



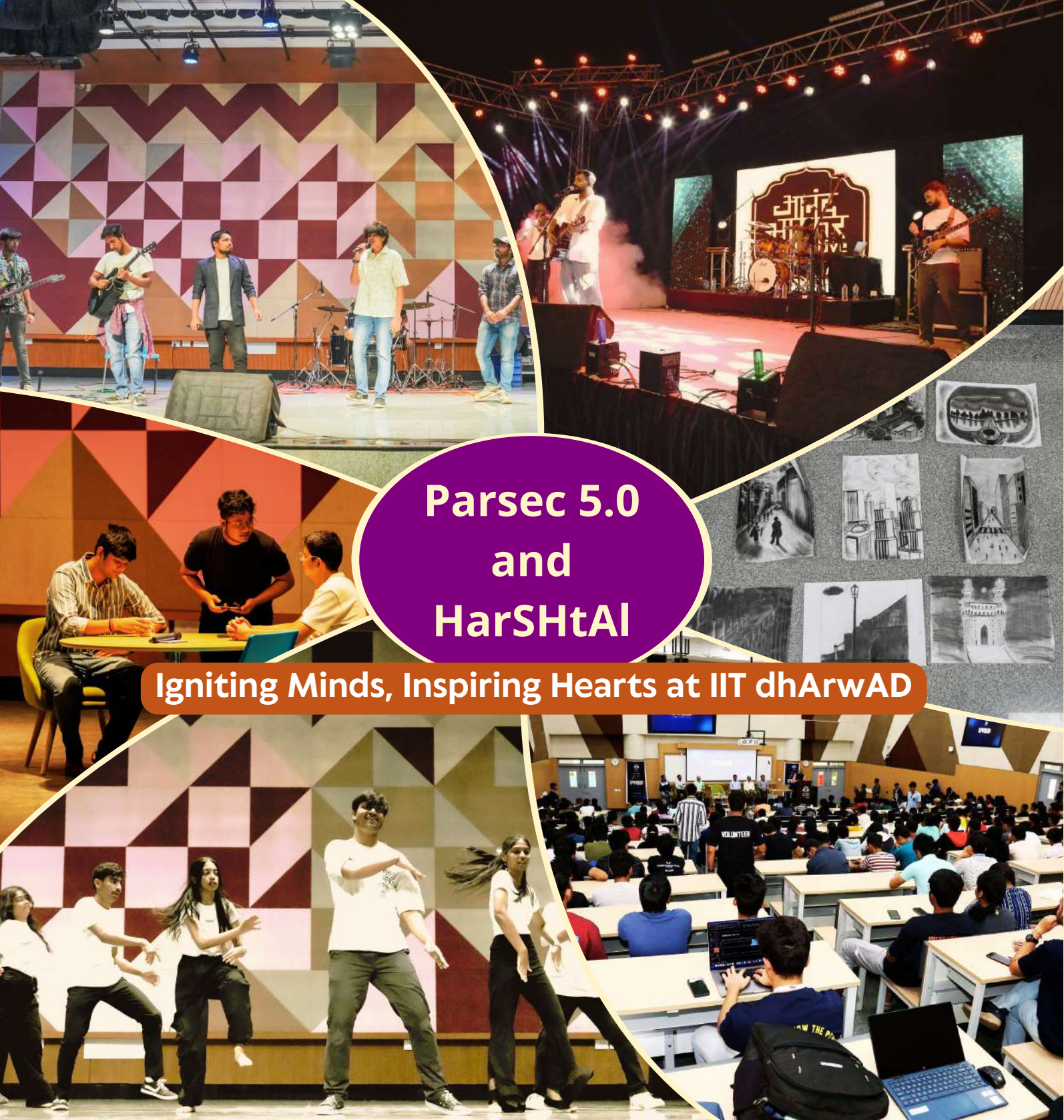
॥ सा विद्या या विमुक्तये ॥  
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IIT DHARWAD

INDIAN INSTITUTE OF  
TECHNOLOGY DHARWAD

# NEWSLETTER

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Parsec 5.0  
and  
HarSHtAI

Igniting Minds, Inspiring Hearts at IIT dhArwAD

## Parsec 5.0: A Confluence of Innovation, Ingenuity, and Imagination

The campus of IIT dhArwAD came alive from January 31st to February 2nd, 2025, as Parsec 5.0, the institute's annual technical festival, returned with unmatched energy and grandeur. With over 2 lakh online impressions and more than 2000 registrations—both online and offline—the event turned into a hub for creativity, competition, and collaboration.

Parsec 5.0 wasn't just an event—it was an experience. Students, professionals, and tech enthusiasts from across the country gathered to engage in a vibrant exchange of ideas and to explore the ever-evolving frontiers of science, technology, and entrepreneurship.

This spectacular edition of Parsec was made possible by the unwavering support of the institute and the generosity of our sponsors, whose contributions empowered us to deliver a seamless and high-impact festival. Our heartfelt gratitude to:

- Title Sponsor: Swarna Group of Companies
- Silver Sponsors: Nilkamal Edge and Netweb Technologies
- Bronze Sponsor: CloudDefense.AI
- Event Partners: StockGro and Unstop

### A Festival of Innovation: Events That Defined Parsec 5.0:

#### DevHack

A high-impact 36-hour hackathon that challenged participants to develop innovative solutions for real-world problems. Armed with AI, ML, and cloud tools, teams brought forward prototypes with the potential to redefine accessibility and delivery.

#### AlgoStrike 5.0 :

An intense coding challenge that tested algorithmic prowess through a series of 6–8 challenging problems. Designed to push participants' problem-solving limits, the offline contest attracted some of the brightest programming minds in the country.

#### Build-a-Bot 2.0 :

A 30-hour build-a-thon where robotics enthusiasts designed, developed, and tested robots capable of performing assigned tasks such as 3D environment mapping.



It was an exciting blend of mechanics, coding, and creativity, demanding seamless collaboration between team members.

#### BitHunt 3.0:

An adventurous two-round competition beginning with a rigorous technical quiz, followed by a campus-wide treasure hunt where finalists decoded cryptic, algorithmic clues. It was as much a test of wit as it was of speed and teamwork.

#### Stonkz 3.0 (Online):

A mock trading competition that immersed participants in a simulated stock market environment. Players navigated volatility, managed portfolios, and tested their strategies in real-time market scenarios, gaining insights into financial dynamics and risk management.

#### Veni Vidi Vici (Online CTF):

A thrilling Capture The Flag (CTF) competition where cybersecurity enthusiasts tackled real-world hacking scenarios involving cryptography, reverse engineering, and penetration testing. It offered hands-on exposure to the world of ethical hacking and system security.

#### Solid Edge:

An event that brought the world of mechanical engineering to life through SolidWorks and Ansys. Participants designed, simulated, and optimized mechanical components under real-world constraints—merging theory with practice in true engineering spirit.

#### Idea Hub (Online):

A startup pitch competition hosted on Unstop, where participants showcased their entrepreneurial vision and pitched for funding up to \$20,000. From market research to revenue models, each idea was judged on innovation, feasibility, and impact.

#### Cultural Finale:

Parsec 5.0 culminated with a spectacular Cultural Night, featuring student performances and a live band performance by the one and only Anand Bhaskar Collective, that had the audience in high spirits. After three days of intense technical engagement, the evening offered the perfect outlet to relax, reflect and rejoice.



## Director's Major Engagements



PROF. Venkappayya R dEsAi, Director, IIT dhArwAD, hosted Prof. Israel Cohen from Technion-Israel Institute of Technology on 2nd January 2025 for an invited talk on "Constant Beamwidth Beamformers," which sparked engaging discussions on signal processing technologies. On the same day, he welcomed a team from Robert Bosch to the campus for CSR activities aimed at exploring impactful collaborations in education and innovation. On 18th January 2025, he attended the PAN IIT World of Technology (PIWOT 2025) event at IIT Bombay, participating in key deliberations on emerging technologies and inter-institutional partnerships. On 22nd January 2025, he delivered a talk at Motilal Nehru National Institute of Technology, PrayAgHrAj on "Health, Wellness and Human Values through Indian Knowledge Systems (IKS)," highlighting the role of traditional knowledge in modern education. He participated in the National Summit of Institutional Leaders (NSIL) at Doon University, Dehradun on 1st and 2nd March 2025, under the theme "Inspiring Visionary Leaders Shaping Institutions – Building a Vibrant Viksit Bharat." Subsequently, on 3rd and 4th March 2025, he attended the Visitor's Conference 2025 at Rashtrapati Bhavan, New Delhi,

which focused on advancing the quality and impact of higher education institutions. On 20th March 2025, he delivered a Distinguished Lecture at the Central University of RAjasthAn under the "Academic Leadership Engagement Lecture Series" on the topic "Ensuring Climate Resilience through Voluntary Afforestation and Net Zero Facilities related to Water, Energy & Waste." On 21st March 2025, he was the Distinguished Guest of Honor at the Transforming the Thar Ecoregion through Startups, Innovation, and Entrepreneurship for Sustainable Development (THRIVE 2025) event hosted by IIT JodHPur and chaired the session on "Green Energy/Environmental Technologies." On 26th March 2025, he led the MoU signing ceremony between IIT dhArwAD and IREU Tech Education Private Limited, BengalUru, aimed at fostering startups and strengthening the entrepreneurial ecosystem.



Prof. Somashekara M A, Dept. of MMAE, and his research team participated in the International Conference on Additive Manufacturing and Characterization 2025 (ICAMC25) at IIT Bombay, where he delivered two talks and engaged in fruitful discussions on Additive Manufacturing. He was also invited as Chief Guest at the Workshop on "Experimental Skill-Based Training on Optimization Framework for Design of Experiments and Pseudo-Ternary Phase Diagram" held at KLE College of Pharmacy, HubbaLLI (31 Jan–1 Feb 2025).

PROF. Ramjee Repaka, Dept. of MMAE, published a journal article titled "A Double Serpentine Channel Liquid Cooling Plate for Hotspot Targeted Cooling of Lithium-Ion Batteries in A Battery Module" co-authored with Yogeshwar Dasari and Navaneeth K Marath in the International Journal of Thermal Sciences, Vol. 209, 109521, 2025. He delivered an invited talk on "Smart Thermal Management for Sustainable EV Battery Technologies" as part of a Faculty Development Program (FDP) organized by GITAM Deemed to be University, ViShAKhapaTnam, AndHra PradEsh, on 4th March 2025.



Prof. Ridhima Tewari, Dept. of HEART, co-presented a paper on "The Human-Machine Hybrid" at the International Conference on Graphic Narratives, EFLU, Hyderabad, and chaired a session on 'History and Memory in Graphic Narratives'. Her essay "Whither diasporas?" was published in South Asian Diaspora (Q1, Taylor & Francis), and she delivered the Prof. Sarojini Shintri Endowment Lecture at Karnatak University, DhArwad.



Prof. Nilkamal Mahanta, Dept. of Chemistry, delivered a talk at the FDP on Innovation and Startup Practices in Chemical and Allied Sciences at Shivaji University, Kolhapur on 4th March 2025. He also engaged with students of Classes IX–XII at PM Shri Jawahar Navodaya Vidyalaya, Hassan under the PM SHRI programme (7–8 March 2025). Additionally, he co-authored "Thoughts for the Future", a feature article in Nature Chemical Biology, published to commemorate the journal's anniversary.

Prof. Sairam Boggavarapu, Dept. of EECE, conducted a 3-day in-house short-term course for Bharath Heavy Electricals Limited (BHEL) on Development of Electromagnetic Design Programs for Transformer Applications from 27–29 Jan. 2025. He also initiated a new consultancy collaboration with DB Potential LLP with a project budget of ₹2.36 lakhs.



Narayan S. Puneekar

## ENZYMES: Catalysis, Kinetics

PROF. Narayan S. Puneekar, Dean [Academic Programs], IIT dhArwad, has released the second edition of his book ENZYMES: Catalysis, Kinetics, and Mechanisms, published by Springer Nature.



Scan here to read more



Prof. Vijeth Kotagi, Dept. of CSE, delivered an expert session on "Technologies Enabling IoT" at a Joint FDP hosted by IIT Roorkee (18–20 Feb 2025) and gave a talk titled "From Connectivity to Care: Can Potential of IOMTs be Unlocked for Remote Communities? Challenges and Opportunities" at the 59th Meeting of the Asia Pacific Advanced Network (APAN59) on 6 March 2025.



Prof. Vandana Bharti, Dept. of CSE, delivered expert sessions on "Advanced Deep Learning Models" and "Optimization" during the Faculty Development Program on Deep Learning and Optimization for Healthcare, organized by the E&ICT Academy, NIT Patna, on 25 and 27 February 2025, respectively. She was invited as an examiner for the Research Experience for Undergraduates (REU) course at KLE Technological University, Hubballi, on 8 March 2025. She also delivered a talk on "Self-supervised Learning" during the online Workshop on Generative AI, organized by InterMedia Research Group and LNMIIT Jaipur, on 12 March 2025; and delivered expert sessions on "Generative AI for Healthcare" (20 March 2025) and "Optimization" (21 March 2025) during the Faculty Development Program on Sustainable Resource Management: Integrating AI/ML, Geospatial Technologies, and Strategies for a Resilient Future, organized by the E&ICT Academy, IIT Guwahati.



Prof. C. Ravikumar, Dept. of Chemical Engineering, served as a resource person for the Online Short-Term Training Program (STTP) and Faculty Development Program (FDP) on "Nanotechnology: Trends and Applications," organized by Jawaharlal Darda Institute of Engineering & Technology, YavatMAL, in association with ISTE, held from 13th to 18th January 2025. Additionally, Prof. Ravikumar delivered an invited talk at the one-day symposium on "Fostering Safety in the Use of Advanced Nanomaterials in the Health Sector," organized as part of the Indo-Norway Bilateral Research Meet 2025 at IIT Madras.

## MalaNet: A Small World Inspired Neural Network for Automated Malaria Diagnosis

Shubham Dwivedi, Student Member, IEEE, Kartikeya Pandey, Kumar Shubham, Om Jee Pandey, Senior Member, IEEE, Achyut Mani Tripathi, Member, IEEE, Tushar Sandhan, Senior Member, IEEE and Rajesh M Hegde, Senior Member, IEEE

**Abstract**—In this work, a novel neural network architecture called MalaNet is proposed for the detection and diagnosis of malaria, an infectious disease that poses a major global health challenge. The proposed neural network architecture is inspired by small-world network principles, which generally involve the introduction of new links. A small-world neural network is realized by establishing new connections, thereby reducing the average path length and increasing clustering coefficient. These characteristics are known to enhance interconnectivity and improve feature propagation within the network. In the context of malaria diagnosis, these characteristics of MalaNet can enhance detection accuracy and enable better generalization in scenarios with limited data availability. Broadly, two variants of MalaNet are presented in this work. *Keywords*—small-world inspired

the detection process, MalaNet can potentially reduce healthcare costs and lessen the load on healthcare systems, particularly in malaria-endemic areas. Its application in clinical settings could improve patient outcomes by providing quicker, more accurate screenings. Overall, MalaNet is a novel addition to the array of tools available for combating malaria, demonstrating the positive impact that small-world-inspired artificial intelligence (AI) advancements can have on public health.

**Index Terms**—Biomedical analysis, Malaria, Neural networks, Newman-Watts algorithm, Small world networks

### I. INTRODUCTION

Prof. Achyut Mani Tripathi, Dept. of CSE, along with collaborators from the Department of Electrical Engineering, IIT BHU (Dr. Om Jee Pandey, Mr. Kartikeya Pandey, Mr. Kumar Shubham) and the Department of Electrical Engineering, IIT Kanpur (Mr. Shubham Dwivedi, Dr. Tushar Sandhan, and Prof. Rajesh Hegde), has co-authored a research paper titled "MalaNet: A Small World Inspired Neural Network for Automated Malaria Diagnosis". The paper, focused on deep model compression for efficient AI-based malaria diagnosis, has been accepted for publication in the IEEE Transactions on Artificial Intelligence.

Prof. Debalina Chakravarty, Dept. of HEART, delivered an impactful invited lecture at the Faculty Development Program on Statistical Modelling and Data Analysis, organized by the School of Social Sciences and Humanities (VISH) and the School of Computer Science and Engineering (SCOPE) at VIT-AP University, Amaravati.



Prof. Abhijit Kshirsagar, Dept. of EECE, was invited as a speaker at the One-Week Faculty Development Program (FDP) on "AI-ML Based Smartgrid" held at Basaveshwar Engineering College, BAGALKOT, from 30th January to 3rd February 2025.



Prof. Animesh Kumar Sahoo, Dept. of EECE, delivered a talk on "Grid Code Requirement for Inverter-based Resources" at the Workshop on Stability and Protection of Renewable Dominated Power Grids, held at IISc, Bengaluru (6–9 Jan 2025). He also spoke at the FDP on AI-ML Based Smartgrid at Basaveshwar Engineering College, BAGALKOT (30 Jan – 3 Feb 2025).



Prof. Aniket Kataware, Dept. of CIE, has published multiple research articles on pavement materials and sustainable infrastructure in reputed journals including Construction and Building Materials, Road Materials and Pavement Design, and Journal of Adhesion Science and Technology. He delivered guest lectures on research methodology and AI in pavement technologies, and served as Chief Guest and keynote speaker at ICMRTET 2025, Lakshmeshwar. Under his mentorship, students Shri Shubham Raj, Shri Vivek Kumar, and Shri Tanishq Singh received the Hyundai Hope Scholarship for their project "Empowering Sustainable Mobility: Electrical Pavement for Smarter Cities."



Prof. Amarnath Hegde, Dept. of CIE, delivered an invited talk on the topic of "Sub-Soil Exploration for Infrastructure Projects" at the Department of Civil Engineering, GITAM School of Technology Bengaluru, on 4th February 2025. During the visit, Prof. Hegde interacted with faculties & students of the department and visited various laboratory facilities.



Prof. Kedar Khandeparkar, Dept. of CSE, and Ms. Smruti Prava Dash (CS20DP001) presented their paper titled "A Representation Learning-Based Time Series Label Propagation for Smart Grid Attack Detection" at the 8th International Conference on Data Science and Management of Data (CODS-COMAD 2025), hosted by IIT Jodhpur, RAJASTHAN. The paper was accepted for publication at the conference.

Prof. Vyom Sharma, Dept. of MMAE, delivered an invited talk on "Industry 4.0 and Beyond" at the 2nd International Faculty Development Program (FDP) on "New Era of Manufacturing – Challenges & Opportunities", held on 11th March 2025. The event, attended by over 175 participants online, was jointly organized by D. Y. Patil College of Engineering & Technology, Kasaba Bawada (DYP CET), and the University of Naples Federico II.



Prof. Anand Konjengbam, Dept. of CSE, delivered a session on AI Applications in Health Research and Yoga at a workshop organized by MDNIY, Ministry of Ayush, on 28th February 2025. He also represented EyongKart, an initiative by the EMA Lab, IIT dhArwAD, at ICON 2025, the Lions International 46th Annual District Conference held in Imphal (8–9 March 2025), engaging with over 800 delegates on innovation and social impact.



Prof. R. Prabhu, Dept. of Physics, served as a resource person at the Talent Search Program – Career Development organized by the Karnataka Science and Technology Academy (KSTA) in Bengaluru (27 Jan – 7 Feb 2025). He delivered a session on "Classical and Quantum States" on 1st February 2025, aimed at inspiring PU students to pursue careers in science, research, and technology.



VLSID-2025, an international conference focused on advancements in VLSI Design, saw participation from six members of IIT dhArwAD. Prof. Saroj Mondal, Dept. of EECE, and Kumari Chaya (EE22MS008) co-authored a paper that was selected for presentation in the Analog and Mixed Signal Design track. Among the participants, Shri Siddhant (EE22MS001), Kumari Chaya (EE22MS008), Kumari Namrata (EE23MS004) and Shri Alok (EE23MT002) received partial fellowships, while Kumari Nagaratna was awarded a full fellowship.

Mr. Manjunath S. Koparde, Junior Technical Superintendent at the Electronics Lab has designed and developed the CPLD MAX3000A BOARD Ver 2.0 – Nibble in-house. This compact, Arduino UNO-sized complex programmable logic device (CPLD) is tailored for undergraduate digital system design labs, where students write Verilog code and program it onto the board to implement logic circuits. Over fifty Nibble boards have been fabricated and are actively used. The board draws power directly from the CPU, eliminating the need for an external power supply and supports JTAG-based programming, ensuring ease of use.



**Prof. Amarkumar Kushwaha**  
Dept. of EECE



**Prof. Bal Krishna Chaube**  
Dept. of BSBE



**Prof. Konjengbam Anand**  
Dept. of CSE



**Prof. Kundan Kumar Singh Sagar**  
Dept. of Chemistry



**Prof. [Ms] Satavisha Kayal**  
Dept. of Chemistry



**Prof. [Ms] Shraddha Srivastava**  
Dept. of Mathematics



**Prof. Subhash Mehto**  
Dept. of BSBE



**Prof. Veekesh Kumar**  
Dept. of Mathematics



**Prof. Shashaank Aswatha Mattur**  
Dept. of EECE

Nine faculty members from IIT dhArwAD have been selected for the prestigious Prime Minister's Early Career Research Grant, initiated by ANRF, Department of Science & Technology, Government of India. The selected faculty are Prof. Amarkumar Kushwaha, Prof. Bal Krishna Chaube, Prof. Konjengbam Anand, Prof. Kundan Kumar Singh Sagar, Prof. [Ms] Satavisha Kayal, Prof. [Ms] Shraddha Srivastava, Prof. Subhash Mehto, Prof. Veekesh Kumar, and Prof. Shashaank Aswatha Mattur.

## Funding Secured / Granted

| Sponsored Projects   |                                        |                                     |                                                                                                                                                         |                                                     |                               |                                  |                                 |
|----------------------|----------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------|----------------------------------|---------------------------------|
| Sl No                | Principal Investigator With Dept       | Co Principal investigator With Dept | Title of the Project                                                                                                                                    | Sponsoring Agency                                   | Sanction date                 | Value of Project (in lakhs)      | Duration of the project (years) |
| 1                    | Prof. Aniket Vasantrao Kataware (CIE)  | NA                                  | Investigation of The Interfacial Adhesion Performance Between Bitumen And Different Types of Slags For Sustainable Road Construction                    | CSIR HRDG                                           | 16.12.2024                    | 12.21                            | 3                               |
| 2                    | Prof. Vyom Sharma (MMAE)               | Prof. Punng Chatterjee (MMAE)       | Light-weight bunker for protection against small-arms fire                                                                                              | 6 Engineer Regiment, West Bengal                    | 28.03.2025                    | 29.53                            | 18 Months                       |
| 3                    | Prof. Punng Chatterjee (MMAE)          | Prof. Vyom Sharma (MMAE)            | Indigenous design and prototyping of man-portable bridges for rapid troop movement                                                                      | 235 Engineer Regiment, West Bengal                  | 27.03.2025                    | 15.25                            | 18 Months                       |
| Consultancy Projects |                                        |                                     |                                                                                                                                                         |                                                     |                               |                                  |                                 |
| S.No                 | Principal Investigator With Dept       | Co Principal investigator With Dept | Title of the Project                                                                                                                                    | Industry/Company/ Institute                         | Sanction date/ Agreement date | Duration of the project (months) | Cost of the Project (Lakhs)     |
| 1                    | PROF. Venkappayya R. dEsai (CIE)       | PROF. Sanatkumar P Rajamane (CIE)   | Vetting of structural strength and stability design documents of terminals of JSW airport, toranagallu                                                  | JSW Steel Limited, Ballari                          | 17.03.2025                    | 6                                | 9.44                            |
| 2                    | PROf. Amarnath Hegde (CIE)             | NA                                  | Study & remedial measures for the differential settlement in the foundation/sinking in the switchyard area (civil technical issue) at 400 KV kudgi gis. | Power Grid Corporation of India Limited, Vijayapura | 21.01.2025                    | 2                                | 3.37                            |
| 3                    | Prof. Hemanth Kumar Chinthapalli (CIE) | NA                                  | Testing RNS Buildtech Paver Blocks                                                                                                                      | RNS Buildtech                                       | 19.12.2024                    | 2 weeks                          | 0.1                             |
| 4                    | Prof. Aniketh V. Katavare (CIE)        | NA                                  | Proof checking of rigid pavement design for the proposed Goods loading/unloading Platform at Gokak Railway Station.                                     | SUR Engineering Services, Bangalore                 | 30.01.2025                    | 1                                | 0.94                            |
| 5                    | Prof. Hemanth Kumar Chinthapalli (CIE) | NA                                  | BSPL Integrated Steel Plant-Halavarthi, Koppal - Concrete Mix Design (M7.5 to M45).                                                                     | Baldota Steel & Power Limited                       | 11.03.2025                    | 2 weeks                          | 4.77                            |
| 6                    | Prof. Ramesh Nayaka (CIE)              | NA                                  | Compressive Strength Test on Crore Cutter Specimens taken on Sankeshwar Bypass to MH-KNT border Section of NH-48.                                       | National Highways authority of India, PIU dhArwAD   | 27.03.2025                    | 2 weeks                          | 0.56                            |
| 7                    | Prof. Sai Ram Boggavarapu (EECE)       | NA                                  | Design and Analysis of an Axial Flux Angular Solenoid                                                                                                   | DB Potential LLP                                    | 19.02.2025                    | 3                                | 2.36                            |
| 8                    | Prof. Ramesh Nayaka (CIE)              | PROf. Amarnath Hegde (CIE)          | Proof check structural design and drawings for multipurpose hall, MLIRC.                                                                                | Mr. Dayanand Sarnobat                               | 17.03.2025                    | 2 weeks                          | 1.7                             |
| 9                    | Prof. Ramesh Nayaka (CIE)              | PROf. Amarnath Hegde (CIE)          | Structural audit of income tax and CGST staff quarters, Hubballi.                                                                                       | Central Public Works Department, dhArwAD            | 31.03.2025                    | 6 weeks                          | 9.08                            |

**Note: The above data pertains to the first quarter i.e, from January to March 2025**



On 21st February 2025, IIT dhArWAD celebrated International Mother Language Day with great enthusiasm. Organized by the RAjbhASHA vibhAg, the event highlighted the institute's commitment to linguistic and cultural diversity. Faculty, staff, students, and their families participated in multilingual presentations, cultural exchanges, and discussions on the role of language in unity. Director PROF. Venkappayya R. dEsAi delivered a thought-provoking address on the significance of preserving mother tongues. Representatives showcased languages Ahomiya, BANgIA, GujarAti, KannaDa, KAshmIri, KonkaNi, MalayALam, MarATHi, Manipuri, ODiyA, Sanskrit, tamil, telugu, urdu, and Tulu —celebrating India's linguistic richness and reinforcing the spirit of unity in diversity.



SPARC-sponsored one-week workshop on "Computational Fluid Dynamics Modelling of Two-Phase Fluid Flows: Theory and Applications" was held at the Indian Institute of Technology dhArWAD (IITDH) from 17th to 21st February 2025.

The workshop featured expert talks by:

- Dr. Julien Chauchat, Université Grenoble Alpes, France
- Prof. Hermes Gadelha, University of Bristol, UK
- Prof. Rajendra K. Ray, IIT Mandi
- PProf. Dhiraj V. Patil, Prof. Hiranya Deka and Prof. Sontti Somasekhara G., IIT dhArWAD

The event brought together 30 participants from various institutions, fostering knowledge exchange and collaboration in the domain of computational modelling of complex fluid flows.

The Department of Chemistry, IIT dhArWAD had recently organized a one-day chemistry research symposium, "Rasaayan Sangooshti," on 22nd March 2025. The event featured insightful and enlightening research talks by eminent speakers from IISc Bengaluru, IIT Bombay, TIFR Hyderabad, and IIT DHARWAD along with experts from Rani Channamma University, Belagavi, KLE Technological University, Hubballi and Karnatak University dhArWAD. More than 150 students and faculty members from various colleges and universities from Karnataka and Maharashtra have participated in the symposium. An engrossing poster session was also arranged which showcased the research works of the participants.



**Congratulations!**  
Four GIAN (Global Initiative for Academic Network) courses have been sanctioned to IIT Dharwad under the Phase IV of the program of the Ministry of Education, Government of India

| International Expert | Course Title                                                                    | Coordinator           |
|----------------------|---------------------------------------------------------------------------------|-----------------------|
| Prof. Yoon-Guk Son   | Editor, Trust, and Usability in Speech Technology                               | Prof. Jyoti Chavhan   |
| Prof. Jyoti Chavhan  | Modeling, Control and Operation of Grid-Connected Green Hydrogen Energy Systems | Prof. S. S. Mahapatra |
| Prof. Jyoti Chavhan  | Editor, Trust, and Usability in Speech Technology                               | Prof. S. S. Mahapatra |
| Prof. Jyoti Chavhan  | Modeling, Control and Operation of Grid-Connected Green Hydrogen Energy Systems | Prof. S. S. Mahapatra |
| Prof. Jyoti Chavhan  | Editor, Trust, and Usability in Speech Technology                               | Prof. S. S. Mahapatra |
| Prof. Jyoti Chavhan  | Modeling, Control and Operation of Grid-Connected Green Hydrogen Energy Systems | Prof. S. S. Mahapatra |

Four GIAN (Global Initiative for Academic Network) courses have been sanctioned to IIT dhArWAD under Phase IV of the Ministry of Education, Government of India. These courses, coordinated by our faculty in collaboration with international experts, aim to bring global perspectives and state-of-the-art knowledge to our classrooms.



IIT dhArWAD conducted its 10th Institute Faculty Meeting (IFM-10) on January 9, 2025, at 2:00 PM. The meeting brought together faculty members to discuss key updates and foster collaboration for the upcoming semester. Updates from major administrative sections such as Research and Development (RND), Faculty Welfare, and Student Welfare were shared, highlighting achievements, ongoing initiatives, and plans for the future. The event concluded with a commitment to achieving the institute's goals and a shared vision for a successful semester.



On 7th January 2025, IIT dhArwAD conducted its first Mental Health Sensitization Workshop, organized by the Student Welfare Section. The workshop focused on raising awareness, early detection, and effective intervention for mental health concerns among students and staff. Held at the Central Lecture Theatre, the event began with a welcome by PROf. Ridhima Tewari, followed by opening remarks from PROF. Venkappayya R dEsAi, Director, IIT dhArwAD. Sessions led by PROF. Pradeep G. Yammiyavar and Prof. Rajshekar K addressed key mental health challenges and institutional support protocols.



On 18th March 2025, IIT dhArwAD hosted the inaugural session of the Distinguished Lecture Series, an initiative by the Ministry of External Affairs (MEA), Government of India. Ambassador Anil Wadhwa, Distinguished Fellow and Former Secretary (East), MEA, delivered a compelling lecture on "Navigating the Indo-Pacific: India's Strategy." The event was graced by Ambassador Deepa Gopalan Wadhwa, PROF. Venkappayya R dEsAi, Director, and PROF. S.M. Shivaprasad (Dean, Outreach) and PROF. KV Jayakumar (Visiting Professor and Advisor, Outreach). Ambassador Wadhwa spoke on the region's geopolitical importance, India's Look East and Act East policies, and the role of multilateral platforms like the Quad.

IIT dhArwAD successfully organized a two-day NSS Village Camp from 22nd to 23rd March 2025 with the participation of 65 student volunteers. The camp included activities such as a cleanliness drive, awareness rally, tree plantation, interaction with school children, and household surveys. The initiative aimed to foster community service, environmental awareness, and rural engagement. The camp received positive feedback from the villagers and provided valuable learning experiences for the students.



As part of Design of Steel Structures course, handling by Prof. Ramesh Nayaka, 3rd-year B. Tech Civil and Infrastructure Engineering students visited the construction site of PEB steel structure on Wednesday, 29th January 2024. The site visit to the ongoing project at KIADB, Belur Industrial Area provided the students with valuable practical exposure to real-world construction practices. Under the guidance of Prof. Ramesh Nayaka and NIDEC team, this visit helped students gain a deeper understanding of various steel sections, structural connections, and execution techniques used in PEB steel structure.



First-year students of Civil and Infrastructure Engineering at IIT dhArwAD undertook a technical visit to the brick manufacturing unit near Belur, dhArwAD on 11th March 2025. The objective of the visit was to understand the manufacturing process, assess the production techniques, and analyze the quality control measures implemented in the unit. The visit was organized by PROf. Amarnath Hegde, Associate Professor of Civil and Infrastructure Engineering, as part of the course 'Introduction to Civil Engineering'. The visit provided valuable insights to the students about the practical aspects involved in brick manufacturing process.



IIT dhArWAD hosted the ANRF-INAEE Conclave 2025 on “Atmanirbhar Technologies: Engineering a Secure Future” on 21st March 2025. The one-day event brought together experts from academia, industry, and entrepreneurship to discuss strategies for strengthening India’s technological self-reliance. The conclave featured keynote sessions, a dynamic panel discussion, and poster presentations by researchers showcasing innovative ideas in engineering and indigenous technologies. Notable speakers included Dr. Anushree Ramanath, Shri Ram Subramanian, Dr. Ravi Guttal, Dr. Karthik Sankaran, and Shri Mahalingam Koushik. The event fostered dialogue and collaboration, reinforcing IIT dhArWAD’s role in advancing Atmanirbhar Bharat through innovation and partnership.



A 35-member contingent from IIT dhArWAD participated in the 29th Inter-IIT Faculty and Staff Sports Meet, held at IIT KANpur, alongside teams from 22 IITs. Led by Prof. Ravi Chandra Dutta, the team competed in athletics, badminton, basketball, cricket, table tennis, volleyball, and squash, showcasing exceptional sportsmanship and team spirit. Highlights: Basketball: Topped pool, defeated IIT Hyderabad, Madras & Bombay; reached pre-quarters, Volleyball: Reached quarterfinals with a 2-0 win over IIT Patna, Athletics: Javelin (Women): Anita Verma (5th, 17.60m), Pratibha Tigadi (6th, 16.80m), Discus (Women): Strong performance by Anita Verma, 5000m (Men): Prof. Nikhil Hegde (16th), Mr. Khandu Dinde (18th), 800m & 1500m (Men): Shri Katke Rajesh Shivaji secured 5th and 6th places.



The NCC Unit at IIT dhArWAD conducted a Skill Development Program on 22nd March 2025, led by Col. V. C. Prakesh and Flt. Lt. Deeksha. The session focused on instilling discipline, leadership and essential life skills in cadets—empowering them to contribute meaningfully both in civil and defence domains.



IIT dhArWAD was honored to participate in the PAN IIT World of Technology 2025 (PIWOT 2025), held from January 17-19, 2025, at the Jio World Convention Centre, Mumbai.

The Department of Physics, hosted a series of expert talks on 20-21 January 2025, delivered by members of its Academic Advisory Committee—Prof. K. G. Suresh (IIT Bombay), Prof. Aninda Sinha (IISc Bengaluru) and Prof. T. S. Mahesh (IISER Pune). Covering topics in Condensed Matter Physics, Quantum Information and High Energy Physics, the sessions drew participation from faculty and students across departments, including attendees from IIT dhArWAD. The visit also featured interactions with students and faculty, along with guided tours of the department’s instructional and research labs.





IIT dhArwAD and IREU Tech Education, Bengaluru, have signed a Memorandum of Understanding (MoU) on 26.03.2025 to establish a collaborative partnership between IIT dhArwAD's incubation center, dhaRti, and IREU Tech Education Private Limited, Bengaluru. This collaboration aims to support the incubation of high-potential start-ups founded by students enrolled in IREU's Start-up Co-Founders Program, Budding Entrepreneurs Program, or similar start-up initiatives.



IIT dhArwAD and NIT Warangal have signed a Memorandum of Understanding (MoU) on 24th February 2025 to foster collaboration in cutting-edge research, faculty and student exchange programs, and industry-driven R&D initiatives. The MoU was signed by PROF. Venkappayya R. dEsAi, Director, IIT dhArwAD, and Prof. Bidyadhar Subudhi, Director, NIT Warangal, formalizing a commitment to advancing scientific research, technological innovation, and academic excellence.

IIT dhArwAD participated in InvenTiv-2025, the premier R&D fair held at IIT Madras from 28th February to 1st March 2025. Represented by Prof. Pratyasa Bhui, Prof. Ramesh Nayaka, Prof. Rakesh Lingam, and research scholars from EEE, CIE, and MMAE, the institute showcased innovations across three exhibition stalls under the themes: • Aviation, Defence & Space • Smart Cities & Infrastructure • Circularity & Sustainability. The exhibits received enthusiastic engagement, underlining IIT dhArwAD's contributions to impactful and sustainable research. Additionally, faculty participated in a roundtable discussion with the Minister of State for Education, IIT Directors, global industry leaders and consulate representatives, strengthening IIT dhArwAD's ties with global academia and industry.



On 24th March 2025, IIT dhArwAD and Karnataka Renewable Energy Development Ltd (KREDL) signed an MoU in Bengaluru, establishing a Renewable Energy Research Chair to advance research, teaching and outreach in sustainable energy. Prof. Abhijit Kshirsagar has been appointed the first RER Assistant Chair Professor, and will lead collaborative initiatives with the Global Center of Excellence in Affordable and Clean Energy. This partnership, supported by Shri K.P. Rudrappaiah (M.D., KREDL) and led at IIT dhArwAD by PROF. Venkappayya R dEsAi, Prof. S.S. Murthy, Prof. Dhiraj V. Patil, and Prof. Pratyasa Bhui, marks a key step in fostering innovation in renewable energy.



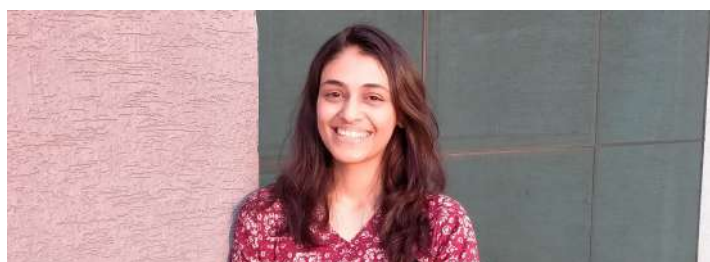
World Water Day was commemorated at IIT dhArwAD on 25th March 2025, with a focus on the global theme, "Glacier Preservation." The event featured Dr. B. Venkatesh, Scientist G and Head, Hard Rock Regional Centre, National Institute of Hydrology, as the Chief Guest. PROF. Venkappayya R dEsAi, Director, emphasized traditional water reverence and IIT dhArwAD's vision of achieving net-zero water and energy. Dr. Venkatesh discussed the urgent need for glacier conservation amidst climate change and presented insights from climate models, Shared Socioeconomic Pathways (SSPs) and regional case studies.



Shri Tonmay Das (HS24DP005), Dept. of HEART, presented his paper "Performing Rituals, Performing Resilience: The Politics of Spirituality and Occupational Vulnerabilities in Sundarbans" at the ICSSR-sponsored Doctoral Scholars' Conference at CSSSC, Calcutta during 9–10 Jan 2025. He also co-presented a paper with Prof. Tewari titled "The Neo-mythologization of Sundarbans: Problematizing Ecotourism and the Contemporary Representations of Sundarbans in Popular Media" at the International Conference on Ecological Security at Mount Carmel College, Bengaluru during 16–18 Jan 2025.



Shri Vivek Jaiswal (EE23MS007), Dept. of EECE, secured 1st place in the METIY Quiz at the 3rd Annual Vivriti '25 event at IIT dhArwAD. He also developed a high-accuracy TCAD simulation model for 4H-SiC alpha-particle detectors, incorporating a novel Heavy-Ion (HI) model to validate charge collection efficiency (CCE). His work, supervised by Prof. Vigneshwar Raja, has been published in IEEE Transactions on Nuclear Sciences (TNS) and offers predictive insights into detector performance under varying conditions, benefiting the SiC nuclear detector research community.



Kumari Vaidehi Painter (EE22DP005), Dept. of EECE, has secured the prestigious Raman-Charpak Fellowship 2024, a program issued by CEFIPRA. As part of this fellowship, she will have the opportunity to visit the XLIM Laboratory in France this year. This would be useful for her doctoral research work, and for acquiring hands-on experience in advanced device characterization and cutting-edge electrothermal simulation framework.



Shri Tanaji K. Chavan (ME23DP007), a PhD scholar under the guidance of Prof. Sushanta K. Sethi in the Dept. of MMAE, recently presented his research on "Eco-friendly polylactic acid/beeswax based superhydrophobic self-clean coating" at the 2nd International Conference on Corrosion & Coatings held in Jamshedpur. He has received the Best Oral Presentation Award during this event.



Shri Dushyant Kumar (ME23MT001) MTech student under the supervision of Prof. Vyom Sharma in the Dept. of MMAE presented his research work in COPEN 13 which is an International conference in Precision, Meso, Micro and Nano Engineering held at NIT CALICUT. He contributed 2 research articles in this conference.



Kumari Simita Das (CY20DP001) a Ph.D. student under the supervision of Prof. Nilkamal Mahanta, Dept. of Chemistry, presented a poster in the 34th CRSI National Symposium in Chemistry hosted by IISER Bhopal from 6th to 8th Feb, 2025. She received one of the best posters award and cash prize.



Kumari Vatista Kachroo (CS22BT060), Dept. of CSE, has been selected for the Desis Ascend Educare Mentorship Program by The D. E. Shaw Group. This six-month program, held at D.E. Shaw, Hyderabad, from 17th October 2024 to 24th March 2025, aims to empower women in technology and finance through career mentorship, workshops, and networking.



Shri Vedansh Chaudhary (IS22BM040), Dept. of Mathematics, participated in the prestigious Research and Innovation Symposium in Computer Science (RISC 2025), organized by the Department of Computer Science and Engineering at IIT Bombay. Selected from a competitive pool of student applicants across India.



Kumari Debajani Rout (PH22DP003), a Ph.D. research scholar under the supervision of Prof. Santosh Kumar, participated in the 3rd International Conference on Materials Science and Technology (ICMST 2025), held from 12th to 14th March 2025 at St. Thomas College, Pala, Kottayam, Kerala, with an oral presentation on "Single Crystal Growth of Rare-Earth Carbide  $\text{YCoC}_2$ ." She was honored with the Best Oral Presentation Award, recognizing the excellence of her research among the participants.



Kumari Sanjana Suukyi M P (HS24DP001), PhD Scholar and Prof. Ridhima Tewari, Dept. of HEART presented paper titled 'From Tradition to Digital: Transmitting Jogatti Folk Narratives through Digital Storytelling in the 21st Century' at 'Reimagining Communication in the 21st Century: Sociological, Political & Economical Perspectives' International Conference organized by St. Philomena's College Mysuru.



Kumari Sonia Rani (PH22DP006), Mr. Arun Kumar (PH22DP005), and Prof. Dhriti Sundar Ghosh from the Thin-Film and Photovoltaic Group, IIT dhArwad, in collaboration with Mr. Abhishek K. Chauhan from IISc, have published a research article titled "Hybrid Top Transparent Electrode for Infrared-Transparent Bifacial Perovskite Solar Cells." The study, contributing to next-generation solar technology, has been published and received notable coverage in SPIE News and other leading tech-science platforms including Tech Xplore, Electronics For You, Eurasia Review, Interesting Engineering, and Tech & Science Post.



Shri Devendra Singh (EE23MT004), Dept. of EECE, was selected for the prestigious INUP-I2I program funded by the Ministry of Electronics and Information Technology (MeitY), Government of India. As part of the program, he attended a specialized workshop on the Fabrication and Characterization of Semiconductor Materials at IISc Bengaluru, gaining hands-on experience in semiconductor technologies. He also successfully fabricated a Cantilever MEMS device, demonstrating his innovation and commitment to advancing MEMS research.



Kumari Vinitha John (HS24DP004), along with PProf. Ridhima Tewari, presented their co-authored research paper titled "Demystifying the 'Thriving' Traditional Fishing Culture: A Study of Fishing Songs From Vypeen Fishing Community" at the 10th Annual Conference of Oral History Association of India (OHAI). The conference, themed Coastal Histories: Stories of Resistance and Resilience, was organized in collaboration with the KERALA Museum and held from January 24 to 26, 2025, at the Kerala Museum in Kochi, KERALA.



Shri Manohar Jammula (CH23DP001) and Prof. Somasekhara Goud Sontti have published their latest research in ACS Industrial & Engineering Chemistry Research (Q1 journal, Impact Factor: 3.8). The study, titled "Numerical Analysis of Controlled Droplet Formation Surrounded by a Shear-Thinning Fluid in a Coflow Microfluidic Device," marks Mr. Jammula's first publication. Their work has also been selected as the front cover feature of the journal's Vol. 64, Issue 5. <https://pubs.acs.org/toc/iecred/64/5>

Shri Jiro Karlo (BB21DP001), Ph.D. student, presented one oral paper and two posters at the SPIE PHOTONICS WEST 2025 conference organized by the International Society for Optics and Photonics at the Moscone Centre, San Francisco, USA. He was awarded three prestigious travel grants from the Anusandhan National Research Foundation (SERB), Department of Biotechnology (DBT), and the Council of Scientific and Industrial Research (CSIR), Government of India. His oral presentation was titled "Vibrational tag coupled Raman imaging for visualizing biosynthesis pathways in action", while the posters presented were "Advancing Raman spectroscopy-based metabolomics: lysis-free approach for monitoring nucleobase metabolism" and "Extraction-free monitoring of single-cell microbial oil synthesis and turnover using Raman spectroscopy and imaging".



**Total Donations received till December 2024 are ₹ 46,39,024**

**List of Donors to IIT dhArwAD  
[During 1st January 2025 - 31<sup>st</sup> March 2025]**

| Sl.No | Date       | Donor's Name                  | Amount (₹) |
|-------|------------|-------------------------------|------------|
| 1     | 07.02.2025 | Prof.Srinivasan Krishnaswamy  | 18000      |
| 2     | 20.02.2025 | PProf. Amarnath Hegde         | 10000      |
| 3     | 20.02.2025 | Prof. Giridhar Rajesh Bande   | 10000      |
| 4     | 24.02.2025 | PProf. Dhriti Sundar Ghosh    | 15000      |
| 5     | 24.02.2025 | Prof. Kavita Devi             | 15000      |
| 6     | 25.02.2025 | Mr. Jitendra Karna            | 2700       |
| 7     | 26.03.2025 | PROF. S. R. Mahadeva Prasanna | 5000       |



# WELCOME TO IIT dhArwAD



From Left to Right: PROF. S M Shivaprasad, Dean [Outreach], PProf. Koteswararao Kondepu, Associate Professor, Dr. Kalyan Kumar Bhattacharjee, Registrar, Prof. Satish Naik, Associate Professor, PROF. Dileep A D, Professor, PProf. C Ravikumar, Associate Professor, PProf. [Ms] Ruma Ghosh, Associate Professor and PROF. Venkappayya R dEsAi, Director.



From Left to Right: PROF. Venkappayya R dEsAi, Director, PProf. R Prabhu, Associate Professor, PProf. Dhriti Sundar Ghosh, Associate Professor, PProf. Somashekara M A, Associate Professor, PProf. Tejas Prakash Gotkhindi, Associate Professor, PProf. Amar Keshav Gaonkar, Associate Professor and PROF. S M Shivaprasad, Dean [Outreach].

# ಸಂಬಂಧ | ಸಂಬಂಧ | SAMBANDH

## HarSHtAl: A Vibrant Celebration of Creativity and Art



IIT dhArwAD's campus was electrified from March 21st to March 23rd, 2025, as HarSHtAl, the institute's highly anticipated annual cultural festival, took center stage! More than just an event, HarSHtAl was a vibrant explosion of creativity and talent, drawing participation from over 8 colleges and leaving an indelible mark on everyone involved.

HarSHtAl's success was made possible through the combined efforts of enthusiastic student participation and the unwavering support of the institute. We extend our heartfelt gratitude to our sponsors, whose generosity played a vital role in bringing this vision to life:

This year, the atmosphere was charged with excitement, with students from across the region converging to showcase their artistic prowess. The festival provided a dynamic platform for expression, fostering camaraderie and celebrating the diverse tapestry of art forms.

### A Festival Beyond Competition

HarSHtAl is more than just a series of competitions; it's an immersive experience where participants and spectators alike can indulge in the joy of art. The festival lights up the campus with captivating performances, soulful music, and engaging plays, creating an atmosphere that is both cheerful and exciting. While winners are recognised for their outstanding efforts, every participant takes home cherished memories and the satisfaction of being part of a grand celebration.



**Silver Sponsor: Color Vibrations**

**Bronze Sponsor: Orchid Networks**



The festival featured diverse events across categories: Musical Arts with Pitch Perfect, JugalBandi, and Amped Up; Theatre Arts with Akele Karloge, Rangbhoomi, and Andaaz Apna Apna; and Dance with Group, Pair, and Solo performances. Photography included Drip 'N Click, PhotoStory, and SciLens, while Filmmaking saw B-yond the Roll and CineWorkshop. Literary Arts hosted Creative Writing, Slam Poetry, and Debate. Fine Arts featured Chromatic Whispers and Noir, and the MCU Quiz thrilled Marvel fans.

### A Celebration of Togetherness and Creativity

HarSHtAl continues to inspire young talent to pursue their artistic dreams, fostering a sense of community and creativity. It's a festival that celebrates the joy of sharing passion and the happiness that comes from it. Whether you're a participant or a spectator, HarSHtAl promises an unforgettable experience that will leave you spellbound and eager for more.

Credits : Public Relations Team, IIT dhArwAD  
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