIPARTHI CHAITHANYA REDDY	1501CS46
26	ABHISHEK KUMAR	1501CS03
27	G VENKATA SAI SWAROOP	1501CE04
28	VIJAY YADAV	1501CH23
29	CHINTHA TEJESWAR REDDY	1501ME19
30	DIVYANSHU KHANDELWAL	1501CH12
31	AMRIT RAJ	1501ME07
32	AVINASH KUMAR	1501ME13

Sl. No.	Name of the Student	Roll No.
33	SAHIL MANSOORI	1501CS39
34	NAGUDALA MANOJ KUMAR	1501ME35
35	ROHIT	1501ME43
36	ABHISHEK YADAV	1501EE04
37	ABHISHEK SINGH	1501ME04
38	BOTCHA VIDYA SAGAR	1501CH11
39	LAVUDYA SANTHOSH KUMAR	1501CS28
40	KORRA RAVINDER	1501CS25
41	SOUMIK SIKDER	1501EE44
42	ANAND RAJ	1501CS07
43	PAWAN KUMAR MEENA	1501EE27
44	ABHISHEK KUMAR	1501CS04
45	MAYANK WADHWANI	1601CS51
46	ASHUTOSH KUMAR SINGH	1601CE09
47	PRAKASH KUMAR	1601CS33
48	SURAJ KUMAR SINGH	1601CE24
49	BANKEY BIHARI JHA	1601CE10
50	ABHINAV GYAN	1601CE01
51	DHANUSH S. R.	1601CS53
52	AMAN JHA	1601EE05
53	AMIT SINGH	1601CE07
54	RAHUL KUMAR	1601ME26
55	G. SAHI DARSINI	1601CE11
56	RAJ MANI	1601CS36
57	GAURAV KATARIA	1601EE17
58	VISWAK HANUMANTH GK.	1601CS48
59	ROUSHAN KUMAR GUPTA	1601ME33
60	NILENDU SHUBHAM	1601EE27
61	SURAJ KUMAR JHA	1601ME41
62	AMIT RANJAN	1601CS04
63	ANKIT RAI	1601CE08
64	MAYANK KUMAR SINGHAL	1601CE13
65	DEEPAK KUMAR	1601CS10
66	YASH PALRIWAL	1601CS50
67	RITESH SINGH RATHOUR	1601CE19
68	DINESH KUMAR MEENA	1601ME11
69	RAKESH BAIRWA	1601ME28
70	UMANG JAIN	1701CS56
71	SHEETAL GUPTA	1701CS45
72	RAHUL PANDEY	1701CS38

Sl. No.	Name of the Student	Roll No.
73	AMAN MISHRA	1701ME05
74	SHASHANK SHREYASKAR	1701ME41
75	R. YASWANT	1701EE34
76	SACHIN PANDEY	1701CS61
77	VIJIGIRI. VRUSHANK VARMA	1701CS53
78	HIMANSHU GUPTA	1701EE61
79	VIVEK GARG	1701CB27
80	ANIKET KUMAR	1701EE08
81	MADHAV MANISH	1701EE19
82	AMIT PRIYANKAR	1701CS04
83	VATSAL SINGHAL	1701CS52
84	PATIL VAIBHAV RAJARAM	1701ME27
85	RAKSHIT MAHESHWARI	1701CE21
86	KAUSHAL KUMAR JANGIR	1701CE11
87	SAIF AHMAD	1701ME39
88	TEJAS GOYAL	1701ME49
89	SAURABH GUPTA	1701EE59
90	RITU RAJ	1701CS40
91	DIKSHA BANSAL	1701CS19
92	YASH RAWAL	1701CE28
93	RAHUL KUMAR	1701CS37
94	KAPIL GUPTA	1701CS25
95	SHASHI RANJAN	1701CS44
96	CHANDAN KUMAR	1701CS16
97	SUNNY SINGH	1701CS50
98	ABHISHEK KUMAR	1701ME02
99	ABHAY SINGH	1801ME02
100	SATYAM KUMAR	1801EE48
101	RISHI KUMAR	1801ME50
102	HARSH GUPTA	1801CS21
103	ASHUTOSH MAURYA	1801ME16
104	M. JAGAN MOHAN CHOWDARY	1801ME34
105	BALBEER YADAV	1801CS13
106	ANAND KISHORE	1801ME10
107	RISHABH AGRAWAL	1801EE40
108	DURGESH SINGH	1801ME22
109	AKSHAT JAIN	1801ME05
110	BASA SAI ROHAN	1801CS14
111	HARSHAVARDHAN K	1801CS29
112	ABDUL WAHID	1801ME01

Sl. No.	Name of the Student	Roll No.
113	ABHISHEK KUMAR SINGH	1801ME03
114	NEMALIKANTI V M DHEERAJ	1801ME39
115	PAPPU SIVA KUMAR	1801EE30
116	SHASHANK KUMAR	1801CE29
117	AVIRAL AGRAWAL	1801EE16
118	MANSI	1712MA04
119	ALOK MAHATA	1712CH01
120	SONALI JANA	1712PH08
121	SAFIKUL ISLAM	1712PH07
122	KOWSHICK MALLICK	1712PH01
123	LABANI HALDER	1712MA03
124	RAJ KUMAR DAS	1712PH05

Sl. No.	Name of the Student	Roll No.
125	PUSPENDU BAR	1712PH04
126	RAHUL KUMAR MEENA	1712MA06
127	SUBRATA HAZRA	1812CH13
128	RAJESH KUMAR	1812PH08
129	ARINDAM BASAK	1812MA06
130	ADRI BHATTACHARYA	1812MA04
131	SANTANU KANDAR	1812PH10
132	ARNAB PATLA	1812CH06
133	AAKASH	1812MA01
134	ABHISHEK KANAUJIYA	1812MA02
135	SHIVRAJ MEENA	1812MA14

8.3 Students Enrolled in Undergraduate Courses

The Table below gives the total number of students in B.Tech. course (Upto 31.3.2019):

Batch	Gen	ST	SC	OBC	PD	Total
2014	88	15	26	50	3	9
2015	92	13	30	50	3	188
2016	96	14	29	53	1	193
2017	107	15	33	58	6	219
2018	134	13	32	63	2	244

8.4 Statement of Results (Undergraduate)

Following table shows the summary of the results of the undergraduate students at IIT Patna in the year April 2018 to March 2019 (upto end semester examination Dec, 2018):

Years		CSE	EE	ME	CE	CB	All Dept.
4th Year	Total	55	43	49	21	20	188
	Pass	54	38	45	20	18	175
	Fail	1	5	4	1	2	13
3rd Year	Total	55	49	46	23	20	193
	Pass	55	45	45	22	18	185
	Fail	0	4	1	1	2	8
2nd Year	Total	61	59	50	25	24	219
	Pass	58	54	45	22	22	201
	Fail	3	5	5	3	2	18
1st Year	Total	63	60	62	32	27	244
	Pass	63	59	62	29	28	239
	Fail	0	1	0	3	1	5
All Years (Registered)	Total	234	211	207	101	91	844
	Pass	230	196	197	93	84	800
	Fail	4	15	10	8	7	44
On Leave/ Not Registered		0	0	0	0	0	0

Fail means one or more subject failure or CPI less than 05.

8.5 Statement of Results (Post Graduate)

(A) Following table shows the summary of the results of the Post Graduate students (M.Tech.) at IIT Patna in the FY2018-19 (upto end semester examination Dec, 2018):

Years		Civil & Infrastructure Engineering	Computer Science & Engineering	Communication System Engineering	Mathematics & Computing	Mechanical Engineering	Materials Science & Engineering	Mechatronics	Nanoscience & Technology	VLSI & Embedded Systems	All Dept.
1st Year	Total	13	16	12	13	11	10	14	11	08	108
	Pass	08	16	12	13	09	10	11	11	07	97
	Fail/ Incomplete	05	00	00	00	02	00	03	00	01	11
2nd Year	Total	04	15	06	12	12	07	14	07	06	83
	Pass	03	15	06	12	12	07	12	06	06	79
	Fail/ Incomplete	01	00	00	00	00	00	02	01	00	04
All Years (Registered)	Total	17	31	18	25	23	17	28	18	14	191
	Pass	11	31	18	25	21	17	23	17	13	176
	Fail/ Incomplete	06	00	00	00	02	00	05	01	01	15
On Leave/ Not Registered		00	00	00	00	00	00	00	00	00	00

Fail means one or more subject failure or CPI less than 6.0

(B) Following table shows the summary of the results of the Post graduate students (M.Sc.) at IIT Patna in theFY2018-19 (up to end semester examination Dec, 2018):

Years		Mathematics	Physics	Chemistry	All Dept.
1st Year	Total	12	8	11	31
	Pass	12	7	10	29
	Fail/ Incomplete	0	1	1	2
2nd Year	Total	9	9	8	26
	Pass	9	9	8	26
	Fail/ Incomplete	0	0	0	0
On Leave/Not Registered		0	0	0	0
Grand Total		**21**	**17**	**19**	**57**

8.6 List of Research Scholars Enrolled for the PhD Degree

The table below represents the number of research scholars in various departments as on 31.03.2019

Year of admission	SCHOOLS										TOTAL
	SCHOOL OF ENGINEERING						SCHOOL OF BASIC SCIENCES			SCHOOL OF HUMANITIES AND SOCIAL SCIENCES	
	CBE	CEE	CSE	EE	ME	MSE	CHE	MA	PHY	HSS	
2010-11	0	0	0	0	0	0	0	1	0	0	1
2011-12	0	0	3	0	0	0	0	0	0	0	3
2012-13	0	0	1	1	0	0	0	1	0	3	6

Year of admission	SCHOOLS										TOTAL
	SCHOOL OF ENGINEERING						SCHOOL OF BASIC SCIENCES			SCHOOL OF HUMANITIES AND SOCIAL SCIENCES	
2013-14	0	1	6	7	7	1	1	0	2	2	27
2014-15	1	1	5	13	10	1	2	4	4	1	42
2015-16	3	3	17	9	11	4	8	10	4	8	77
2016-17	2	5	12	18	21	0	8	6	16	12	100
2017-18	4	5	9	11	11	3	8	8	9	9	77
2018-19	6	12	25	20	17	4	13	5	17	15	134
TOTAL	**16**	**27**	**78**	**79**	**77**	**13**	**40**	**35**	**52**	**50**	**467**

List of Research Scholars Enrolled in Academic Year 2018-19

Sl. No.	Name of students	Roll No.
1.	ABHINAV BAJPAI	1821CB05
2.	HEMANT KUMAR NAYAK	1821CB06
3.	LALAN KUMAR SINGH	1821CB08
4.	SHASHI BHUSHAN	1821CB09
5.	MAMTA	1921CB01
6.	NEELESHNANDAN	1921CB02
7.	SULBHA KUMARI	1821CH05
8.	PREETI KARMAKAR	1821CH06
9.	SOUVIK PANDIT	1821CH07
10.	ATIKUR HASSAN	1821CH08
11.	SHAKKIRA E	1821CH09
12.	DANISH ALI	1821CH11
13.	KANIKA GULERIA	1821CH12
14.	SUMAN NAYAK	1821CH13
15.	AKANKSHA SINGH BAGHEL	1821CH14
16.	JYOTI DEVI KATIYAR	1821CH15
17.	SUBHANKAR SARKAR	1821CH16
18.	SUBHAMSAHOO	1921CH01
19.	SAMTA SINGH	1921CH02
20.	SNEHA SINGH	1821CE06
21.	VIKASH KUMAR	1821CE07
22.	KUMAR ABHISHEK KISHORE	1821CE08
23.	KAVITA	1821CE09
24.	PRADYUMNA KUMAR BEHERA	1821CE11
25.	MITHUN MANDAL	1821CE12
26.	RAVIKANT SINGH	1921CE01
27.	PALSULE PRASAD SUBHASH	1921CE02
28.	ABHIK PAUL	1921CE04

Sl. No.	Name of students	Roll No.
29.	HITESH KUMAR	1921CE05
30.	CHHAYA	1921CE07
31.	SANJEET KUMAR	1821CE10
32.	SOUMITRA GHOSH	1821CS05
33.	JYOTI CHAUDHARY	1821CS06
34.	SEQUEIRA RYAN THOMAS	1821CS07
35.	TANIK SAIKH	1821CS08
36.	PRANAV KUMAR	1821CS09
37.	KRUTIKA VERMA	1821CS10
38.	CHANCHAL SUMAN	1821CS11
39.	SOURASEKHAR BANERJEE	1821CS12
40.	DEEKSHA VARSHNEY	1821CS13
41.	SANGHAMITRA MISHRA	1821CS14
42.	KANCHAN JHA	1821CS15
43.	ROHIT KUMAR GUPTA	1821CS16
44.	DUSHYANT SINGH CHAUHAN	1821CS17
45.	ZISHAN AHMAD	1821CS18
46.	HARSH KASYAP	1921CS01
47.	MRINALINI TIWARI	1921CS02
48.	SWAGATIKA SAHOO	1921CS03
49.	SHASHANK SRIVASTAVA	1921CS04
50.	SUSIL KUMAR MOHANTY	1921CS05
51.	DIVYAKUAMRI	1921CS10
52.	MAMTA	1921CS11
53.	FAJGEAKSHAYMADHUKARRAO	1921CS12
54.	RINA KUMARI	1921CS13
55.	GOPENDRAVIKRAM SINGH	1921CS15
56.	DEEPTI SHAKYA	1921CS14

Sl. No.	Name of students	Roll No.
57.	TRIPTY KUMARI	1821EE09
58.	NAZIA ASLAM	1821EE10
59.	ANKUR PANDEY	1821EE12
60.	AVISHEK KUMAR	1821EE13
61.	MD IMRAN KALIM	1821EE14
62.	SANDEEPKUMAR RAMSEWAK PANDEY	1821EE15
63.	KAUSTAV JYOTI KALITA	1821EE16
64.	ALOK KUMAR KAMAL	1821EE17
65.	SWATI	1821EE18
66.	SAURABH KUMAR	1821EE11
67.	ABHISEK RAY	1921EE01
68.	ABHINEET PRAKASH	1921EE02
69.	ANKIT SIROHI	1921EE03
70.	CHANDRA PRAKASH SINGH	1921EE04
71.	PRITAM KHAN	1921EE05
72.	SWAPAN KUMAR BAKSI	1921EE06
73.	NEHA KAMAL	1921EE08
74.	RAJNI KUMARI	1921EE09
75.	VED PRAKASH DUBEY	1921EE10
76.	BIRANCHI NARAYAN BEHERA	1921EE11
77.	RAVINA TOPPO	1821HS04
78.	ZEBA RAHMAN	1821HS05
79.	MANTASHA FIROZ	1821HS08
80.	SANATAN MANDAL	1821HS09
81.	MADHURIKUMARI	1921HS01
82.	SUBHAM GHOSH	1921HS02
83.	KUNDANKUMAR	1921HS03
84.	ROHITRANJAN	1921HS04
85.	CHHANDITA DAS	1921HS06
86.	KUMARI YOUKTA	1921HS08
87.	SHREYA NUPUR	1921HS09
88.	AAMNA KHAN	1921HS10
89.	DHANANJAY PATRA	1921HS11
90.	KUNDAN KUMAR	1921HS12
91.	RUCHI KUMARI	1921HS14
92.	ABHISHEK ROY	1821MA06
93.	PRIYANKA MISHRA	1821MA08
94.	BIVEK GUPTA	1821MA09
95.	SHIKHA YADAV	1821MA10

Sl. No.	Name of students	Roll No.
96.	PABITRA KUMAR TUNGA	1921MA02
97.	HARISH SUTHAR	1821ME10
98.	MAYANK VERMA	1821ME11
99.	NEELESH KUMAR SHARMA	1821ME12
100.	RATHIN MAITY	1821ME15
101.	SUDHANSHU KUMAR	1821ME16
102.	TANMAY	1821ME17
103.	VIKASH KUMAR	1821ME18
104.	CHANDRA SHEKHAR MAURYA	1821ME19
105.	AMAN KUMAR SRIVASTAVA	1821ME20
106.	SUNIL	1921ME01
107.	AASHNA RAJ	1921ME02
108.	AMIT VIKRAM REX	1921ME03
109.	SUBRAT KUMAR BEHERA	1921ME04
110.	ABHISHEK BIHARI	1921ME05
111.	DEWANAND PANDIT	1921ME06
112.	ANURANJAN KUMAR	1921ME07
113.	AMRENDRA CHANDAN	1921ME08
114.	KUMAR SADANAND ARYA	1821MS01
115.	LAKSHAMAN KUMAR	1821MS02
116.	AMMAR EQBAL	1821MS03
117.	PRANAV RAI	1921MM02
118.	DIXITH M	1821PH03
119.	ITISHREE PRADHAN	1821PH04
120.	JYOTIREKHA MALLICK	1821PH05
121.	MOHAK SHUKLA	1821PH07
122.	PUJA KUMARI	1821PH08
123.	ROHIT KUMAR	1821PH09
124.	SAMEER ASLAM	1821PH11
125.	SASHI BHUSAN TIWARI	1821PH12
126.	SHRAWAN KUMAR	1821PH13
127.	SUBHADEEP DATTA	1821PH14
128.	SUBHASMITAKAR	1921PH02
129.	SHANTANU KUMAR PANDA	1921PH03
130.	ANWESHA MAHAPATRA	1921PH04
131.	VIVEK MEHTA	1921PH05
132.	TANIA MAHATA	1921PH07
133.	SATISH KUMAR	1921PH08
134.	GULSHAN KUMAR	1921PH09

Infrastructure Development at IIT Patna

Phase-II:

Phase-II construction includeslibrary, students activity center, auditorium and academic and residential buildings for students, faculty and staff. The projects are being constructed under CPWD. The detailed list of ongoing projects in Phase-II is as follows:

1) Academic Buildings, G+5, 2 numbers
2) Workshops 3 numbers.
3) Central Lecture hall 1 number
4) Central Library
5) Guest House, G +2 (Double bed room 48, single bed room 8 and suite 9)
6) Girls Hostelfor 232 students capacity
7) Boys Hostel for 950 students capacity
8) Auditorium.
9) A type Quarters, G+8, 27 units
10) B type Quarters, G +8,36 units
11) C Type Quarters, G +6, 56 units
12) D type Quarters, G+3, 48units
13) Married Accommodations, G+ 5, 36 Numbers
14) Students activity center(Food Court) balance part
15) Services like substation,street lighting,WTP, STP, Fire fighting system, water supply distribution network etc.

All the projects are under construction and are below the plinth level. The Overall progress in Phase-II construction work upto March 2019 is 13.6 %.

Phase-I Part-2:

Phase-I Part-2 construction includes gymkhana and academic and residential buildings for students, faculty and staff. The projects are being constructed under EIL. The detailed list of ongoing and completed projects in Phase-II is as follows:

Girls Hostel

Capacity: 200
Status: Functional from 4 July 2018.

Boys Hostel

Capacity: 450
Status: Close to completion

Gymkhana

Finishing work is in Progress
Status: 70% completed

C type Quarters

Capacity: 56 units
Finishing work is in progress
Status: 85% completed

Main Gate Complex

The IIT main gate complex is constructed at Amhara road. The main gate has smart entrance/exit withautomatic boom barriers integrated with smart ID system for entry and exit. The civil works are completed and the automation for barrier integration is close to completion.

PV Solar Panels

Roof top PV Solar Panels of capacity 1 MWp have been installed on selected buildings in IIT Patna. The installation has been done on RESCO model. The power generated from the system is transferred to the Grid. Overall average savings in the institute electricity billafter the installation of PV solar panels isRs. 3.5 lacs per month.

Cycle stand with shades

Covered cycle stands have been constructed near boys hostel and near class rooms.

Bus Stop

Six numbers of bus stops have been constructedat different locations in the campus.

Annual Accounts

2018-2019

FORM OF FINANCIAL STATEMENTS (CENTRAL HIGHER EDUCATIONAL. INSTITUTIONS)

NAME OF ENTITY: **INDIAN INSTITUTE OF TECHNOLOGY PATNA**

RECEIPTS AND PAYMENTS ACCOUNT FOR THE PERIOD/YEAR ENDED: 31ST MARCH 2019

Amount in Rupees

RECEIPTS	Current Year	Previous year	PAYMENTS	Current year	Previous Year
I. Opening Balances			**I. Expenses**		
a) Cash Balances			a) Establishment Expenses	68,805,272.00	322,939,256.00
b) Bank Balance			b) Academic Expenses	116,601,813.28	18,606,793.00
i. In Current accounts	194,515,210.80	66,244,941.00	c) Administrative Expenses	222,371,396.94	205,895,523.00
ii. Savings accounts	28,976,005.56	174,320,090.50	d) Transportation Expenses	8,341,670.00	8,215,029.00
iii. In deposit accounts		660,114,200.00	e) Repairs & Maintenance	25,893,722.24	44,590,779.00
II. Grants Received			f) Prior period expenses	1,016,772.00	2,695,894.00
a) From Government of India- Capital	461,100,000.00	2,100,000,000.00	II. Payments against Earmarked/Endowment Funds		
- Revenue	677,000,000.00	326,000,000.00			
b) From State Government			III. Payments against Sponsored Projects/Schemes		
c) For other sources (details)			IV. Payments against Sponsored Fellowships/Scholarships	14,498,331.00	98,791,452.00
(Grants for capital & revenue exp/to be shown separately if available)			V. Investments and Deposits		
III. Academic Receipts (Including Mess Fee)	146,428,207.00	88,527,180.00	a) Out of Earmarked /Endowments funds	-	81,417.00
IV. Receipts against Earmarked/Endowment Funds	11,940.00		b) Out of own funds (Investments - Others)		
V. Receipts against Sponsored Projects/Schemes			VI. Term Deposits with Scheduled Banks (Fixed Deposits)	1,068,099,980.00	
VI. Receipts against sponsored Fellowships and Scholarships	2,719,586.00	-	VII. Expenditure on Fixed Assets and Capital Works - in - Progress		

RAMESH CHANDRA ROY & CO. Chartered Accountants FRN: 016170N Partner DELHI

A. O. | Assistant Registrar (F&A) 30/4/19 | DR (F&A) T.S.Singh 30/4/2019 | Registrar | Director

VII. Income on Invesments from			a) Fixed Assets	427,580,902.65	392,616,202.00
a) Earmarked/Endowment funds	-	74,490.27	b) Capital Works-in-Progress	12,228,296.00	571,487,212.00
b) Other investments			VIII. Other Payments including statutory Payments	713,829,771.00	114,594.68
VIII. Interest received on			IX. Refunds of Grants		
a) Bank Deposits	45,154,532.00	89,697,723.00	X. Deposits and Advances	386,950,612.70	545,806,723.73
b) Loans and advances			XI. Other Payments	8,088,203.95	
c) Savings Bank Accounts	3,490,237.00	10,096,097.00	**XII. Closing Balances**		
IX. Investments encashed			a) Cash in hand		
X. Term Deposits with Scheduled Banks encashed	1,248,699,906.00		b) Bank balances	-	
Income)	15,543,285.15	34,409,887.59	In Current Accounts	50,558,180.76	194,515,210.80
XII. Deposits and Advances	408,057,474.80	-	In Savings Accounts	-32,299,932.51	28,976,005.56
			In Canara Bank Escrow A/c	137,500,000.00	
			In Deposit Accounts	-	1,114,152,517.59
XIII. Miscellaneous Receipts including Statutory Receipts	61,882,383.00	-			
XIV. Any other Receipts	1,086,089.72				
TOTAL	**3,294,664,857.03**	**3,549,484,609.36**	**TOTAL**	**3,294,664,857.03**	**3,549,484,609.36**

A. O. | Assistant Registrar (F&A) | DR (F&A) | Registrar | Director

30/4/19 | T.S. Sinha 30/4/2019

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RAMESH CHANDRA ROY & ASSOCIATES * Chartered Accountants * FRN: 016170N Partner DELHI

Notes