Volume 1, ISSUE 1, April 2022

ECE EXPEDITION

1ST
EDITION

BIRLA INSTITUTE OF TECHNOLOGY MESRA

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

www.bitmesra.ac.in

CONTENTS

MESSAGE FROM THE VICE CHANCELLOR

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Prof. Indranil Manna
VICE CHANCELLOR

MESSAGE FROM THE CHAIRMAN

It’s a matter of great pleasure and satisfaction that the ECE Department has come up with the first issue of the departmental Newsletter “ECE Expedition”.

I believe that the newsletter will serve as a place through which the complete profile of the academic and co-curricular activities, achievements and progress made during the stipulated period can be viewed.

With this, we can showcase the important happenings within the department. This will also reflect on how our department is progressing, and this will help us to be entrusted to perform better, with every quarter passing by.

I am excited about the opportunities and challenges that await us. As a department, we are committed to advancing our research, supporting our students, and contributing to the broader scientific community. I am confident that with our collective expertise, dedication, and hard work, we will continue to achieve great things in the coming days.

I thank you for your ongoing commitment and look forward to working with you all to build a bright future for our department.

Prof. Sandeep Singh Solanki
CHAIRMAN

EDITOR IN CHIEF'S DESK

MESSAGE

For quite some time a need was felt to bring out a departmental newsletter which would act as an ideal vehicle to build on the success of the department as well as to capture the diverse scholarly interests and to bring into light everyone's contribution towards the Expedition of our worthy department. To realize this purpose a team was formed who spent time and effort and used own expertise generously with a sense of commitment, as a result this newsletter the ECE Expedition is born, and is in front of you. Seeing this first issue appear is a real pleasure for the entire editorial team. This will be published quarterly in electronic version.

It is my extreme pleasure to extend my heartfelt thanks to each member of the editorial team. The entire editorial team is grateful to Prof. S. S. Solanki, HOD and the Chairman of this newsletter to initiate the process and supporting at every stage. We are extremely thankful to our honorable Vice Chancellor Prof. Indranil Manna for his consent and encouragement. We are grateful to every member of the department for their involvement and support. This inaugural issue owes much to many people.

EECE Expedition will bring into light the remarkable developments and achieve notable activities taking place in the department. Various activities such as innovation in teaching-learning process, research contributions, product development, sponsored projects, outreach activities, workshops, seminars, conferences, expert talks, visit of the eminent personalities, students' activities and their achievements will be brought to light with the help of vibrant pictorials and vivid illustrations. This newsletter will break down information silos and help grow our data base.

ECE Expedition will create a platform to share relevant and valuable information, and will keep reinforcing the objectives and goals of the department. This will improve our self-esteem and help us feel valued. This newsletter will help us identify our training and development needs and opportunities in order to promote the quality of teaching, research, innovation, entrepreneurship and collaboration.
Editorial team will keep working objectively in order to promote the culture of record keeping and thinking ahead.

Dr. Sanjay Kumar
EDITOR-IN-CHIEF

EDITOR'S DESK

MESSAGE

Dear Readers,

As we kick off the Hindu new year, I am excited to share with you the latest edition of our Electronics & Communication Department newsletter. This issue is packed with insightful articles, updates on the latest research, and inspiring stories from members of our department.

Our department has made significant strides over the past year, and we are proud to highlight the accomplishments of our faculty, students, and alumni in this newsletter. From groundbreaking research projects to innovative educational initiatives, our department continues to make a significant impact in the field of electronics and communication engineering.

I would like to extend my gratitude to all those who contributed to this newsletter, including our talented writers, editors, and designers. I am confident that this issue will inform, inspire, and engage our readers, and I encourage you to share your feedback with us.

Thank you for the continued support of our department, and we look forward to sharing more exciting updates with you in the future.

Mr. Vishal H Shah

EDITOR

EDITORIAL TEAM

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Jainam Nahar

Rituraj

ECE EXPEDITIONS

ABOUT THE DEPARTMENT

The Department of Electronics and Communication Engineering (ECE) was established in the year 1960. This is one of the largest departments of the institute and due to its modern infrastructure and exposure given to the students, it is one of the elite ECE departments in the country.

The Vision: It envisions becoming a centre of excellence in teaching and research for creating technical manpower to meet the technological needs of the country in the field of Electronics and Communication

The Mission: It aims to offer state-of-the-art education of global standard using innovative teaching-learning methods with a practical orientation to prepare students for a successful career in the domain of Electronics and Communication Engineering. It also aims to excite students to think independently, take responsibility and work with a team spirit in order to solve industrial, societal and environmental problems maintaining professional ethics. It further aims to create an environment of high-quality research and promote it through continued interaction with research organizations and industries.

It offers 4-year B. Tech. (ECE) with 120 intake and 2-year M. Tech. (ECE) with 30 seats in 4 specializations: Instrumentation Engineering, Microwave Engineering, Wireless Communication and VLSI Design & Embedded System. It also offers a PhD. Program in the domain of Electronics and Communication Engineering.

Currently, the research areas include Fibre Optic Sensors & Communication, Optoelectronic Devices, Wireless Communication, Printed RF & Microwave Circuits, Antennas Applications, Electromagnetics, EMI/EMC, Computational Electromagnetics, VLSI & Embedded System Design, RF MEMS, Biomedical Signal Processing, Speech & Audio Signal Processing, Image Processing, and Multimedia & Automation.

The department has 32 dedicated and highly experienced faculty members. Some of them are contributing as evaluators towards NAAC and NBA accreditation, as experts in the selection committees of the State Public Service Commission, NIT, IIT & neighbouring engineering Institutions, and as experts to deliver talks on state-of-the-art technology in the domain of Electronics and Communication Engineering. The department carries out frequent revisions of the curriculum to meet industrial needs. It has 17 supporting staff, and 17 states of the art laboratories. It has Collaboration through MOU with Aarhus University Denmark, Central Reserve Police Force, Samsung Prism and Drone Bazar. It has been receiving Government funding through SAP, FIST, MODEROB, DST SERB and AICTE etc.

01 ECE EXPEDITIONS

Faculty Members

Staff Members

FLASHBACK
ASIA LINK PROGRAM

During 1 April 2003 to 31 March 2006 the department was a part of EAGER-NETWIC project of ASIA LINK programme of the European Commission with a sanctioned amount of 30,000 EURO.

The project aimed at establishing a world-class academic network of Higher Education Institutions in the rapidly growing field of Wireless and Mobile Communication in European Union member states and in Asia. The five partner universities of the EAGER-NETWIC project included (1) Birla Institute of Technology, Mesra(2) Aalborg University (Denmark), (3) Delft University of Technology (Netherlands), (4) University of Roma Tor Vergata (Italy), and (5) Institute of Technology Bandung (Indonesia).

This project resulted into establishing an International Centre for Wireless and Mobile Communication (ICWMC) in department on 28 March 2004, under which M. Tech. program in Wireless Communication started in 2005. Under ICWMC a Double-degree M.E. programme in Software Defined Radio (SDR) was also started which was discontinued after one year.

IWWCT-2003

The first international workshop 'International Workshop on Wireless Communication Technologies (IWWCT-03)' was organized in the department the under the EAGER NETWIC Project of ASIA-LINK program on Nov 12, 2003.

STTP ON 5G 2019

Department organized a one-week Short Term Training Program (STTP) on "5G Mobile Communication Networks (5GMCN)" from December 9-13, 2019. Participants included working professionals, faculty members and research scholars.

DOWN THE MEORY LANE - A NOTE FROM AN ALUMNUS

Hello, my name is Satyam Mishra, and I graduated from ECE ,BIT Mesra in 2014. Currently working as a senior software developer at Adobe. It's been nine years since I graduated from college, but it feels like yesterday.

It was an amazing experience where I made lifelong friends and learned valuable knowledge and skills that I still use today.

Classrooms and labs were fun and memorable. The best thing about the ECE department was that we had labs for all our theoretical subjects. We have actually designed and fabricated antennas, made robots, and played with microcontrollers.

Also, I remember professors recognising us by name. I am not sure if it is a common behaviour across departments, but That gave it a personal touch.

When people talk a lot about IOT, driverless cars, image processing, automation, etc., I can visualise the implementations too. That's a confidence that has been imparted by the department.

I advise the current batch to stay closer to their professors and seniors. They have seen the life ahead of you and exactly know your future roadmaps.

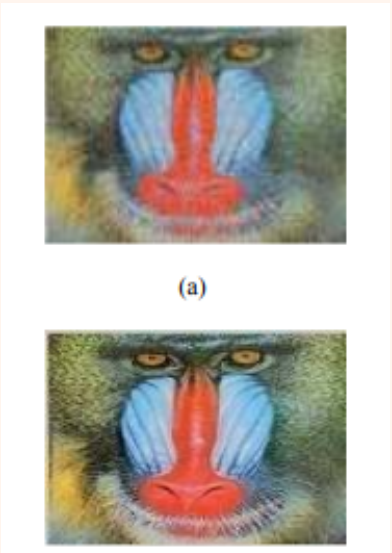
MEDICAL IMAGE DENOISING - AN OVERVIEW

Vishal H Shah, ECE Department

Medical image denoising is an essential task in medical imaging as it helps to remove noise from medical images, making it easier for doctors to analyze them and make accurate diagnoses. Here are some of the latest trends in medical image denoising:

1. Deep Learning-based Approaches: Deep learning-based approaches, especially convolutional neural networks (CNNs), have become increasingly popular in recent years for medical image denoising. CNNs can automatically learn features from medical images and effectively remove noise.
2. Variational Autoencoders (VAEs): VAEs have also shown promise in medical image denoising. VAEs are generative models that can learn a low-dimensional representation of the input image, and then generate denoised images from that representation.
3. Non-local Means (NLM) Filtering: NLM filtering is a classical method for denoising medical images that has been adapted and optimized for medical image denoising. NLM filtering can effectively remove noise while preserving image details.
4. Wavelet-based Methods: Wavelet-based methods have also been used for medical image denoising. These methods decompose the image into different scales and orientations, denoise the coefficients at each scale, and then reconstruct the denoised image.
5. Generative Adversarial Networks (GANs): GANs have shown promise in medical image denoising by generating realistic-looking images that are free from noise. GANs can be trained on a dataset of noisy medical images and generate denoised images that closely resemble the original images.

In conclusion, medical image denoising is a challenging and critical task in medical imaging. The latest trends show that deep learning-based approaches, VAEs, NLM filtering, wavelet-based methods, and GANs are promising methods for medical image denoising.



(a)

Mohan, Karthik. "A Novel Algorithm for Image Denoising using Modified Adaptive Median Filter." Research Journal of Applied Sciences, Engineering and Technology 10 (2015): 373-375.

DEPARTMENTAL ACTIVITIES

NAAC VISIT

The peer team members of the National assessment and Accreditation Council (NAAC) visited Dept. of ECE during 14th-16th November 2023 to conduct an assessment and accreditation.

EMBEDDED AI WORKSHOP

The Department of Electronics and Communication Engineering organized a five-day workshop on Designing Embedded AI Systems using STMicroelectronics AI Ecosystem from February 20 to 24, 2023. The workshop was organized by Dr. Sitanshu Sekhar Sahu.

Program Manager, DigiTod Technologies, Mr. Rohit Prajapati, and Engineer, Mr. Dhruva, explained about embedded AI systems with hands-on training and working processes for STM-32, STM-32 CubeID, and NanoEdge AI systems using speech and motion sensors. They explained about the real-time data collection process and classification process using the STM-32 board and sensors. Faculty from BIT Mesra, research scholars, and PG and UG students participated in this program, and finally, certificates were distributed to participants.

CRPF VISIT

A total of 26 trainee subordinate officers from Central Training College (Telecommunication & IT) of Central Reserve Police Force (CRPF), Dhruva, Ranchi visited the Department and Institute on 10.10.2022.

CRPF TRAINING

A short-term training program for Central Reserve Police Force (CRPF) personnel for the Module on 'Instrumentation & Measurement' for SASI(T) cum RM GD-I Course was conducted in the department during 09-17 Nov, 2023. A total of 40 hours of training (including theory and hands-on practice) was given to 30 participants.

GREET BOT EXHIBITION

Greet Bot a perfect reception companion for any institute. The Greet bot was developed with the aim to have an AI-powered Robot for BIT Mesra's Reception Area. The task was undertaken by Robolution Club under the guidance of Prof. Vishal H Shah. The greet bot was majorly brought to existence by the 3rd year students with the assistance of 2nd year students of the Club.
On the 28th of February, 2023 on the occasion of National Science Day, the Greet bot showcased its abilities for the first time in Infront of the staff and students in the college.

The next big thing was the 13th TATA Tech Ex organised by TATA Steel, Jamshedpur. The Greet bot was successful in catching many eyes and was amongst the most appreciated projects out there in the exhibition. The exhibition was organised between the 2nd of March to 5th of March, 2023. Dignitaries like Noel Tata (Vice Chairman Tata Steel) were very impressed and hopeful for the future of Greet Bot. The already celebrated Greet Bot is currently in the advancing phase with more features and smooth transitions.

RESEARCH & INNOVATION CONCLAVE

A Research and Innovation Conclave (RIC) was organized in the department on 28 Feb 2023 on national science day, where the PhD scholars of the department presented their innovative ideas and expected outcomes of their research work. The purpose was to give momentum to the PhD Scholars to expedite their work with more clarity. There were four tracks. The best presentation in each track was awarded.

PROJECTS

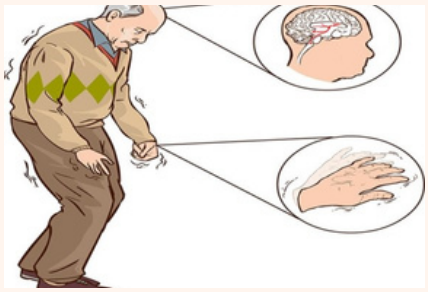
AI ENABLED MEMS BASED SENSORS FABRICATION AND CHARACTERIZATION FACILITY (AMSFCF)

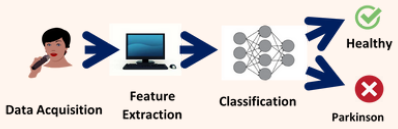
ECE Department got a sanctioned amount of INR 178 Lakhs from DST-FIST in the project titled “AI Enabled MEMS Based Sensor Fabrication Facility”. The Project implementation group is: PI: Prof. Sandeep Singh Solanki (HoD), Co-PI: Dr. Neela Chattoraj, Dr. Sitanshu S. Sahu, Dr. S.S.Tripathy, Dr. Kartik Mahto, Dr. Priyank Saxena, Dr. Richa Mishra, Dr. Vimal Kumar Singh Yadav.

MITIGATION OF ELECTROMAGNETIC INTERFERENCE AND ELECTROMAGNETIC COMPATIBILITY ISSUES IN WEARABLE IOT DEVICES

Prof. Nisha Gupta received SERB POWER project entitled "Mitigation of Electromagnetic Interference and Electromagnetic Compatibility issues in Wearable IoT devices for 23.21 lakhs and duration 2022-25. The project aims to study the issues of the Electromagnetic interference (EMI) in the context of the wearable IoT environment and then suggest the possible solution for achieving the electromagnetic compatibility (EMC) for proper functioning of the IoT in presence of EMI.

DEVELOPMENT OF END-TO-END SPEECH-BASED AI SYSTEM FOR PARKINSON'S DISEASE PREDICTION





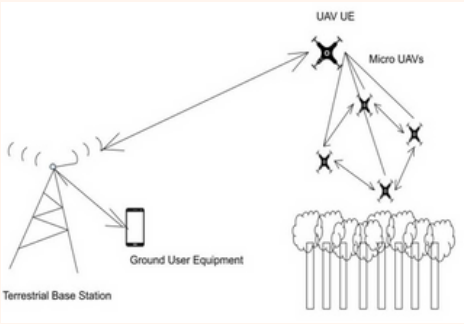
Prof. S.S. Sahu received project under IDEAS, TIH, ISI Kolkata for 5.14 Lakhs for the duration 2022-2023. Parkinson’s disease (PD) - a neurological degenerative disorder of the central nervous system, caused by the loss of dopamine generating cells found in substantia nigra at midbrain region. Articulation and phonation in speech is affected in 70-90% of speakers with PD.
The project aims to develop an efficient machine learning model based on the speech signal to identify the Parkinson’s disease in early stage.

PROJECTS


BIG DATA ANALYSIS OF 5G NETWORK BASED AUTONOMOUS DRONE SWARM SYSTEM: A PROTOTYPE

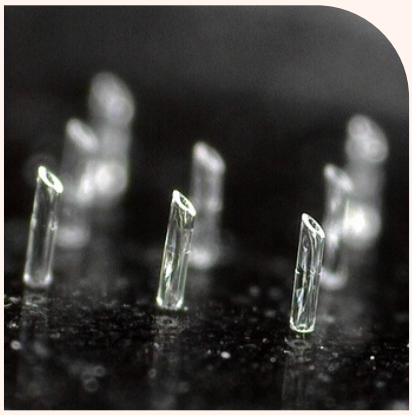
IDEAS, TIH, ISI Kolkata, 2022-2023, amount: 14.4 Lakhs (PI: Dr. Sanjeet Kumar, CoPI: Dr. D.K. Upadhyay). Currently, the requirement of manual control of the UAVs, intermittent connectivity, very low UAV flight time and shorter surveillance time are the major constraint in anomalous event detection. An ultra-reliable low-latency 5G wireless network-based UAV network can play a significant role to handle these challenges and provide a real time platform for big data analysis based on aggregated visual data from several drones with 360-degree view of crowd or presence of group of persons at critical locations.





SCALABLE ASSEMBLY OF PAINLESS HOLLOW MICRONEEDLE ARRAY

Dr. Richa Mishra received SERB POWER project entitled “Scalable Assembly of Painless Hollow Microneedle Array” for 29.1 lakhs and duration 2022-25. This project aims to develop hollow microneedle array based adaptor with novel assembly technique. They shall be designed and the parameters optimized for effective insertion in skin using contemporary simulation software. It also aims at development of a concept to scalable transdermal drug delivery device.



RECENT PUBLICATIONS

01

HIGH-SENSITIVITY GROOVED CSRR-BASED SENSOR FOR LIQUID CHEMICAL CHARACTERIZATION

Divya Prakash and **Nisha Gupta**, IEEE Sensors Journal. 2022;22(19):18463-70.

02

A COMPREHENSIVE REVIEW ON AUDIO BASED MUSICAL INSTRUMENT RECOGNITION: HUMAN-MACHINE INTERACTION TOWARDS INDUSTRY 4.0

Sukanta Kumar Dash, S S Solanki and Soubhik Chakraborty," 07 October 2022.

03

AUTOMATED DIABETIC RETINOPATHY GRADING BASED ON THE MODIFIED CAPSULE NETWORK ARCHITECTURE

Pammi Kumari and **Priyank Saxena**, IETE Journal of Research.

04

ROOM TEMPERATURE HYDROGEN GAS SENSING USING ZN2TIO4 THIN FILM

Ujjaval Kerketta, Thomas T. Daniel, **Vimal Kumar Singh Yadav** and Roy P. Paily, IEEE Sensors Letters, vol. 7, no. 2. , 2nd Feb 2023.

05

CSRR BASED METAMATERIAL INSPIRED SENSOR FOR LIQUID CONCENTRATION DETECTION USING MACHINE LEARNING

Divya Prakash and **Nisha Gupta** , Progress In Electromagnetics Research C, Vol. 130, 255-267, 2023.

06

INVESTIGATIONS ON CROSSTALK REDUCTION IN HIGH FREQUENCY CIRCUITS USING COMMERCIAL FOAM

Ashish Raj and **Nisha Gupta**, IEEE Microwaves, Antennas, and Propagation Conference (MAPCON), Dec. 2022.

07

MICROCANTILEVER PRINTED CUO SINGLE NANOWIRE FIELD-EFFECT TRANSISTORS

S. Raveesh, **Vimal Kumar Singh Yadav**, and Roy Paily, IEEE Transactions on Nanotechnology, 27 March 2023.

08

ASSESSMENT OF NEGATIVE BIAS TEMPERATURE INSTABILITY DUE TO INTERFACE AND OXIDE TRAPPED CHARGES IN GATE-ALL-AROUND TFET DEVICES

Pankaj Kumar, **Kalyan Koley**, Syed Sadique Answer Askari, Ashish Maurya, and Subindu Kumar, IEEE Transactions on Nanotechnology, March, 2023

09

ASSESSMENT OF INTERFACE TRAPPED CHARGE INDUCED THRESHOLD VOLTAGE HYSTERESIS EFFECT IN GATE-ALL-AROUND TFET

Pankaj Kumar, **Kalyan Koley**, Syed Sadique Answer Askari, Ashish Maurya, and Subindu Kumar, Micro and Nanostructures (Elsevier), Volume - 175, Issue - , Page 207502(1-9), March, 2023

10

ADAPTIVE AND PRECISE PEAK DETECTION ALGORITHM FOR FIBRE BRAGG GRATING USING GENERATIVE ADVERSARIAL NETWORK

Sunil Kumar**, Somnath Sengupta,**Opto-electronics Review, Polish Academy of Science, vol. 30, p. e144227 (7 pp.), 2022. [SCIE]

11

COMPUTATIONAL MODELS FOR PREDICTION OF PROTEIN-PROTEIN INTERACTION IN RICE AND MAGNAPORTHE GRISEA

Biswajit Karan, Satyajit Mahapatra, **Sitanshu Sekhar Sahu**, Dev Mani Pandey, Sumit Chakravarty, Frontiers in Plant Science, Vol. 13, PP: 5656, Feb. 2023

12

SENSITIVITY ANALYSIS OF DESIGNED APODIZED FIBER BRAGG GRATING SENSOR USING ARTIFICIAL NEURAL NETWORK AND TREE-BASED MODELS

Himadri Nirjhar Mandal and **Soumya Sidhishwari**, Results in Optics (Elsevier), Volume. 10, pp. 100343 (1-12), 2023.

13

HD/FD COOPERATIVE NOMA UNDER UAV DEPLOYMENT FOR A NOVEL DISASTER-MANAGEMENT MODEL

Rampravesh Kumar and **Sanjay Kumar** in the Journal of Electronics 12, no. 3: 513, 19 Jan 2023.

AWARDS / ACHIEVEMENTS

DR. AMINUL ISLAM

01

The paper entitled, “Single Event Upset Mechanism in SRTAM Latch and Its Circuit-Level Prevention Technique” received the best paper award in the 2022 IEEE Electron Device Kolkata Conference on (IEEE EDKCON 2022), organized by IEEE EDS Kolkata Chapter held at Vedic Village, Kolkata, India during 26-27 Nov, 2022.

02

The paper entitled, “Development of CNN-Based Mask Detection Technique Using Python and TensorFlow” received the best paper award in the 1st International Conference on Cyber Physical Systems and Assistive Technologies 2022 (CCPSAT2022), organized by KG Reddy College of Engineering & Technology, Hyderabad, Telangana, India, on 23-24 Sep. 2022 @ KG Reddy College of Engineering & Technology, Hyderabad, Telangana, India.

03

The paper entitled, “Circuit-Level Technique to Design Robust SRAM Cell Against Radiation Strike” received the best paper award in the 11th International Conference on ‘Computing, Communication and Sensor Networks (CCSN 2022), organized by Department of CSA, Utkal University, Bhubaneswar, Odisha, India and co-organizer by Applied Computer Technology, Kolkata, in association with International Association of Science, Technology and Management on 23-24 Sep. 2022 @ Utkal University, Bhubaneswar, Odisha, India.

PATENTS

DR. NEELA CHATTORAJ

01

Title of Invention: ULTRAWIDE BAND RRDA WITH A BEVEL-SHAPED PATCH AND A METHOD OF DEVELOPMENT THEREOF. Name of Inventors: Dr. Parikshit Vasisht, Robert Mark, Dr. Neela Chattoraj, Prof. Sudhakar Ranjan, Dr. Atul Kathait,Address, Anuranjan Sharma.

DEPARTMENT PICNIC

We were grateful to find a comfortable spot to relax in, given our jam-packed calendar and the hectic pace of our lives. The departmental staff picnic was held near the river, which provided a beautiful and serene setting for the event.

The weather was perfect for the event, with a gentle breeze blowing and the sun shining brightly. There were many fun activities, including boating in the river. There was a lot of laughter and joy in the air as everyone enjoyed the fun activities and delicious catered lunch. The staff members were able to mingle and chat with each other while enjoying the scenic beauty of the river and the jungle. Everyone had a great time bonding with each other in a beautiful natural setting.

DR. JANARDAN SAHAY FAREWELL

Dr. Janadan Sahay joined the department on 4th July 2003 and served up to 13th March, 2023. He worked as coordinator for semester registration, students' placement, annual report, convocation report and students' feedback. Apart from departmental activities he served as an Assistant Controller of Examination for about two years.

OUTREACH ACTIVITIES - INVITED TALKS

01

Dr. Vimal Kumar Singh Yadav gave an Invited lecture on “Molecular Printing of Electronic Devices (Single Material Printed Micro-Resistors)” in one Week High-End workshop (KARYASHALA) on "Nanostructured Devices" sponsored by DST-SERB and organized by **Department of Physics, Birla Institute of Technology Mesra (BIT Mesra)**, 13 December 2022.

02

Dr. Sanjay Kumar delivered a keynote lecture at **Graphic Era University, Dehradun** on 17th March 2023 on the topic of “Emerging Trends in Communication Technology” in the International Conference on “Device Intelligence, Computing and Communication Technologies (DICCT-2023)”, Graphic Era University, Dehradun, 17 March, 2023.

03

Dr. Aminul Islam delivered invited lecture on “What is the 4th Passive Element?” in International Conference of 2022 **IEEE Electron Device Kolkata** Conference organized by IEEE EDS Kolkata Chapter held at Vedic Village, Kolkata, India during 26-27 Nov. 2022.

04

Dr. Aminul Islam delivered invited lecture on “Semiconductor Memory and Applications” in one-week short term course on “Embedded System and IoT”, organized by **IC Design & Fabrication Centre** during 16-21 Jan 2023, Department of Electronics and Telecommunication Engineering, Jadavpur University, Kolkata, India, on 17 Jan. 2023.

05

Dr. Richa Mishra delivered Invited Talk on "MEMS for Microfluidic applications" on 15th December 2022 during High End Workshop on "Nanostructured Devices" funded by SERB, Government of India held at **Dept. of Physics, Birla Institute of Technology, Mesra**, Ranchi, India during 9-15th December, 2022.

06

Dr. Aminul Islam delivered invited talk on “HEMT and Its Biomedical Application” in 1st International Conference on Cyber Physical Systems and Assistive Technologies 2022 (CCPSAT2022), organized by **KG Reddy College of Engineering & Technology,** Hyderabad, Telangana, India, on 23-24 Sep. 2022

07

Dr. Richa Mishra delivered Invited Talk titled "Microfabrication techniques for Contemporary Drug Delivery Devices" , Faculty development Program on Recent trends in Electronics and Data Science organised by School of Electronics Engineering (SENSE) and academic Staff College (ASC), **Vellore Institute of Technology,** India during 6-8th February.

08

Dr. Richa Mishra delivered invited talk titled " A decade's Pinion - MEMS based components for Drug Delivery" in 6th International Conference on Microactuators, Microsensors and Micromechanisms from 3-5 December 2022 at **IIT Hyderabad.**

OUTREACH ACTIVITIES - CONFERENCES / WORKSHOPS

9

Dr. Aminul islam Participated and chaired/judged Technical Session in 1st International Conference on Cyber Physical Systems and Assistive Technologies 2022 (CCPSAT2022), organized by KG Reddy College of Engineering & Technology, Hyderabad, Telangana, India, on 23-24 Sep. 2022 @ KG Reddy College of Engineering & Technology, Hyderabad, Telangana, India.

10

Dr. Aminul Islam chaired/judged Technical Session in International Conference on “2022 IEEE Electron Device Kolkata Conference organized by IEEE EDS Kolkata Chapter held at Vedic Village, Kolkata, India during 26-27 Nov. 2022.

11

Dr. Richa Mishra delivered Invited Talk on Module and Instrumentation for SASI (T) cum Rm GD-1 course for 30 CRPF personnel on "Principles of Instrumentation" held at Birla Institute of technology, Mesra from 9th November-18th November 2022.

12

Dr. Richa Mishra attended One day Online Workshop on on 2nd December 2022 at Indian Institute of Technology, Hyderabad.

13

Dr. Richa Mishra attended 3 days online Familiarization Workshop organized by the Centre for Nanotechnology Indian Institute of Technology, Guwahati from 21st -23rd February, 2023.

14

Dr. Richa Mishra attended 3 days online workshop held at IIT Madras, Chennai during February 8-10, 2023

15

Dr. Richa Mishra attended 2 days 7th user Awareness Workshop (virtual mode) at NRF, Indian Institute of Technology Delhi, 11th -12th March, 2023.

AN INSIGHT

TECHNOLOGY AND HUMAN VALUES IN EDUCATION

Dr. Sanjay Kumar, Chairperson, VEC, BIT Mesra, Ranchi

In spite of splendid advancements in science & technology, do we feel peace, progress & harmony in our lives? Instead, the world is bound to stand amid war, weapons of mass destruction, crimes, corruption, terrorism, pollution, global warming and climate change! These are outcomes of well-planned human activities in the name of progress. Is filling the earth with CCTV cameras a sign of progress? Certainly, something is missing.

Sarvepalli Dr Radhakrishnan said “Man needs not only the technical ability but also the greatness of soul. Science is important but has no concept of right and wrong. For wisdom and a wider vision, spirituality is important. For balanced growth of any civilization, science and spirituality both are essential”.

Technology is only a means to achieve what is considered valuable to the human being in an effective and efficient manner. It is not within the scope of technology to decide what is valuable to human beings and what is not. Technology can provide Information, but what about understanding, wisdom & inspiration? Rabindranath Tagore said, “Education is what that does not merely give us information, but makes our lives in harmony with all other existences.” UNESCO also opined that the fundamental aim of education is the physical, intellectual, emotional, and ethical integration of the individual into a complete man.

Getting trained on technology without knowing what is valuable, could even prove counter-productive. Bertrand Russell said, “Knowledge is power, but it is the same for good as well as evil. Unless men rise in wisdom, expansion of knowledge will be an expansion of miseries only”.

Today in an increasingly complex globalized world, the erosion of values is adversely impacting human lives in every domain.

Education has little meaning without an orientation towards universal human values. This is an over-arching and comprehensive area that needs conscious attention at each stage of education. Truth, righteous conduct, peace, love and non-violence are the core universal human values and are the foundational stone on which value-based quality education must be built.

Education must inculcate friendliness, cooperativeness, compassion, self-discipline, courage, concern for others and keenness to support genuine causes of justice and fairness. Education must help inculcate key attitudes like regularity and punctuality, cleanliness, self-control, industriousness and a spirit of entrepreneurship, a sense of duty, desire to serve, responsibility, creativity, sensitivity to greater equality, sense of respect, care for others, a democratic temper and an obligation to preserve the environment. Therefore, the integration of universal human values in education is paramount to realising the real purpose of education.

TECH-A-THON

ECE Society is a departmental club of ECE, BIT Mesra organised its annual flagship event- “Tech-A-Thon”. It is a month-long mentor-assisted project-building event organized in which students from various colleges across India participate. Two domains, namely ML/AI and Embedded/Core, are offered for making theme-based projects.

The first chapter of TECH-A-THON was held in September 2021; the second chapter began on 25th Mar 2023 onwards. Our event comprises mentor-assisted project building, webinars/seminars sessions, workshops, quizzes etc., and prizes and certificates to all.

STUDENT SECTION

GATE

One BTECH student of 2017 Batch, 2021 Passout (Rithik Kumar) has secured 163 AIR in GATE 2023 (EC), Three students of 2K19 Batch have cleared GATE 2023 in EC.

SATYAM PANDEY PRESENTATION AT IIT KANPUR

One of our UG students, Satyam Pandey (BTECH/ 10452/20), was selected for an oral presentation on "Retinal layers Surface Detection and Segmentation of the Optic Nerve in OCT Images " at the 5th National Students' Research Convention held at Indian Institute of Technology Kanpur on 3-5th March 2023 under the guidance of Dr. P. Saxena and Dr. R. Poddar.

NISHANT BIYANI GETS INTERNSHIP OFFER FROM NORTHEASTERN UNIVERSITY, USA

Nishant Biyani, B.Tech. VI SEM student recently received an offer for Summer Internship'23 at Northeastern University of Boston, USA. It is an ISRE program. He will be working under the professor Aatmesh Shrivastava at Boston.
He was also selected as a campus Ambassador from Birla Institute of Technology Mesra, Ranchi at IIT KGP in their one of the massive events known as Kshitij regional event Kascade. Here he acted as a bridge between Kshitij, IIT Kharagpur and BIT, Mesra and assist in organizing the event.

ANVESHAN 2021-2022

M.tech students Shilpi Kumari (MT/EC/10006/21), Junaid Gouher (MT/EC/10010/21), Saswata Bose (MT/EC/10014/21), Vishal Srivastava (MT/EC/10013/21) and Shweta Mishra (MT/EC/10003/21) participated in Anveshan 2021-2022, a project competition conducted by Analog Devices, Bangalore and awarded a prize money of RS 15000 with certificates. Dr. Siatnshu S. Sahu was the Institute mentor for them.

SNEHITHA REDDY WINS GOLD MEDAL IN 35TH ANNUAL ATHLETIC MEET 2023

T. Snehitha Reddy wins Gold Medal in 35th Annual Athletic Meet 2023 of BIT Mesra.

WORKSHOPS /CONFERENCES

Nishant Biyani, B.Tech. VI SEM student attended 3 days online Familiarization Workshop on Nanotransistors and Energy Devices Technology organized by the Centre for Nanotechnology Indian Institute of technology, Guwahati from 21st -23rd February, 2023.

He also attended 2 days 7th user Awareness Workshop on Fabrication and Characterization Facility for Nanotechnology (virtual mode) at NRF, Indian Institute of Technology Delhi, 11th -12th March, 2023.

VISHAL SHARMA WINS SECOND POSITION IN RAP COMPETITION

Vishal Sharma (BTECH/10091/20) won second position in a rap competition at Mood Indigo, a cultural fest of IIT Bombay.

PHOTOGRAPHS BY STUDENTS

AMRENDRA KUMAR
(BTECH/10095/20)

AMRENDRA KUMAR
(BTECH/10095/20)

AMRENDRA KUMAR
(BTECH/10095/20)

AYUSH SINGH
(BTECH/10230/20)

AYUSH SINGH
(BTECH/10230/20)

HEMANT KUMAR
(BTECH/10371/20)

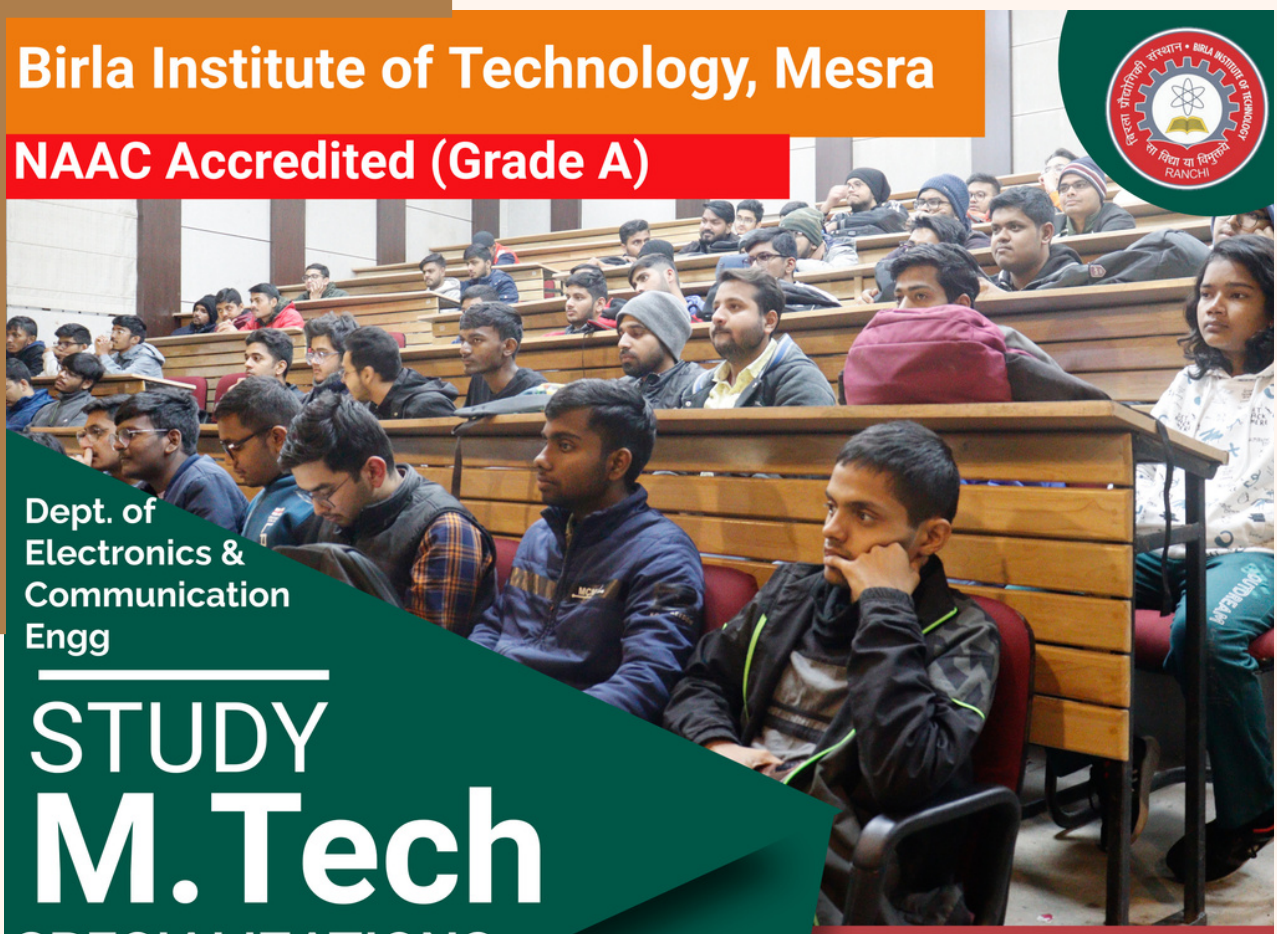
HEMANT KUMAR
(BTECH/10371/20)

SUVIGYA SHREE
(BTECH/10213/20)

SUVIGYA SHREE
(BTECH/10213/20)

Birla Institute of Technology, Mesra

NAAC Accredited (Grade A)



Dept. of Electronics & Communication Engg

STUDY M.Tech SPECIALIZATIONS

Instrumentation Engg.
VLSI Design & Embedded Systems
Microwave Engg.
Wireless Communication

ABOUT US

DST FIST supported ECE Department , BIT Mesra is having world class infrastructure with 17 well equipped laboratories, 30 proficient faculty members and highly skilled technical staff. Visiting faculty from IIT Kharagpur.

Ideal Place for higher studies

Career Path Progression

Better campus placement.
Inhouse PhD opportunity (with INR 15000 pm sholarship).
Internship opportunities in top companies like TATA Motors, Bosch GmbH and top universities

Industry Specific Courses

Carefully curated courses as per practical needs in industry.

Cutting Edge research opportunities

Opportunity to become part of current research projects worth 3.5 crores in dept. Industry and Government funded cutting edge sponsored research.

Scholarship & Project Funding

Scholarship of INR 6500 per month for 10 months during M.Tech project
Funding for consumables for selected M.Tech Project ideas upto 1 lakh.

Admissions for Academic Sessions 2023-24 for Gate /non Gate candidates to opens 15th March and closes on 10th June 2023 . Details shall be available shortly on website.

18003457057/58 www.bitmesra.ac.in Birla Institute of Technology, Mesra, Ranchi, Jharkhand

ECE EXPEDITIONS

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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DST FIST SUPPORTED DEPARTMENT

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DRDO, SERB, UGC, DST, AICTE, DBT, NAMPET, SAC ISRO
Current Government and Industry sponsored projects more than 3.5 crores

WHY

World-class facility.
Cutting edge research infrastructure.
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Institute Research Scholarship @INR 15000 per month for each applicant.
Industry and academia placement.

WHO

B.Tech / M. Tech in relevant areas
M.Sc. (Electronics / Physics with Electronics / Radiophysics / Computer Science/- Biomedical Instrumentation / Biophysics)

HOW

Shortlisting based on written test and interview

ADMISSIONS OPEN

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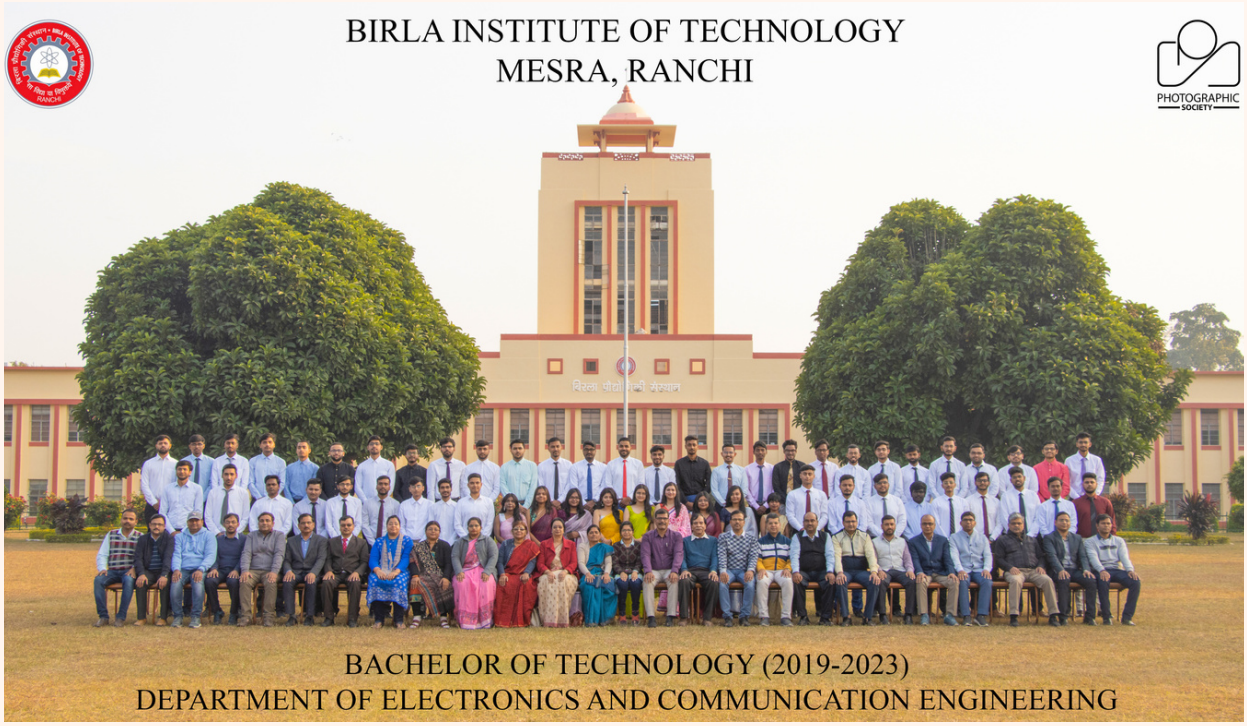
ECE EXPEDITIONS



Bachelor of Technology (2019-2023)

Master of Technology (2021-2023)