IIT Hyderabad

భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Annual Report

FY 2024-25

www.iith.ac.in

Inventing and Innovating in Technology for Humanity (IITH)

16th Foundation Day

The 16th Foundation Day at IIT Hyderabad was celebrated with the message of "Nurturing Innovation for Developed Nation" by the Chief guest Prof Abhay Karandikar, Secretary, Department of Science and Technology, Government of India.

The occasion became more momentous with the announcement of the Faculty Teaching Excellence, Faculty Research Excellence, Staff Excellence & Student Academic & Research Excellence Awards, along with felicitation of Endowment Awards winners. More than 182 achievers have been honoured by the dignitaries for their untiring & persistent contributions to the institution's growth.

Contents

OVERVIEW

DEPARTMENTS

VIRTUAL DEPARTMENTS

CAMPUS CHRONICLES

Board of Governors

Chairman
Dr B V R Mohan Reddy
Founder Chairman and
Board Member of
Cyient Limited

Member (Central Govt nominee)
Smt Saumya Gupta, (IAS)
Joint Secretary to GoI
Dept. of Higher Education
Ministry of Education

Ex-Officio Member
Prof B S Murty
Director
IIT Hyderabad

Member (State Govt nominee)
Dr Yogita Rana (IAS)
Member (Representative of
Telangana State Govt.)
Secretary to the Government

Member
Prof Vinod Krishan
Senior Professor & Dean
Indian Institute of Astrophysics

Member, Senate Nominee
Prof J Balasubramaniam
Professor
Department of Mathematics
IIT Hyderabad

Member
Dr Prema Ramachandran
Director
Nutrition Foundation of India

Member, Senate Nominee
Prof Shashidhar T
Professor
Department of Civil Engineering
IIT Hyderabad

Member
Prof M Lakshmi Kantam
Professor
Institute of Chemical Technology
Mumbai

Secretary
Shri V Venkat Rao
Registrar
IIT Hyderabad

Our Deans

Prof Bharat Bhooshan Panigrahi
Dean (Academic)

Prof Prem Pal
Dean (Administration)

Prof Mahendrakumar Madhavan
Dean (Alumni & Corporate Relations)

Prof Sushmee Badhulika
Dean (Faculty)

Prof Tarun Kanti Panda
Dean (International Relations)

Prof C Malla Reddy
Dean (Innovation, Translation & Startups)

Prof Suriya S Prakash
Dean (Planning)

G Narahari Sastry
Dean (Sponsored Research & Consultancy)

Prof Prasanth Kumar R
Dean (Students)

Prof Munwar B Basha
Associate Dean (Planning)

Our Distinguished Professors

Prof Abhay Deshpande
Distinguished Professor
Physics and Astronomy
Stony Brook University

Dr Bayya Yegnanarayana
INSA Senior Scientist
International Institute of Information Technology

Prof James Francis Antaki
Professor
Cornell Engineering

Prof Jun Murai
Professor & Dean of Graduate School of Media and Governance
Keio University, Japan

Dr M Vidyasagar FRS
SERB - National Science Chair
India

Dr Mallikarjun Tatipamula
Chief Technology Officer
Ericsson Silicon Valley

Prof Nemkumar Banthia
Professor
University of British Columbia

Prof Nobuhiro Tsuji
Graduate School of Engineering
Kyoto University

Dr Omkaram Nalamasu
CTO and Senior Vice President
Applied Materials

Dr Paresh Kumar Narayan
Professor
Monash Business School
Monash University, Australia

Prof Pramod K Nayar
Senior Professor, UNESCO Chair in Vulnerability Studies , Department of English, University of Hyderabad

Prof Seeram Ramakrishna
Mechanical Engineering
National University of Singapore

Prof Shekhar C Mande
Distinguished Professor
Bioinformatics Centre, Savitribai Phule Pune University, Pune.

Dr Saraswat V K
Member of NITI Ayog &
Scientific Adviser to Defense Minister

Director's Insights

Dear Friends,

As we present the Annual Report 2024–25, I take immense pride in reflecting on the remarkable strides made by the Indian Institute of Technology Hyderabad (IITH) this year. Our success is driven by the dedication of our faculty, staff, and students, whose collective excellence continues to define IITH. Together, we have nurtured a vibrant culture of innovation, research, and collaboration, achieving significant milestones across academics and outreach. Let us carry this spirit forward as we embark on yet another year of growth and impact.

Achievements@IITH:

IITH has made a remarkable leap in the Overall category of the NIRF 2024 Rankings, climbing to 12th position from last year's 14th while securing 15th rank in Research. The institute has also retained its impressive 8th position in Engineering and 3rd position in Innovation, reaffirming its commitment to excellence and creativity. These achievements reflect IITH's growing impact in education, research, and innovation nationwide. In QS World Ranking-2025(released in 2024), IITH is placed at 681-690.

In placements, IITH saw over 700 offers, including 53 international and 130 Pre-Placement offers. IITH has been granted Institute of National Eminence status (100% tax exemption under Section 80G of the Income-tax Act, 1961 on the donations being received) by the Income Tax Department, Ministry of Finance, Government of India, effective from March 27, 2025. This approval marks a significant milestone for the institute and its philanthropic ecosystem.

Academics@IITH:

IITH is committed to redefining education by providing students with the freedom and flexibility to excel through interdisciplinary learning, innovation, and research. In 2024, new programs were introduced, including an MTech in Lightweighting Engineering and a PhD in Engineering Science. Entrepreneurship is deeply integrated into academics, with new Double Major and Dual Degree options combining engineering and entrepreneurship. Additionally, IITH launched a hands-on MTech in Medical Device Innovation, involving hospital-based projects, and an MTech in Techno-Entrepreneurship through its Department of Entrepreneurship and Management, blending technical expertise with business skills. We are also restructuring the UG curriculum to make at least 30% of the credits experiential and lab-based, so that students graduate with strong practical exposure alongside theoretical knowledge.

Inspired by Hon'ble Prime Minister, Shri Narendra Modi Ji's advocacy of "Vasudhaiva Kutumbam," which means "the world is one family," we have embraced this ancient principle by offering several programs on virtual platforms & with academic and research exchange programs. Through its 27 hybrid classrooms, IITH has, for the first time in the country, tried to break the barriers in learning by launching Open to All Teaching (OAT) through its Centre for Continuing Education (CCE). About 11 courses have been offered in OAT mode in 2024-25, blending traditional in-person teaching with advanced technology, enabling both on-campus and remote students to learn together. These programs aim to upskill and reskill working professionals globally, fostering a seamless exchange of knowledge and ideas among students and faculty.

Innovations & Entrepreneurship @ IITH:

Our innovation ecosystem continues to grow robustly. The BUILD initiative supports student creativity with financial aid and flexible academic options, empowering entrepreneurship as a viable career path. This program, launched in collaboration with Greenko, is actively nurturing student innovators by offering both financial and institutional support. In the current year, the program has supported 39 bold and unique ideas with a total funding of ~₹19 Lakhs. As of 31st March 2025, a total of 323 startups have been initiated through various incubation centers at IITH. These include 45 startups from TiHAN, 196 from iTIC, 32 from CfHE, and 50 from FabCI, reflecting the depth and diversity of entrepreneurial activity on campus. - IITH maintains a strong research focus, with over 4,500 projects undertaken up to the calendar year 2024, including 555 projects sanctioned in 2024.

The institute has filed more than 460 patents till 2024, with over 210 patents filed in 2024 alone. Reinforcing its commitment to innovation, IITH has launched the ambitious “Patent a Day: Mission 365” initiative for 2025, aiming to achieve 365 patents by the end of the year.

Research@IITH:

The institute continues to expand its research capabilities with state-of-the-art facilities. The newly inaugurated SATHI Centre – CISCoM is India’s first real-time, multi-scale material characterization facility supporting both fundamental and industrial research. Advanced AR/VR labs, developed with InfoVision, facilitate immersive technology studies, while the Hall of Fame and Digital Heritage Lab underscore IITH’s commitment to preserving cultural heritage through innovation. The Marvell® Data Acceleration and Offload Research Facility, established with Marvell Technology Inc., pioneers advancements in network, storage, and security technologies. The recent extension of the Technology Research Park further fosters collaboration between academia and industry. Further, in collaboration with Sharp Semiconductor Innovation Corporation and WiSig Networks, IITH successfully conducted field demonstrations of Beyond 5G (B5G) and 6G technologies, strengthening Indo-Japanese technological cooperation.

International and National Collaborations:

IITH strengthened its global partnerships significantly during 2024–25. The longstanding JICA Friendship Program continues to deepen Indo-Japanese relations, highlighted by hosting the Japan-India Forum and Japan Academic Day. A delegation from Hamamatsu City formalized cooperation through an MoU promoting human resource exchange and economic ties. IITH forged 28 new international collaborations across seven countries, including Japan, the USA, Australia, and several European nations, fostering academic exchange, joint research, and industry collaboration. Noteworthy agreements include the MoU with Monash University (Australia), the Heidelberg-Hyderabad Hub in Advanced Chemical Education (H^3ACE) with Heidelberg University and TIFR Hyderabad, and the SIMMECT Joint Research Institute with Swinburne University (Australia), advancing interdisciplinary research in manufacturing, materials, energy, and communication technologies.

IITH has enhanced national partnerships with key organizations to drive innovation and research impact. Collaborations with Energy Efficiency Services Limited (EESL) promote energy efficiency, while the MoU with FabCI and NXP India supports semiconductor startups, strengthening India’s electronics ecosystem. The CLEANZ Centre of Excellence, established with Coal India Limited, focuses on clean coal and net-zero solutions through cutting-edge R&D and skill development. The Centre for Geospatial AI and Digital Twins (CGDT) partners with maritime industry leaders to introduce AI-driven innovations. Collaborations with Central Sanskrit University advance research on Sanskrit and Indian Knowledge Systems. TiHAN’s partnership with Mitsubishi Electric develops autonomous navigation technologies. The launch of India’s first Nikon Centre of Excellence at IITH marks a landmark in imaging research. Additional MoUs with AIIMS Bibinagar, Armed Forces Medical Services, CSIR-Dhanbad, BHEL, Unilever, DRDO, the Department of Telecommunications, and Bank of India further emphasize IITH’s commitment to national development through innovation and industry engagement.

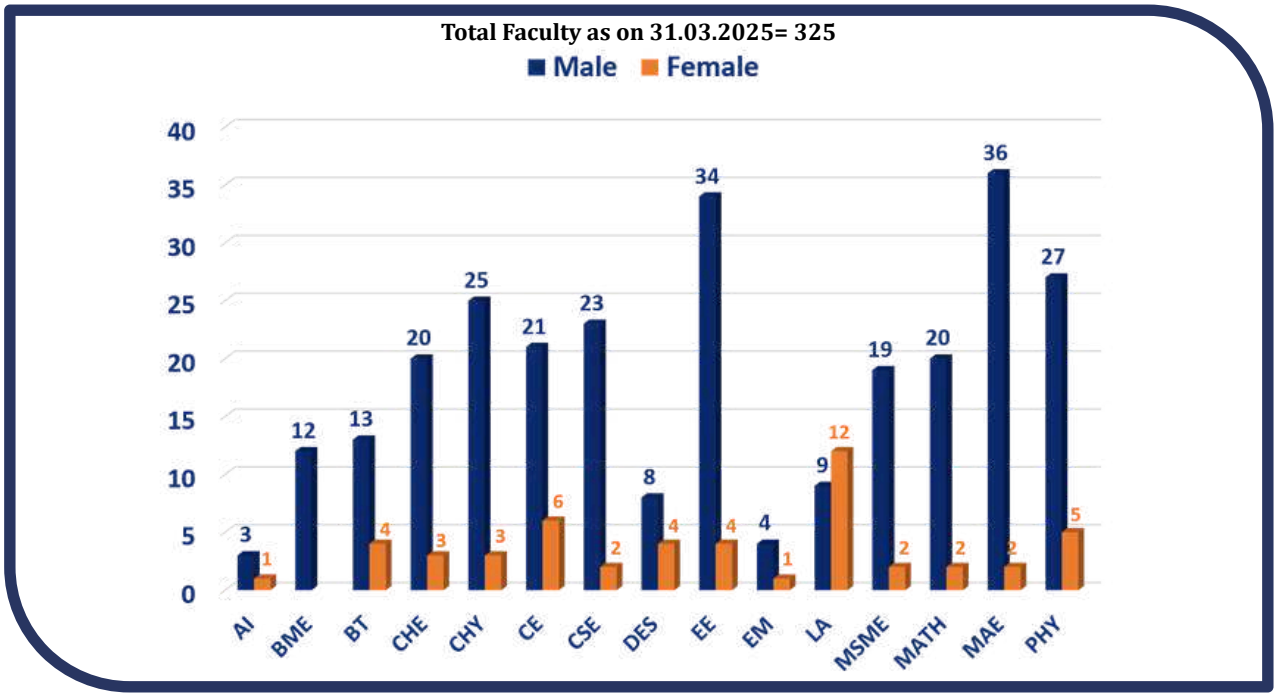
I express my heartfelt gratitude to the Faculty, Staff, students and every one of you for your sincere dedication and hard work. It is through our relentless pursuit of excellence and unwavering commitment to growth that we continue to make strides towards success. The passion and dedication of the IITH community are the driving forces behind these impressive achievements. Our environment fosters innovation, supports continuous improvement, and helps us attain top rankings. We are committed to creating an ecosystem that nurtures our students to become global leaders, contributing to a "Viksit Bharat."

Warm Regards
Prof B S Murty, Director

Faculty Statistics

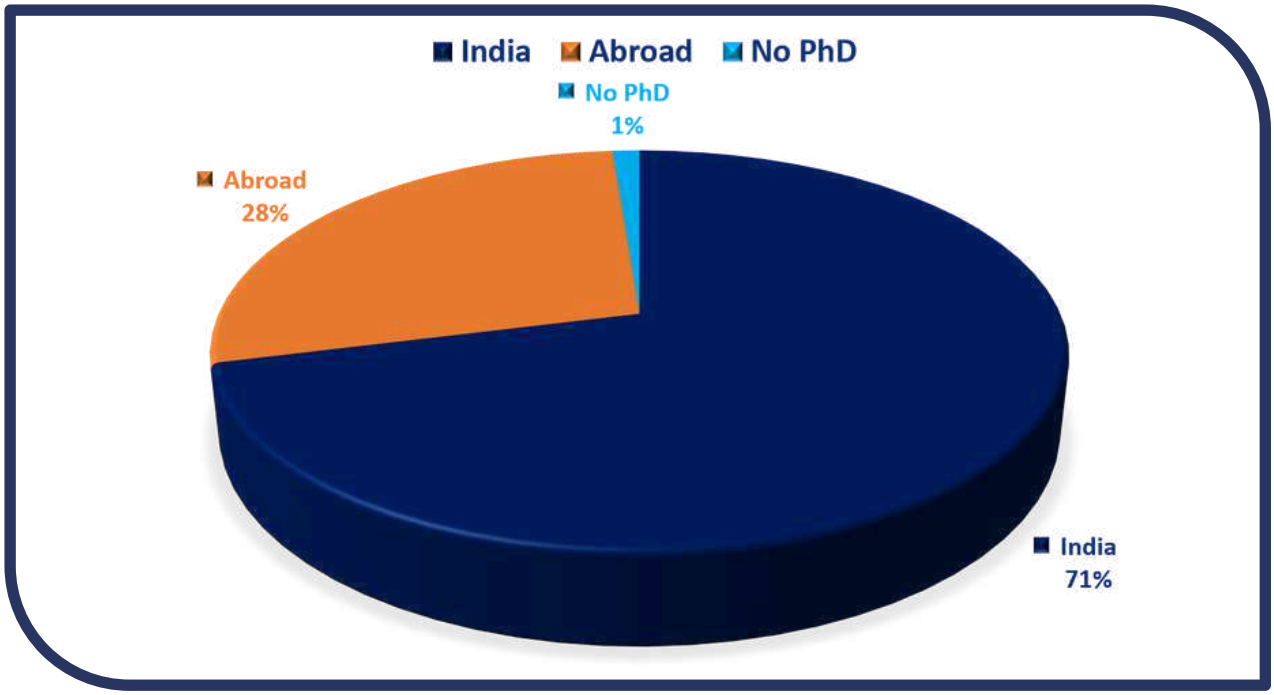
Department-wise

As on 31 March 2025, IITH is having 325 faculty members on-roll. ~18% of the total faculty are women.

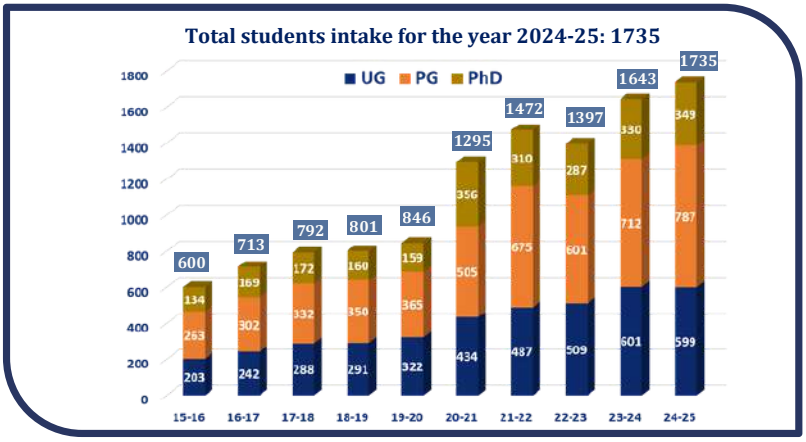


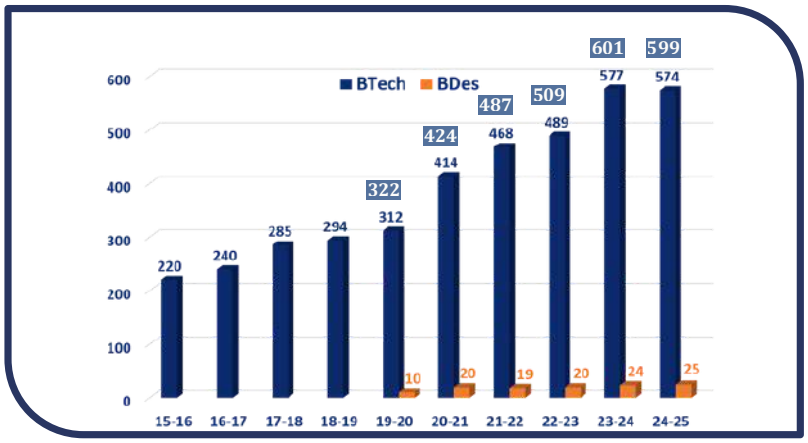
Place of PhD

Place of PhD denotes the geographical location (India/ Abroad) of the Institute from where the concerned faculty has obtained PhD.



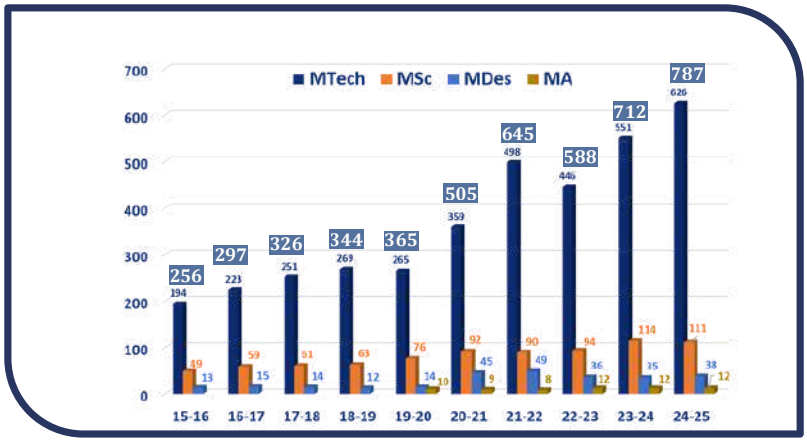
Student Statistics

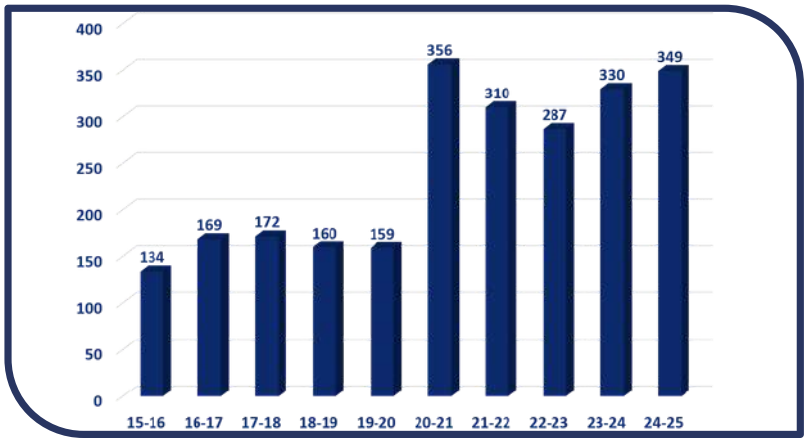




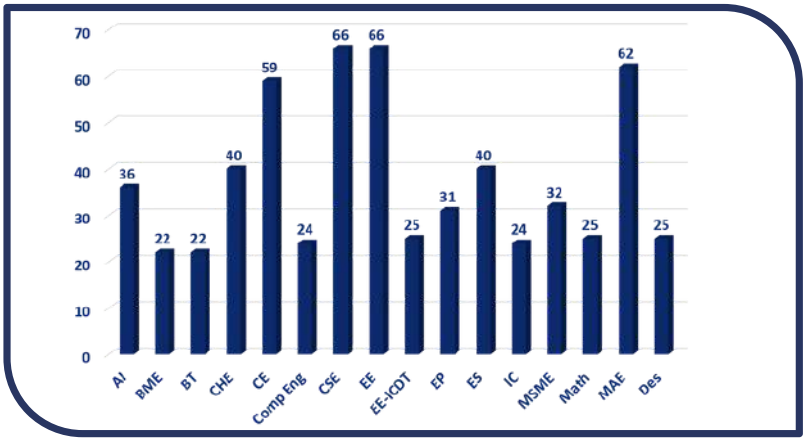
Yearly Intake of UG (BTech & BDes) Students

Yearly Intake of PG (MTech, MSc, MDes, & MA) Students



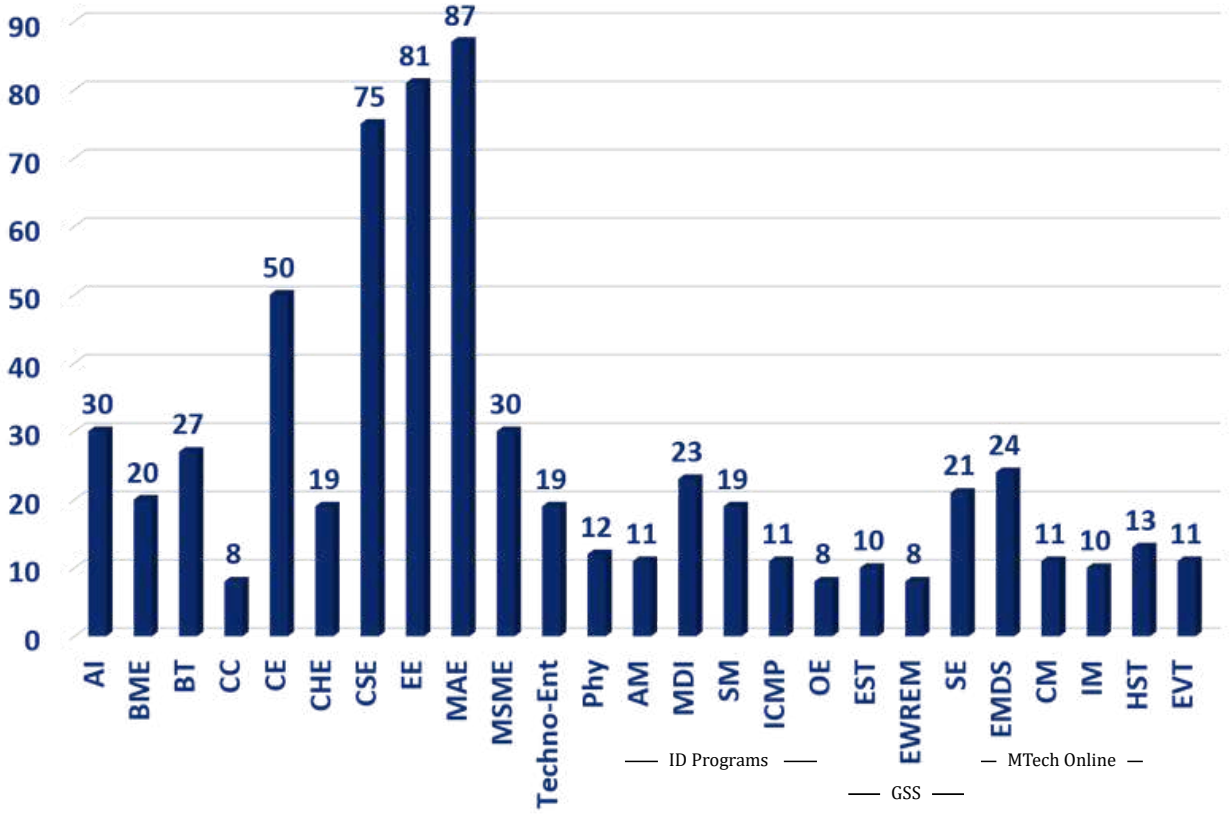


Yearly Intake of PhD Students

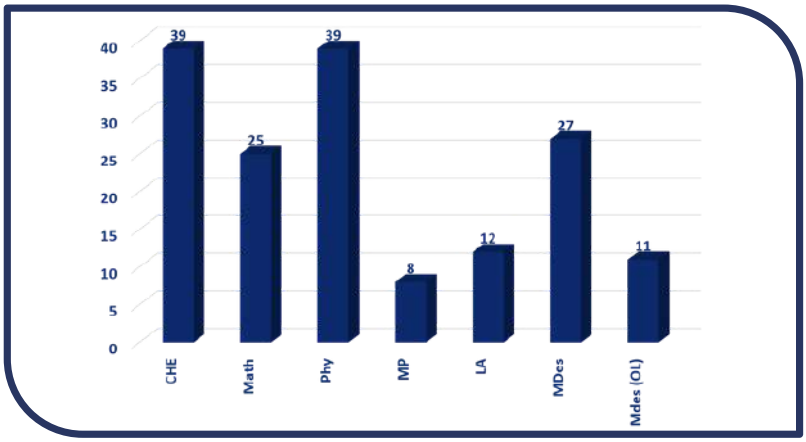


Department-wise intake of Undergraduate Students (BTech+BDes) for the Year 2024-2025 =599

Department-wise intake of MTech, MTech-Interdisciplinary, and MTech-Online students for the 2024-2025 = 626

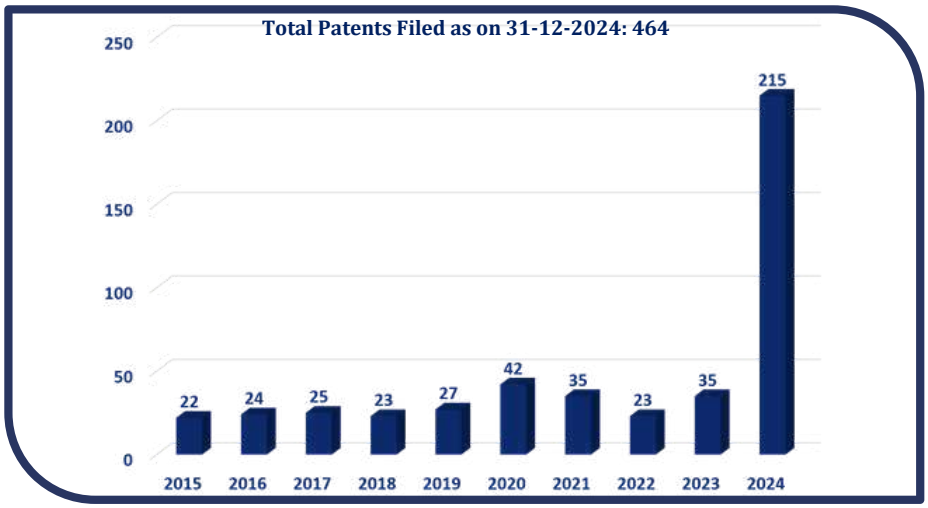


Department-wise intake of MSc, MA, and Mdes for the Year 2024-2025 = 161

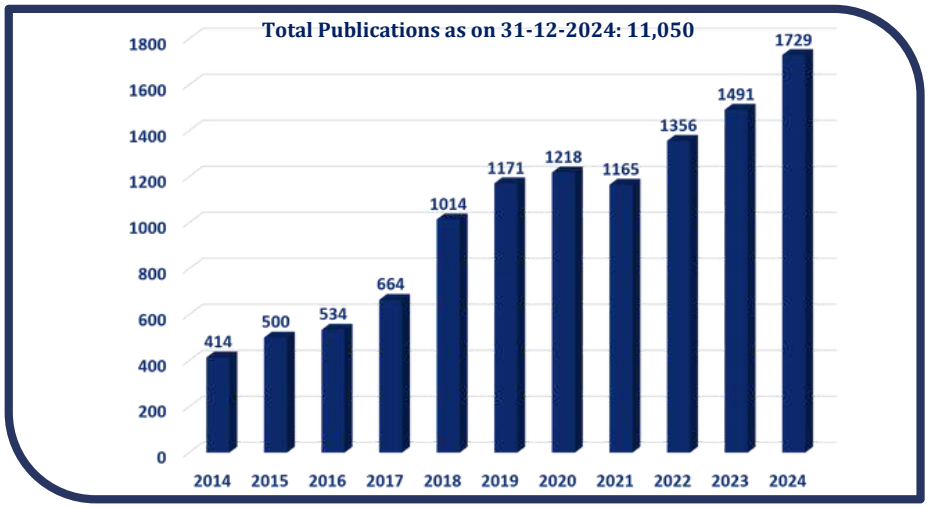


AI-Artificial Intelligence, BME-Biomedical Engineering, BT-Biotechnology and Bioinformatics, CHE-Chemical Engineering, CE-Civil Engineering, Comp Eng-Computational Engineering - ID program, CSE-Computer Science & Engineering, EE-Electrical Engineering, EE ICDT-Electrical Engineering (IC Design and Technology), EP-Engineering Physics, ES-Engineering Science, IC-Industrial Chy-Chemistry, MSME-Materials Science & Metallurgical Engineering, Math-Mathematics & Computing, MAE-Mechanical Engineering, Des-Design, Techno Ent-Techno Entrepreneurship, Phy-Physics, AM-Additive Manufacturing, MDI-Medical Device Innovation, SM-Smart Mobility, ICMP-Integrated Circuits & Microsystems Packaging, OE-Ophthalmic Engineering, GSS EST-Greenko School of Sustainability Energy Science and Technology, E-Waste Resource Engineering & Management, Sustainable Engineering, EMDS-Executive MTech in Data Science, CM-Computational Mechanics, IM-Industrial Metallurgy, HST-Heritage Science and Technology, EV Technology

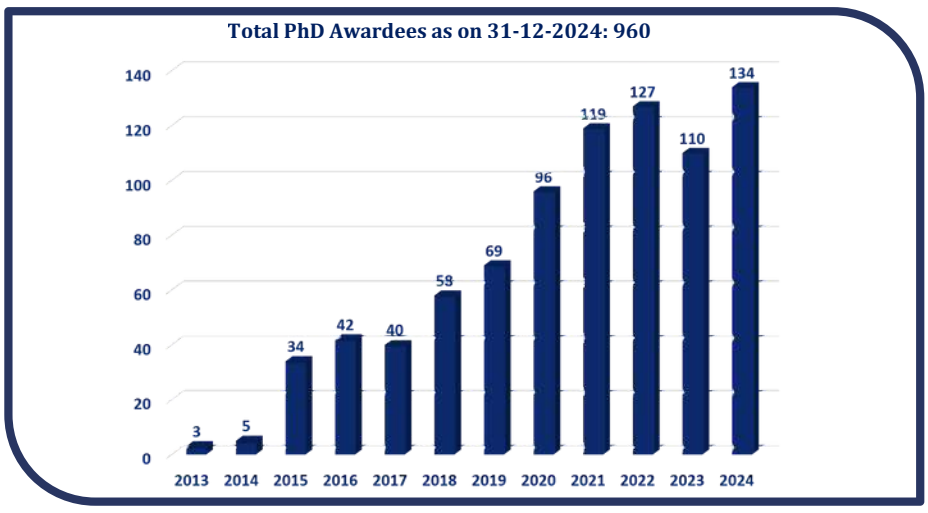
Patents, Publications, & PhD Awardees



Year-wise Distribution of Patents filed

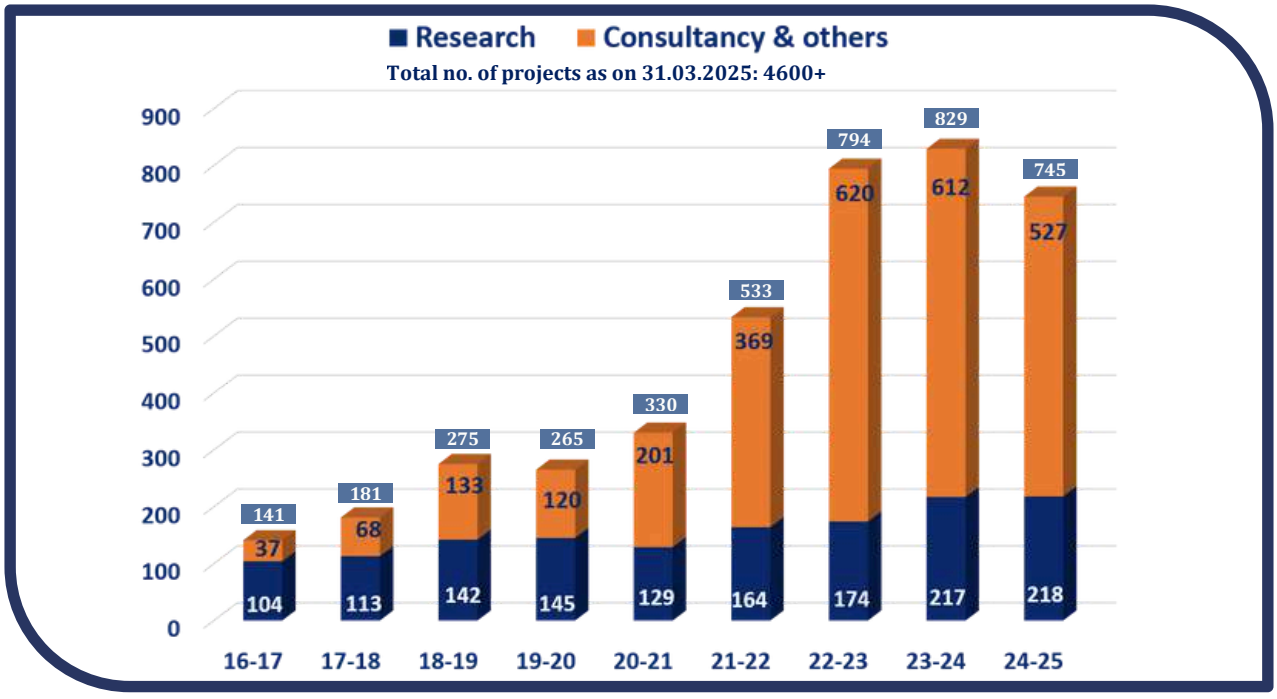


Year-wise Distribution of Publications

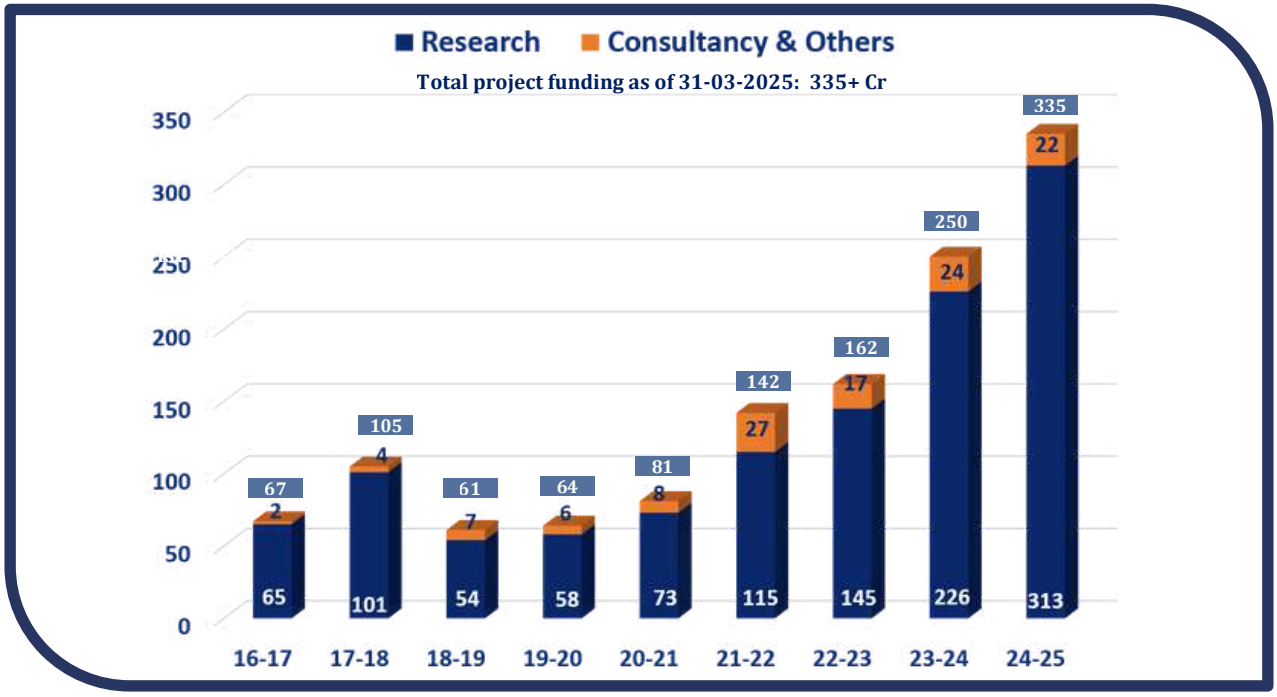


Year-wise Distribution of PhD Awarded

Research & Development



Year-wise distribution of Number of Projects



Year-wise distribution of Project Funds (Value in Cr {INR})

Placements & Internships

Webpage: https://ocs.iith.ac.in/

Placements

The campus placement drive at IIT Hyderabad aimed to attract distinguished companies, facilitate employment for graduating students, foster Industry relationships, and gather feedback for process enhancement. Companies had the opportunity to hire from a diverse pool of students from various domains, including engineering, sciences, design, and management.

In Placement Drive 2025 at IIT Hyderabad, which commenced on December 1, 2024, was conducted in both offline and online modes. Despite the challenges such as Market competition, rigid scrutiny in certain industries, the drive yielded noteworthy outcomes in placement offers.

This year's Placements highlight positive trends both in terms of diversity of recruiters as well as quality of profiles offered.

Key Highlights for the year 2024-2025

- Number of Companies Registered: **358**
- Total number of students: **1146**
- Number of Students Registered for Placement: **943**
- Total offers Issued: **700**
- Number of Companies hired: **210**
- Highest Package: **₹ 66.13 Lakhs**
- Average Package: **₹ 20.26 Lakhs**
- Number of International offers: **53**

Top Paying Recruiters:

Higher Education

A good number of students from UG and PG opted for higher education in India and abroad. Mentioned below are the few universities opted by the students for higher education:

- California Institute of Technology
- Carnegie Mellon University
- Columbia University
- Georgetown University
- Georgia Institute of Technology
- Harvard Business School
- New York University
- Purdue University
- University of Illinois
- University of Pennsylvania
- University of Texas
- ISI
- IISc Bangalore
- IIT Delhi
- IIT Madras
- IIM Ahmedabad
- IIT Bombay
- Karlsruhe Institute of Technology
- University of Minnesota Twin Cities
- University of Munster
- University of Southern California

Internships

IIT Hyderabad is continuously working towards industry engagement. Semester-long internships for BTech & BDes, interdisciplinary MTech, industry lectures, and industry-defined MTech projects are some of the key initiatives that have been taken in this direction in recent years.

IIT Hyderabad witnessed a significant increase in the no. of National and International internship offers for the AY 2024-25. A total of 403 offers received from 113 companies, out of which 15 offers are from international Companies.
The participating companies are from diversified sectors such as IT, Financial Services, E-Commerce, Manufacturing, Healthcare Services, Automobiles, R&D, etc.

Highlights for the year 2024-25:

- Number of companies registered: **206**
- Companies hired: **115**
- Total Internship Offers: **405**
- Summer Internship offers: **209**
- Semester-long Internship offers: **132**
- Highest monthly stipend: **₹ 19 Lakhs**
- Average monthly stipend: **₹ 80,000/-**

Top Hirers for the year 2024-25:

Incubation Centres

CfHE - Centre for Healthcare Entrepreneurship

Webpage: https://cfhe.iith.ac.in/

Foundation for CfHE is a Section 8 company established at IIT Hyderabad with Section 12 A, 80G, and CSR Registrations. CfHE is also a recognised Technology Business Incubator (TBI) approved by DST and a BIONEST through BIRAC, DBT, Government of India. CfHE strives to bring affordable solutions that meet the healthcare needs of the country. CfHE achieves this through incubating companies engaged in innovative medical devices, medical services, and other healthcare needs. These companies are incubated after a world-class one-year healthcare entrepreneurship education program, in which fellows undergo a structured bio-design thinking process, identify unmet clinical needs through clinical immersion at leading hospital partners in Hyderabad, innovate solutions, and prototype them along with strong mentoring in setting up business, as well as regulatory practices.

Achievements:

- M/s Aerobiosys Innovations Pvt Ltd won the Medicall Healthcare Innovation award 2024 in the AI driven Healthcare category at Medicall Expo, held at Chennai in July 2024.
- M/s Healthora Innovations Pvt Ltd was selected for Cohort 2 of the Cornell Maha 60 program, sponsored by the Department of Industries, Government of Maharashtra
- M/s Healthora Innovations Pvt Ltd secured second place at the WISE Tech Pitchathon Mumbai Edition 2025.
- M/s Healthora Innovations Pvt Ltd completed the StrongHer Acceleration Program by Arise Ventures in collaboration with the U.S. Consulate in Mumbai.
- M/s Vyuhaa MedData Pvt Ltd received the prestigious Invest Karnataka VentuRise Award 2025 for Electronics System Design
- M/s Avinya NeuroTech Pvt Ltd was awarded the First Prize at the Startup Challenge during the prestigious IEEE APSCON - IEEE Applied Sensing Conference 2025, held at IIT Hyderabad from 20th to 22nd January 2025.
- M/s ORALVIS Healthcare Pvt Ltd received the prestigious IKP Future Stars Award, at IKMC 2024, held from October 26 to 28, 2024, at Hyderabad International Convention Centre
- M/s Beable Health Care Pvt Ltd was selected for the prestigious Attvaran Accelerator program by GDI Hub, in collaboration with IIT Delhi, IIT Madras, and UCL
- M/s Beable Health Care Pvt Ltd was selected for the Cohort 6 for the Velocity Revenue stage incubation program at NSRCEL, IIM Bangalore.
- M/s Aerobiosys Innovations Pvt Ltd is part of the Global Leap Accelerator program organized by Venture centre
- M/s Aerobiosys Innovations Pvt Ltd was selected to be a part of the Leaders in Innovation Fellowship organized by Royal Academy of Engineering, London UK.
- M/s Medblue Innovations Pvt Ltd was selected for prestigious programs such as Stanford Seed Spark, Royal Academy of Engineering LIF (UK), and Startup Maharathi 2025 (Health & Bio Category).
- M/s Nemocare Wellness Pvt Ltd was the winner of 5G Hackathon hosted by Department of Telecommunications (DoT) and TCOE India
- M/s Nemocare Wellness Pvt Ltd felicitated as one of the Rising Stars Startups under the NGIS Scheme at the STPI - Software Technology Parks of India SANGAM event
- M/s Nemocare Wellness Pvt Ltd CoFounder Manoj Sanker to be a part of the Leaders in Innovation Fellowships (LIF) Global 2025 cohort, Royal Academy of Engineering
- M/s Eranki Labs Pvt Ltd becomes India's First Focused Ultrasound (FUS)/High-Intensity Focused Ultrasound (HIFU) device manufacturer

Lauch of Assisted Reproductive Technology Skill development center, in partnership with M/s Zyquest Global Solutions Pvt Ltd and Stech IVF Solutions Pvt Ltd at CfHE, IITH

Aerobiosys Pvt Ltd won the Medicall Healthcare Innovation award in the AI driven Healthcare category at Medicall Expo 2024.

M/s Nemocare Wellness Pvt Ltd felicitated as one of the Rising Stars Startups under the NGIS Scheme at the STPI - Software Technology Parks of India SANGAM event

M/s Nemocare Wellness Pvt Ltd Showcased Nemocare Raksha to Bill Gates as part of the "Innovating for Impact: India's Role in Advancing Global Health,"

M/s Vyuha MedData Pvt Ltd received the prestigious Invest Karnataka VentuRise Award 2025 for Electronics System Design

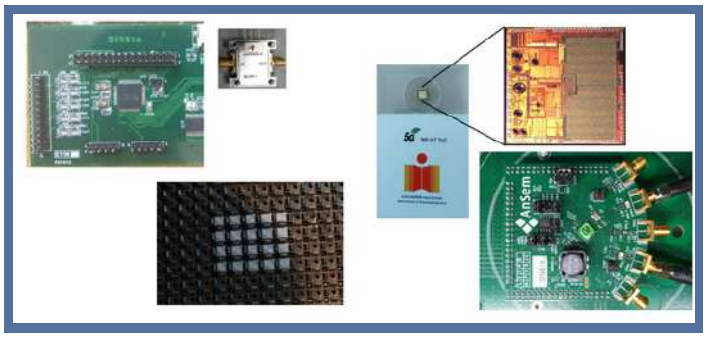
M/s Eranki Labs Pvt Ltd becomes India's First Focused Ultrasound (FUS)/High-Intensity Focused Ultrasound (HIFU) device manufacturer

FabCI - Fabless Chip Design Incubator

Webpage: https://fabci.iith.ac.in/

The Fabless Chip Design Incubator (FabCI) is a flagship program being executed with the support of the Ministry of Electronics and Information Technology (MEITY) and focuses on creating an ecosystem wherein these primary activities get executed for any startup in the area of chip design. The primary motivation for this unique incubator program is to provide a one-stop solution for start-ups focusing on the area of chip design. We want to help incubate multiple "Make-in- India' chip design companies. We aspire to build an ecosystem wherein the incubates are not only provided with the relevant infrastructure hardware and software but also are handheld through the path of success with the help of mentors who are pioneers in this field. The grand vision is to leverage the design expertise that exists in India to create Indian IP and to make a mark in chip design internationally.

FabCI is a unique incubation centre envisioned and implemented by the IIITH with the able support of the Ministry of Electronics and Information Technology (MEITY). The goal of this centre is to act as a one-stop solution for incubates intending to work in the area of chip design. Starting a company in the Integrated Circuit design field is an enormous task as the hardware-software and the relevant infrastructure for the same requires a huge amount of capital investment.



Also, developing a business model in this highly competitive domain is a non-trivial task. Mentorship by experts in both technical and business domains would hasten the process of transition from a startup to a revenue-generating company. Since its inception in 2018, FabCI has supported around 50 start ups. Several of its start ups have successfully prototyped their ideas and are in the marketing stage.

i-TIC - Technology Incubation Centre

Webpage: https://itic.iith.ac.in/

The year 2024–25 marked a significant leap forward for iTIC, building on the strong foundation laid over the years. With structured programs, a skilled and dedicated team, world-class facilities, and a robust policy framework, this year was characterized by a strong emphasis on collaboration, outreach, and tangible outcomes. iTIC forged impactful new partnerships across the ecosystem and significantly expanded its visibility and engagement within the innovation landscape. Having matured from a well-established incubator, iTIC has now positioned itself as a driving force in deep-tech entrepreneurship and startup support

Events and Outreach Impact:

Vishwakarma Awards 2024

Organized by Maker Bhavan Foundation in collaboration with iTIC Incubator at IITH, was a national innovation challenge focused on Green Technology, Smart Mobility, and Water & Sanitation. The competition saw 528 team applications from 276 engineering colleges across India, with 18 top teams selected for a residential bootcamp at IIT Hyderabad.

During the bootcamp, students received expert mentorship, attended technical sessions, and built working prototypes. The finale featured distinguished guests from academia, industry, and the startup ecosystem, who evaluated the projects and guided the teams.

The program promoted hands-on innovation and interdisciplinary collaboration, providing finalists with funding, mentorship, and opportunities for incubation—strengthening IIT Hyderabad's role in advancing engineering for sustainable impact.

MeitY Grand Challenge 2024

Organized by iTIC Incubator at IIT Hyderabad in collaboration with SINE IIT Bombay and supported by MeitY Startup Hub, focused on driving innovation in Digital Twin & Simulation, Low/No Code Platforms, and Generative AI. Within 24 days, the challenge attracted over 240 applications from startups and innovators nationwide.

To boost participation, seven roadshows were held across key cities, engaging grassroots entrepreneurs and spreading awareness. Ten top teams were shortlisted to pitch at the Grand Finale held on July 15, 2024, at IIT Hyderabad, attended by 300+ participants. A jury of experts selected one winner and two runner-ups, with travel and stay sponsored for all finalists.

The challenge showcased high-impact solutions and reinforced the power of targeted outreach and collaboration in accelerating deep-tech innovation in India.

Innovation Day 2024

Held on July 15th at IIT Hyderabad, Innovation Day 2024 celebrated creativity, technology, and entrepreneurship, drawing over 2,000 participants from academia, industry, and the startup ecosystem.

The event featured panel discussions on startup support systems, an exhibition of 30+ innovative startups, and the Grand Finale of the MeitY Grand Challenge, where top IoT-based solutions were pitched and awarded. Keynote talks from industry leaders and extensive networking opportunities added to the value of the event.

A notable highlight was the focus on accessibility—ensuring inclusivity for participants with disabilities, including the deaf and hard of hearing. Innovation Day 2024 stood out as a dynamic and inclusive celebration of India's innovation potential.

VCCircle The Pitch – Hyderabad Edition

Organized in partnership with iTIC IIT Hyderabad, The Pitch brought together over 45 investors and 40 shortlisted startups from a pool of 200+ applications. Focused on early-stage fundraising, the event featured closed-door pitching sessions tailored to investor interests, enabling meaningful interactions and potential deal-making. Startups received pre-event training on pitch decks and fundraising strategy from iTIC mentors.

With strong investor engagement and curated startup-investor matchmaking, the event reinforced Hyderabad's growing startup ecosystem and iTIC's role in supporting innovation and scale-ready ventures.

Knowledge Sharing Sessions – India-Kenya-JICA Collaboration

Held virtually from February 19–21, 2025, this initiative was a joint effort by IIT Hyderabad, JICA, and Kenyan universities to promote entrepreneurship and innovation in higher education. The sessions engaged 21 academic professionals from Kenya, offering deep insights into India's startup ecosystem and the role of academia in fostering innovation.

Four experts from IIT Hyderabad shared experiences from successful initiatives like TiHAN and CfHE, covering topics such as entrepreneurial mindset, innovation infrastructure, and sector-specific incubation.

The program strengthened academic ties between India and Kenya and equipped participants with practical strategies to nurture university-based startup ecosystems.

India-Kenya Innovation Nexus (IKIN) 2024

Held from October 13–15, 2024, at IIT Hyderabad, the India-Kenya Innovation Nexus (IKIN) brought together key stakeholders from both countries to foster cross-border collaboration in innovation, entrepreneurship, and technology transfer. Co-organized by iTIC Incubator and Kenya National Innovation Agency (KeNIA), the event featured strategic partnership signings, expert sessions, and startup showcases.

Delegates included government officials, academic leaders, and startups from both nations. Highlights included formalizing the iTIC–KeNIA partnership, knowledge-sharing talks on incubation and commercialization, and interactions with deep-tech startups like Qoptars and LogiXair. Concluding with a shared commitment to long-term collaboration, IKIN 2024 laid a strong foundation for bilateral innovation-driven growth and future joint initiatives.

Innovation Day 2024

VCCircle The Pitch – Hyderabad Edition

India-Kenya Innovation Nexus (IKIN) 2024

3 Success Startups:

Extrive Innovations Private Limited

Founded by Abhishek Pratap, Ningombam Prem Singh, Ronak Oinam, and Yashaswi Matla, Extrive Innovations has developed Kanglei Backex—a lightweight, affordable passive back exosuit designed to reduce lower back fatigue, correct posture, and prevent injuries in manual laborers. By combining comfort with advanced technology, the team is making workplace safety more accessible across industries.

Brela Innovations Private Limited

Shreya Nair and Mohammad Zahid Khan, co-founders of Brela Innovations, are focused on improving women's healthcare by building ergonomic solutions for at-home breast health monitoring. Their innovation encourages more women to stay informed about their breast health, supporting the early detection of breast-related issues.

Bloom – Advancing Spatial Computing

Led by Subhajeet Mukherjee, Bloom is transforming the AR industry with the Bloom Mobile Device, an open-source, lightweight, and power-efficient AR headset. Unlike proprietary AR/VR systems from major corporations, Bloom's modular and cost-effective design ensures both flexibility and scalability in spatial computing.

Conclusion:

Throughout the year, iTIC Incubator actively engaged in a range of strategic initiatives that strengthened its role as a catalyst for innovation and entrepreneurship. These included deep-tech showcases at national forums, interactive sessions with industry leaders, international knowledge-sharing workshops, and hands-on training programs for students. The initiatives focused on advancing self-reliant technologies, fostering global academic collaborations, and expanding innovation capacity among aspiring entrepreneurs. These engagements not only amplified iTIC's outreach but also reinforced its commitment to building a robust, inclusive, and future-ready startup ecosystem.

TiHAN

DST NM-ICPS Technology Innovation Hub on Autonomous Navigation

Webpage: https://tihan.iith.ac.in/

Major Activities at TiHAN during FY 2024-25

TiHAN IIT Hyderabad at Consumer Electronics Show CES 2025

As part of its global outreach initiatives, TiHAN IIT Hyderabad, under the NMICPS DST mission, participated in CES 2025, held from January 7–10 at the Las Vegas Convention Center, USA. Exhibiting in the West Hall – Vehicle Technology & Advanced Mobility, TiHAN showcased its cutting-edge autonomous navigation technologies alongside global automotive leaders. The team also took part in a panel discussion, sharing key insights into their advancements in autonomous systems. During the event, multiple MoUs were signed, and consortium membership brochures were distributed to strengthen international collaborations and industry engagement.

TiHAN R&D Activities

TiHAN's Personalized Aerial Vehicle (* Palyanka)

Palyanka is an advanced aerial mobility platform designed specifically for passengercarrying applications. It features autonomous navigation capabilities, utilizing Map and GNSS-based systems for precise real-time route planning and location tracking. The PAV integrates multi-radio communication (WiFi, 4G, 5G, and traditional Radio), ensuring uninterrupted connectivity across diverse environments. PAV has ability to identify and navigate to safe landing zones using GPS integration and visual markers, including marker-based landing aids such as H-pads, to ensure accurate and controlled landings even in constrained urban or emergency environments.

TiHAN's High-Altitude Cargo Drone (*Chakravyuh)

TiHAN has developed a High-Altitude Cargo Drones, Chakravyuh, designed to carry payloads ranging from 100 to 150 kg. Engineered for elevated terrains and harsh environments, it features a single-propeller failure management system for enhanced in-flight safety. The drone offers a tested endurance of 30–40 minutes and a cruising speed of 3–4 m/s (approx. 10 km/h), making it ideal for logistics, disaster relief, and mountain transport operations.

Payload Dropping System on KALA Drone

Developed an advanced precise payload dropping system integrated into their drones, which utilizes target identification through a high-resolution camera for accurate payload delivery. The custom-made payload dropping mechanism allows for seamless integration of various payloads and ensures precise dropping at target locations. KALA drone was demonstrated at the Army base in Udhampur on February 8th, 2025, showcasing its capabilities in efficient and accurate payload deployment for military and other operational needs.High Speed Autonomous Vehicle Testing.

High Speed Autonomous Vehicle Testing

TiHAN successfully deployed in-house developed Drive-by-Wire (DBW) & Autonomous Navigation Stack at High Speed in the Commercial Electric Vehicles (such as Mahindra eVERITO and TATA Nexon). TiHAN in-house developed DBW system showcased its ability to maintain precise control and stability at higher speeds tested up to 70 km/hr for longer duration.The successful testing of Mahindra eVERITO at 70 kmph using TiHAN in-house developed DBW system in the extended TiHAN testbed paves the way for real-world deployment of high-speed autonomous vehicles.

Connected Vehicles C-V2X Technology

C-V2X (Cellular Vehicle-to-Everything) technology enables seamless communication between vehicles, infrastructure, pedestrians, and the environment, significantly improving road safety and traffic efficiency.

Connected Vehicles C-V2X Technology

TiHAN has developed multiple C-V2X solutions tailored to Indian road conditions, including intersection collision and lane change warning systems (V2V), blind-spot and curved road alerts, and weather-based warnings (V2I). A key innovation is the development of a hybrid Roadside Unit (RSU), which integrates traffic control and communication functions. This hybrid RSU connects with edge cloud infrastructure to enable intelligent traffic management—such as prioritizing emergency vehicles by dynamically altering traffic signals based on real-time data

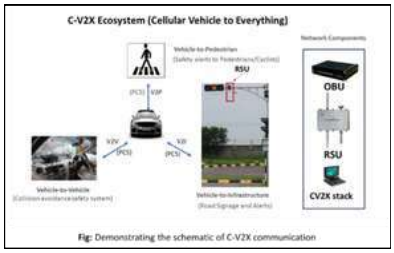


Fig: Demonstrating the schematic of C-V2X communication

ToT – Transfer of Technology

TiHAN IIT Hyderabad successfully signed Technology Transfer Agreements with two leading companies—Zero-Sum ITS and L&T Technology Services (LTTS)—marking a significant step towards commercialization and real-world deployment of indigenous autonomous navigation solutions.

Consortium for Rural Technology Development

Consortium is formed by TiHAN IIT Hyderabad, ISEED IRMA Foundation and the World Cooperation Economic Forum to promote digital agriculture technologies for rural development. The collaboration focuses on enhancing food security and farmer income through innovation, mechanization, and inclusive digital solutions.

Human Resource & Skill Development

Summary of Human Resources Supported by TiHAN for Advancing the Autonomous Navigation Ecosystem in India:

- Graduate Fellowships (Interns): 87
- Postgraduate Fellowships (M.Tech): 21
- Doctoral Fellowships (Ph.D.): 19
- Chair Professorships: 02
- Postdoctoral Researchers: 08
- TiHAN has successfully trained 4000+ participants through 37 workshops.

Startups:

TiHAN is funding 21 startups under different schemes such as EiR, startups , Seed support Systems, and incubation programs.

TiHAN Achievements:

- The SAFARI Data Collection Vehicle journeyed from IIT Hyderabad to Jammu, capturing real-world driving data across diverse road conditions and environmental scenarios.
- Achieved over 15,000 kilometres of fully autonomous shuttle operations within the IIT Hyderabad campus, showcasing reliable and safe deployment in a controlled environment.
- Successfully conducted a trial run of TiHAN's Autonomous Vehicle at the Andhra Pradesh Secretariat, demonstrating real-world applicability in governance and administrative settings.
- Filed 24 patents in FY 2024 - 2025
- Recognized as an ISO-certified organization, reinforcing TiHAN's dedication to excellence, safety, and structured operational practices.

Testbed for Autonomous Navigation (Aerial/Terrestrial)

A first-of-its-kind state-of-the-art **Testbed for Autonomous Navigation** (Aerial/Terrestrial) is being developed at TiHAN IIT Hyderabad. The Facilities include Proving Grounds, Test tracks, Mechanical integration facilities like Hangers, Ground control stations, Anti-drone detection systems, State of the art Simulation tools (SIL, MIL, HIL, VIL), Test tracks/circuits, Road Infra – Smart Poles, Intersections, Environment Emulators like Rainfall Simulators, V2X Communications, Drone Runways & Landing area, Control Test centers.

Centres/Centres of Excellence

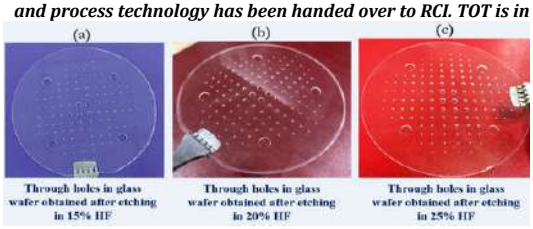
DIA-CoE

DIA-CoE, IITH (DRDO Industry Academia Centre of Excellence) is operational from 01-04-2023 on the 3rd Floor, TRP building. 11 legacy projects are under progress from 2021. Sanction of 18 New Projects to the tune of 66 Cr under Additive Manufacturing, Seeker & Homing Technologies, Nano-Ornithopter technologies, and Ultra High Temperature Materials are obtained. Funds are received, and works are in progress. One project under Advanced Imaging and Image Processing (AIIP), and two projects under Space Systems for the Defense vertical, is in the process of sanction. Regular interactions and technology review meetings were held to identify new research areas for the remaining Verticals. Among legacy projects, 8 projects were successfully completed. The remaining two projects are nearing closure. One project - Development of ASIC is under progress and will continue one more year. 24 Papers were published, and 2 patents were filed.

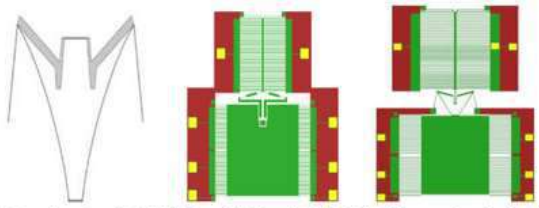
Major Achievements of Legacy Projects:

1) Large Scramjet engine of size – 205 x 670 x 2000mm with Inconel 718 printed successfully using LAAM machine.

2) The Project "Through holes in glass wafer " is completed successfully, and process technology has been handed over to RCI. TOT is in progress.



3) New Designs for MEMS Gyroscope and Accelerometers are completed successfully and fabrication is being under taken at RCI.



(a) Curved beam-based DaCM, (b) Lever-bridge based DaCM c) Inclined beam configuration-based MEMS accelerometer for ± 30g range

4) Oxidation studies of high entropy alloys AMCC61 763 series and γ-TiAl variants completed satisfactorily and Data Sheets for future use are being prepared..

a) Focused ion beam b) close up of the Omni-probe nanomanipulator c) TEM Image

List of On-going projects under IITH

Project Titles	Name of the PI	PDC	Lab
Laser cladding of functionally graded ceramic coatings for high temperature and wear applications	Dr Muvvala Gopinath	21-Jun-25	DRDL
Direct Metal Laser Sintering of C103 Refractor Alloy.	Dr Vishwanath Chintapenta	13-Jul-25	DRDL
Design, analysis, verification, and performance evaluation of Analog to digital interface single-channel ASIC for high performance closed- loop capacitive gyroscope for inertial navigation applications.	Dr Ch. Gajendranath Chowdary	21-Jun-25	RCI
Electron Beam Powder-bed fusion of nickel-base superalloys CM247LC and BZL12Y	Prof Janki Ram	01-May-29	GTRE
3D Printing of Copper Conical Shape Charge Liners and lattice structures: Feasibility, Consistency and Production Scaling	Dr Syed Nizamuddin Khaderi	01-May-27	TBRL
Optimization of Electron Beam AM process of Ti-6Al-4V to minimize the anisotropy in, high temperature mechanical properties, creep, fatigue and fatigue crack growth and demonstrate printing of real-time component with optimized process parameters	Dr Rajesh Korla	01-May-27	DMRL
Simulation capabilities for Additive Manufacturing processes	Dr Muvvala Gopinath	25-Mar-27	DRDL
AI/ML-based Seeker Processing with High-Performance Computing	Prof Satya Peri	19-Dec-27	DLRL
ML/DL aided Passive Seeker Direction Finding	Prof Amit Acharyya	12-Feb-28	DLRL
Compressive Sensing based Wide Open Sub-Nyquist Frequency Estimation	Dr Abhishek Kumar	12-Jan-28	DLRL
Design and Fabrication of Lightweight Metamaterial Structures for Flapping Wing Systems	Dr Prakhar Gupta	12-Jan-27	DYSL-SM
Stiffness Tailoring via curvilinear fiber reinforcements of flapping wings for enhanced modal performance in ornithopters	Dr Sai Sidarth	15-Jul-27	DYSL-SM
Development of a platform that would aid a nano-ornithopter to learn to fly	Dr Vishnu R Unni	19-Jan-27	DYSL-SM
Development of an unsteady wind tunnel for simulating flight-relevant flow conditions for a micro or nano UAV	Dr Vishnu R Unni	12-Jan-27	DYSL-AT
Modelling and establishment of various process parameters for PCS fibers and modelling of PCS-SiC conversion process	Prof Harish Dixit	19-Jan-28	DMSRDE

Six more projects under progress at institutes other than IITH

ICMR-DHR-CoE

The Indian Institute of Technology Hyderabad (IIT Hyderabad) has partnered with the ICMR-DHR Centre of Excellence (CoE) to foster MedTech innovations. This CoE is a collaborative initiative between the Indian Council of Medical Research (ICMR) and the Department of Health Research (DHR). The primary objective of these centres is to develop products and technologies aligned with the needs of the National Health Mission, Ayushman Bharat, and various public health programs run by the government, with the aim of their potential implementation, as reported by IANS.

Ongoing Projects:

- Compact and portable low-cost microscope for digital Cytology applications
- Image-guided Boiling Histotripsy Device for Treating Neuroblastoma
- Customized 3D-printed PCL-silk scaffolds for implants

Companies Supported:

- M/s Heamac Health Pvt Ltd -nLite360 Intelligent Phototherapy device that provides customized treatment to Dynamic Jaundice conditions
- M/s Beable Health Pvt Ltd-Game based Upper Limb Rehabilitation Device for Neuroplasticity
- M/s Kvayat Medical Pvt Ltd-DiaPatch with ActiFlush Technology: The world's first smart flushable Diaper
- M/s Nemocare Pvt Ltd-Nemocare Raksha: A diagnostic and Monitoring tool for neonates All have been selected by ICMR for HTA (Health Technology Assessment)

TRIHUB - Transportation Research and Innovation Hub

Webpage: https://trihub.iith.ac.in/

To address the pressing issues of highway infrastructure in India, the Indian Institute of Technology Hyderabad established a Centre of Excellence on 'Transportation Research and Innovation Hub (TRIHUB) with the support of the National Highways Authority of India (NHAI). This initiative is at the forefront of pioneering research aimed at creating innovative, cost-effective solutions for highway construction. Among the cutting-edge technologies being explored are geosynthetics, recycled materials, and fibre-reinforced concrete. Each proposal is designed to improve the structural integrity, longevity, and promote sustainable practices within a circular economy framework.

The research team at TRIHUB has developed a 'State-of-the-Report (SoAR) on Bituminous Interlayer grids/composites' as part of the H4 committee of the Indian Roads Congress (IRC). The research team is also working with various committees of IRC in developing new design guidelines, e.g., 'Strengthen bridges using CFRP composites', 'New Design guidelines for Strengthening the Steel Bridge Components using Composites', amendments to IRC SP 42 and 59, etc. Recently, Shri. Alok Deepankar, Member (Tech.), NHAI, has reviewed the progress of TRIHUB (See, Fig. 1)

TRIHUB has recently procured a vehicle-mounted falling weight deflector to monitor the condition of an existing flexible pavement (See Fig. 2).

Figure 1

Figure 2

Medical Device Innovations

IIT Hyderabad, along with the Center for Healthcare Entrepreneurship (CfHE) and Asian Institute of Gastroenterology (AIG) Hyderabad, is introducing a course specifically considering the need for innovative medical devices for patients and the need for Indian industry orientation to medical devices. The Program, MTech in Medical Device Innovation (MDI), is intended for candidates, who passionately feel for finding innovative solutions for the problems faced by the current health industry. The enrolled students will be trained to find problem statements in the health industry; discuss the solutions among engineers, doctors and designers, and come up with a solution to fulfill the degree requirements.

The Program: This is a multifaceted experience that ranges from grassroots innovation to product development, business planning, and entrepreneurship. The program will be instructed in a structured and design-oriented manner with the help of experienced faculty, staff, industry experts, serial entrepreneurs, and the academic community.

Duration: 2 years with 50 credits

As part of their project credits, the teams made from the students would undergo a complete design life cycle comprising of:

- Clinical immersions to identify problems,
- Validate the needs,
- Brainstorm on ways to address the needs
- Build technology prototypes
- Build business and IP management
- Deliver working proof of concept prototypes of their ideas

Project Titles:

- Automatic segmentation and 3D Printing of Patient Specific Craniomaxillofacial Bio-degradable Implants using deep learning techniques
- Therapeutic Compression Device for Lymphatic Filariasis(Elephantiasis).
- Intraoral imaging with advanced image processing for accurate and early detection of dental caries
- Development of a Cold Plasma-Based Device for Effective Disinfection of Dentinal Tubules in Endodontic Treatment
- Early osteoporosis detection in pre-menopausal females

DIC- Design Innovation Centre

Webpage: https://dic.iith.ac.in/
HUB: DIC IIT Hyderabad - Nodal of all DICs
Principal Investigator: Prof Deepak John Mathew
Spokes: IIIT Sri City, IIIT Hyderabad, IIITDM Kancheepuram

Overview:

IIT Hyderabad serves as the Nodal Centre for the DIC under the Ministry of Education, overseeing 20 Hubs and 60 Spokes. The Centre emphasizes hands-on learning, sustainability, and practical innovation.

Key Progress 2024–25:

- Courses conducted: 275
- Students enrolled: 4,688
- Patents filed: 6
- Innovative products initiated: 889
- Start-ups supported: 25
- Workshops organized: 214, training 2,564 students

Fields of Expertise, Major Domains and Ongoing Projects

Design for Education	VR/AR and Digital Heritage Preservation	Autonomous Air Mobility Design	Product Design
• Integrating Technologies for improving STEM Education • Designing virtual reality aided contentfor school education • Educational game design Teacher training workshops	• Virtual museum experience representing cultural heritage of Gonds of Telangana • VR and AR for documentation of the Monuments of Telangana • Design intervention workshop for safeguarding the dhokra crafts of Ojhas of Adilabad	• Design and Development of Autonomous Urban Air Mobility • Development of full scale prototype and Study of user experience • VR basedperception study • Interior Design of Autonomous Urban Air Mobility	• Solar vegetable Dryer • Solar Cooker Ekaant-Office pods Bio-Bricks • Hydroponics and Solar panels for parking areas

DIC Annual Meet 2024 at IIT Hyderabad

Highlights of Key Projects:

Educational Game Design: The project explores educational game design for reducing cognitive load, culminating in a card game that helps players identify influences behind political campaigning. The project merges research and practice, using interactive play to foster critical thinking about media and persuasion, done inspiration from the growing global political tensions and works towards improving critical analysis.

Urban Air Mobility: Design and Development of Urban Air Mobility (UAM) for Indian Passengers.
Patent Title: Advanced Air Mobility(AAM)
Inventor Name: Indian Institute of Technology Hyderabad, Dr. Deepak John Mathew, Ketan Chaturmutha
Category: SD_Designs
Application Nos: 443767-001

Tangible and Intangible heritage of Telangana:

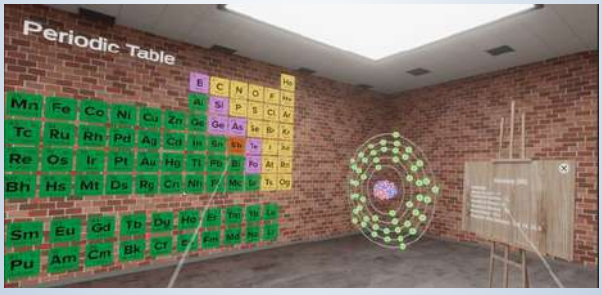
- Digital Documentation of the Cultural festivals and Traditional Crafts of the Gond Tribe
- Virtual museum walkthrough representing the Gond culture
- Design Intervention workshop with the Ojha Artisans

Ekant Pods: A standalone, soundproof unit equipped with high-quality acoustic features, ventilation, and smart connectivity.
Designed for one person, offering a tranquil and comfortable workspace.
Seamless integration into smart office environments and public spaces, featuring a sleek design.

Cinematic Virtual Reality: Table for Two-Design and Development of Parallel Interactive Narratives in Cinematic Virtual Reality.

Preserving Ramappa Temple and Perini Natyam: Preserve and promote Perini Natyam, an ancient dance of Telangana, by creating an engaging Mixed Reality (MR) experience that brings Ramappa Temple sculptures to life and the Reality Capture of Nava Brahma Temple. An immersive journey from sculpture to living performance—preserving heritage in motion.

Virtual environment of Interactive chemistry:
Virtual environment of Interactive chemistry lab was created as part of the project. The study found the benefit of the VR-aided learning system. Followed by Pre-test, intervention and post- test methods



Centre for Research and Innovation in AI (क्रिया)

Webpage: https://ai.iith.ac.in/research/ai-research-centre.html

The Department of Artificial Intelligence (AI) at IIT Hyderabad, established in 2019, was India's first initiative of its kind (at least among the IITs) and likely the third globally, following the Massachusetts Institute of Technology and Carnegie Mellon University. Historically, AI has been studied within departments such as computer science or electrical engineering. However, the creation of a dedicated AI department at IIT Hyderabad allows for the integration of knowledge from multiple disciplines.

By drawing on these diverse perspectives, the department offers a unified academic program. IIT Hyderabad's Bachelor of Technology in Artificial Intelligence has influenced the development of similar programs nationwide, and the department has provided guidance to other institutions in designing their AI curricula.

According to Professor Vineeth N. Balasubramanian, from the Department of Computer Science and Engineering and affiliated with the AI Department, the presence of the AI Department enables students from other disciplines to pursue a minor in AI alongside their major. This is crucial, as AI's relevance spans a broad range of domains—from structural engineering to drug discovery.

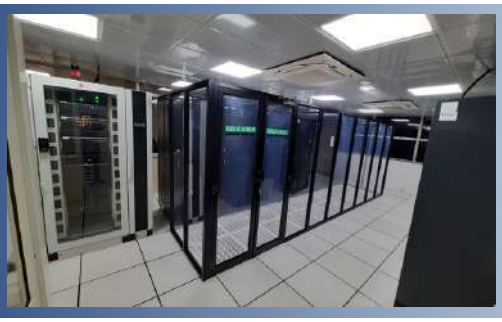
The department currently enrols over 250 students, with an almost equal distribution between undergraduate and postgraduate programs. It boasts a faculty of 30 members, including five core faculty members and affiliated faculty from computer science, electrical engineering, mathematics, and mechanical engineering. Additionally, the department offers a PhD program, enabling candidates with foundational knowledge in various fields and strong mathematical backgrounds to engage in advanced AI research.

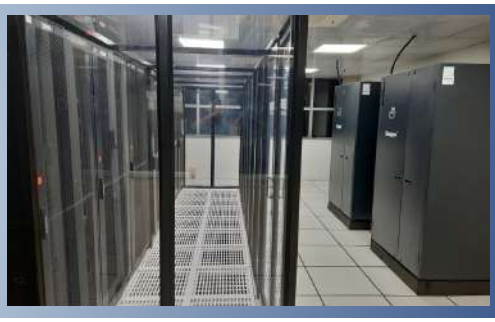
The department's research covers a wide array of fields, including foundational AI algorithms, computer vision, natural language processing (NLP), speech understanding, social media analysis, robotics, signal processing, high-dimensional data analysis, distributed AI, AI compilers, and embedded AI. Research also explores interdisciplinary applications, such as AI and the Internet of Things (IoT), AI and blockchains, AI and wireless networks, and AI in design. The department runs projects funded by prominent government agencies (DST, SERB, MEITY, DRDO) and industry leaders (Google, Microsoft, Adobe, Honeywell, Sony, Qualcomm, Accenture). Faculty members have worked on AI-driven solutions in areas like sustainable development, healthcare, smart transport, security, agriculture, disaster management, fraud analytics, e-commerce, astronomy, and aerospace.

Supported by Honeywell and the Japan International Cooperation Agency (JICA), the department hosts a state-of-the-art Centre for Research and Innovation in AI (क्रिया). The computing capability of the department consists of 25+ high end GPU servers, including NVIDIA DGX-1 and DGX-2 servers. These resources support a wide range of AI research projects. Also in partnership with NVIDIA, it established India's first NVIDIA AI Technology Centre (NVAITC) in July 2020, significantly enhancing AI research with high-performance computing resources.

Recently, in collaboration with Intel, the department launched the Intel AI PC Experience Center, one of only two such centers in India (the other is at IISc Bangalore), allowing students to experiment with AI without requiring high-end GPU servers, thus making AI accessible to a broader group of learners.

The department encourages interdisciplinary collaboration on large-scale projects. A notable example is the AISWARYAM initiative for sustainable city management, led by Professor Vineeth N. Balasubramanian, which involved contributions from more than 20 faculty members across the institute. The faculty members and students of the AI department contribute and collaborate very closely with the Technology Innovation Hub in Autonomous Navigation (TiHAN), another large scale project led by Prof. Rajalakshmi from the Electrical Engineering department and also affiliated with the AI department. Additionally, faculty members such as Professors Maunendra and Mohan Raghavan are involved in the BharatGen project, which leverages generative AI technology to enhance public service delivery and citizen engagement on a national level. The other notable collaborative projects include SANKALP (healthcare) and M2SMART (air pollution). The department remains focused on impactful research, with students and faculty regularly publishing in leading AI and machine learning conferences and journals such as ICML, ACL, CVPR, AIJ, JMLR, WACV, NeurIPS, AAAI, IJCAI, AAMAS, ECAI, ICLR, and various IEEE Transactions.





RDC - Rural Development Centre

Webpage:https://rdc.iith.ac.in./

Rural Development Center (RDC) at IIT Hyderabad, has carried out multiple rural development activities in the areas of Education and Environmental aspects. RDC has been proactive during the academic year 2024-25. RDC has a student body Prayas.

Major Events:

- **TEACHING ACTIVITIES** - RDC is actively involved in teaching activities in 7 ZPHS from Kandi Mandal of Sangareddy district. Where the IITH fraternity, including students (ug, pg, and PhD), faculty, and staff teach Science, Mathematics, and English subjects. We have carried out the teaching program starting from September 2024 to January 2025.
- **SRUSTI** - A science fair event organized on the occasion of National Science Day. A total number of applications received is 120 from all over Telangana state, out of which only 33 applications have been shortlisted and invited for participation. The event focused on science and innovation from the 8th, 9th, and 10th class students.
- **DEEKSHA** - RDC_IITH has adopted 6 zphs schools from Kandi Mandal, and is being actively engaged in various educational activities. As part of this, we have organised the Deeksha event to focus more on the motivational and career development. We have shortlisted the students based on merit.
- **PRERNA** - one of the major and prominent events conducted by the RDC_Prayas. As mentioned earlier, where RDC is conducting teaching activities in 7 ZPHS schools, it is very important that the parents from rural backgrounds need to be motivated at the same time, along with the students, we have invited the top bureaucrats and scientists from different backgrounds who have excelled in their lives, starting their schooling from ZPHS schools.
- **ORPHANAGE VISIT** - Prayas and RDC are actively involved in engaging with the various orphan organisations, as part of this, we have conducted several activities to motivate the children in the orphan homes.
- **CAMPUS TOUR** - RDC and Prayas are active in organising IITH campus tours. We have hosted around 22 schools covering 2500 students in the 2024-25 academic year. We have hosted students from Telangana, Andhra Pradesh, Karnataka, and Maharashtra. We do it very holistically, covering the major achievements of IITH, career guidance for the students, lab visits, and promoting science and technology.
- **DISTRIBUTION OF COMPUTERS** - RDC, in collaboration with Aksharadaan, has donated 3 computer desktops to different government schools.
- **PARTNERSHIP WITH AKSHARADAAN** - RDC, in collaboration with Aksharadaan, has been reaching out to government school students across the Telangana state to support them in the subjects of Mathematics and Science through online mode.
- **MoU with UnitedWay** - RDC is collaborating with working on the environment in Kandi mandal

Prof Prasad S Onkar, Prof B S Murty, Director, Prof Satish Regonda, IITH and Dr Sudhakar Naik IRS, CH Rupesh IPS, at Prerna

Dr Phani Bhusan, Counsellors with the students after the Deeksha session

Orphanage Visit for a kite-making workshop and drawing activity

Prize distribution for the stalls by students on the Topics included AI-based alert systems, eco-tiles, bio-fertilizers, energy savers, smart irrigation, and more.

Campus Tours at IITH for students from government and private schools.

CCE - Center for Continued Education

Webpage: https://cce.iith.ac.in/

Overview: The Centre for Continuing Education (CCE) aims to conduct various outreach programs for students, academicians, and working professionals across the world. The young and energetic faculty of IIT Hyderabad provides learning opportunities for the professional growth of interested participants. With a rapid rise in E-learning programs, CCE @ IIT Hyderabad is keeping abreast with the online programs that can facilitate the learning of working professionals by meeting their work schedules.

Scope and functions:

- To conduct all academic outreach activities like Conferences, Workshops, Certificate Courses, Symposia, Short-term courses, Training programs, and other similar activities of the Institute.
- To organize faculty development programs for the faculty of various technical institutes in the country.
- To conduct certificate courses in collaboration with industry and academia to provide specialized expertise/skill development in diverse fields

Programs and Facilities

- Open To all Teaching (OAT)
- NPTEL (National Programme on Technology Enhanced Learning)
- International/ National Conferences
- Workshops, Symposia and Training Programs
- Short-term and long-term Certificate Programs

Convention Centre Facilities:

- Auditoriums
- Seminar Rooms
- Conference Rooms
- VIP Lounges

Programs List: 2023-2024

Open To all Teaching (OAT):

- Sustainable Chemical Metallurgy
- Advanced Fluorescence Microscopy and Image Processing
- Concepts and Hands-On Observational Astrophysics
- Foundations of Techno-Entrepreneurship
- Kinetics of Metallurgical Processes
- Psychopathology and mental health
- Electrochemical Energy Conversion
- Role of Microstructures in Materials Selection
- Carbon Capture Utilization and Storage
- Bayesian Data Analysis
- Clean Steel Making: Theory, Practice and Modeling

Certificate Programs:

- A Four-Week Masterclass in Impact Evaluation
- Light Gauge Cold-Formed Steel Design – Fundamentals & Advancements
- Strategic AI for Professionals
- Advance Machine Learning Engineering in Python
- Foundation on AI Analytics for Undergraduate and Postgraduate Students
- SCIENT SPARK – Startup Launchpad
- Online Workshop: Image Processing and Data Analysis using ImageJ
- Next-Gen Computer Architecture – 10 to 12 Week Program

NPTEL Courses:

- Stability aspects of structural steel design: Concepts and applications.
- Advanced Fluorescence microscopy and image processing.
- Diffusion in Solids
- Introduction to Graphic Design

Symposiums:

- MAE–Industry Connect Program
- ISRAPS Discussion Meeting on Spectroscopy across Energy Domains: From Fundamentals to Applications
- Advanced Functional Analysis and its Applications
- Vulnerable Bodies in Literature and Culture
- Deep Tech Symposium
- Prime Minister's Research Fellowship (PMRF) Annual Symposium

Conferences

- Computations of High-Speed, Turbulent and Complex Flows (CHTC)
- Meeting of APEX Advisory Committee of NCSTC
- Geo Practices 2024 and Terzaghi Oration
- International Conference on Interconnections between Particle Physics and Cosmology
- International Conference on Circadian Rhythms in Health and Diseases: Discovery to Function (CRHD)
- International Conference on Processing of Advanced Materials and Fabrication of Products (PAMFP)
- Comp Flu - International Conference on Complex Fluids and Soft Matter
- International Conference on Distributed Computing and Networking (ICDCN)
- IEEE Applied Sensing Conference (APSCON)
- Horizons in Structural and Computational Biology (HSCB)
- International Conference on Laser & Other Deposition Techniques (iCLOD25)

CIP - Center for Interdisciplinary Program

Webpage: https://cip.iith.ac.in/

Highlights

CompFlu-2024 highlights the successful hosting of the conference by Dr. Harish N Dixit and the IIT Hyderabad team in collaboration with the Indian Society of Rheology from 16-18 December 2024. The meeting maintained its tradition since 2002 as a premier platform for India's thriving soft matter research community, attracting over 500 participants—including many regular international attendees—and fostering significant collaboration and knowledge exchange.

Conference Overview

CompFlu-2024, themed 'Soft Matter & Beyond', included research talks, poster sessions, flash talks, table talks, an art in science exhibition, and networking opportunities. The event also featured a pre-conference workshop on 14-15 December 2024, further enriching the scientific exchange.

Technical Sessions

The conference addressed a diverse array of topics:

- Polymers & composites
- Biological soft matter
- Colloids, emulsions & foams
- Active & responsive soft matter
- Interfacial phenomena
- Rheology & constitutive modeling
- Membranes & thin films
- Granular flow
- Glasses & amorphous materials
- Sustainability in soft materials

The conference saw robust academic and industry engagement, consolidating its role as a pivotal event for students, researchers, and professionals across disciplines in science and engineering. The high attendance and recurring presence of international experts underscored CompFlu's sustained appeal and reputation. CompFlu-2024 also recognized outstanding scientific contributions through poster and flash talk awards, further motivating excellence in research and presentation. Various innovative research projects were showcased, reflecting the diversity and cutting-edge nature of Indian soft matter science.

Awards & Recognition of ID Students:

- Lakshmi Raja (MSc – Medical Physics) was awarded Future Research Talent Award 2024 by the Australian National University
- Meet Gor (PhD Scholar) secured 1st position in the “3-minute talk" competition during the Research Scholar Day (Khoj'24) at IIT Hyderabad (1 March 2024)
- Neha Mishra (PhD Scholar) selected for JST- YOUNG RESEARCHER PROGRAM INDIA at NIMS JAPAN
- Vishnu K (MTech – Additive Manufacturing) was awarded with Best Oral Presentation Award at International Conference on Laser and Other Deposition Techniques (iCOLD25)
- Manav Patel (MTech-ICMP) was awarded the Best Poster Award in Co-Packaged Optics at ISPEC 2025, held in Gandhinagar.
- Kalyani E (PhD Scholar) has presented poster at HYMA conference held at France

Excellence in Research Awards at 17th Foundation Day - IITH

- Zainul Abedin Khan, ID PhD student
- Kalyani E, ID PhD student

Appreciation in Research Awards at 17th Foundation Day - IITH

- Smera Sohan, MSc Medical Physics Student
- Durishetty Nachiketha, Additive Manufacturing student
- Jyothika Meenakshi Kambhampati, Medical Device Innovation student
- Bhatt Khyati Pushpakant, Ophthalmic Engineering student
- Rishabh Chaturvedi, Smart Mobility student
- Anant V Nalawade Additive Manufacturing student
- Shashank Ravindra Raut, Integrated Sensor Systems student
- Shivam Upadhyay, Medical Device Innovation student
- Salwa Iftekhar, Ophthalmic Engineering student
- Sivani Bohidar, Polymer Biosystems student
- Nagireddy Priyanka, Smart Mobility student

Indian Knowledge Systems

The Indian Knowledge Systems (IKS) Cell of IITH has been established to nurture an awareness of the traditional Indian Knowledge Systems (shaastras) in the IITH community. The prime focus of IKS@IITH is in discovering the knowledge in the traditional Indian Systems and disseminating them. The IKS@IITH operates within the purview of the Heritage Science and Technology (HST) Department of IITH.

Non-Formal Sanskrit Education (NFSE) Sanskrit Courses:

In collaboration with Central Sanskrit University, IITH offers Certificate and Diploma Courses in Sanskrit Language. These courses are offered in offline mode with the CSU instructors stationed at IITH. The CSU instructor for these courses is Shri Dr. Avijit Ghosh. The CSU courses are run together by the Dept. of Heritage Science and Technology (HST) and the IKS Cell.

Samskrita Bharati (SB) Sanskrit Courses:

In collaboration with Samskrita Bharati, IITH offers five 1-credit senate approved Sanskrit courses to students of IITH. These courses are designed so that the basic student becomes an expert reader of texts in Sanskrit. Undergraduate and Graduate students take these courses to satisfy their LA/CA credit requirements. Until date around 400+ IITH students have benefited from these courses.

The SB courses are run together by the Dept. of Heritage Science and Technology (HST) and the IKS Cell. These courses are offered in online mode by instructors delegated by Samskrita Bharati, Telangana. The instructors for these courses are Acharya Shri Turlapati Sivaramakrishna, Shri Acharya Paka Gopalakrishna and Acharya Dr. Sarita Ancha.

Center for Cryptography and Cybersecurity

The Center for Cryptography and Cybersecurity aims to be a premier hub for cryptography and cybersecurity research in India. The center conducts research in cutting-edge technologies as well as engages in the training of students and professionals in these areas.

To know more, visit: https://ccs.iith.ac.in/

Email ID: mvp@cse.iith.ac.in

Center for Geo-spatial AI and Digital Twins

Estd through an MoU between AMS, NEER, INTERACTIVES & IITH, to faster a close partnership that focuses on Geospatial AI & Digital Twins, cultivating a collaborative environment for project initiatives in Geo AI, drones AI, perimeter security AI, BIM AI & Digital Twins applied to defense, industry, environmental safety, climate change, wildlife

To know more, visit: http://cgdtind.org/

Email ID: shivaji@des.iith.ac.in

Center of Design Excellence (CoDE)

The Center of Design Excellence (CoDE) at IIT Hyderabad represents a strategic collaboration between academia and the Telangana MSME industry, aimed at enhancing industrial capabilities through innovative design solutions.

To know more, Visit: https://code.design.iith.ac.in/

Email ID: code@des.iith.ac.in

(cGodavari)

The Centre for Godavari River Basin Management Studies (cGodavari) is a multidisciplinary, Multidepartment initiative to help restore and maintain the ecological health of the entire Godavari River Basin. The initiative is funded by the National River Conservation Directorate (NRCD), Ministry of Jal Shakti.

CLEANZ

The Centre of Clean Coal Energy & Net Zero (CLEANZ) is a CoE committed to promoting the development of high-impact coal-based technologies by integrating advanced scientific approaches with real-world applications. The centre aims to create scalable solutions for clean coal utilisation, CO_2 management, and the circular economy.

To know more, visit: https://cleanz.coe.iith.ac.in/#contact

Email ID: office@cleanz.coe.iith.ac.in

DBT-SAHAJ

The DBT-SAHAJ facility for single-molecule and super-resolution imaging provides access to cutting-edge single-molecule imaging technologies for life science/biomedical research. Technologies available: 1) Single-molecule tracking in live cells, 2) Single-Molecule Localization Microscopy (STORM/PALM), 3) Single-Molecule FRET, 4) Single-molecule FISH, 5) 5D imaging of live and fixed cells, 6) Image processing and visualization.

To know more, visit: www.singlemolecules.iith.ac.in.

Email ID: gunjanmehta@bt.iith.ac.in

IITH-Nikon CoE

The Nikon Centre of Excellence for Optical Microscopy at IITH provides super-resolution confocal, TIRF, widefield fluorescence and stereo fluorescence microscopes to support high quality imaging across various fields of research.

To know more, Visit: https://coenikon.iith.ac.in/

Email ID: shourya@msme.iith.ac.in

NVAITC

The NVIDIA AI Technology Centre (NVAITC) at IITH is a joint initiative to accelerate AI research and its commercialization. It was established to facilitate research on AI algorithms and develop AI-based solutions for various sectors, including agriculture, smart cities, and language understanding.

Email ID: head@ai.iith.ac.in

SIMMECT

IITH in collaboration with Swinburne University of Technology (Swinburne), Australia have established SIMMECT—the "Swinburne-IITH Manufacturing, Materials, Energy, and Communication Technologies Joint Research Institute". This centre aims to strengthen the research collaboration between IITH and Swinburne, fostering cutting-edge advancements with significant industry and societal impact.

Takshashila

The Takshashila- Centre for Heritage Science & Technology, located within the Department of Heritage Science & Technology (HST) at IIT Hyderabad, focuses on applying science and technology to conserve and develop India's tangible and intangible heritage assets. This includes monuments, archaeological sites, traditional knowledge systems, cuisines, art, and languages.

Email ID: mohanr@bme.iith.ac.in

AMRIT

AMRIT (Advanced Manufacturing Research Innovation and Training) is a joint initiative launched in 2025 by the IITH and Deakin University, Australia, to advance next-generation manufacturing technologies. This collaboration focuses on additive manufacturing, smart materials, lightweight composites, automation systems, and Industry 4.0 technologies to foster innovation, workforce development, and startup incubation in India.

SU IITH

SU IITH is established between Shimane University, Japan and IITH. This centre aims to cultivate the next generation of human resources with an entrepreneurial mindset, strengthening the Japan-India science and Technology partnership and preparing students, researchers and academics to lead industries and contribute to society in both nations

WIN

IITH in collaboration with the Wadhwani Foundation, has established a Centre of Excellence, Wadhwani Innovation Network, to drive innovation and research in key frontier areas. The Foundation is supporting the initiative in the areas of Advanced Computing and Artificial Intelligence; Biotechnology and Bioengineering; HealthTech; SpaceTech; Quantum Technologies; Critical Minerals and Mining

NBV-SIC

Suzuki Innovation Centre & Next Bharat Ventures at IITH are dedicated to advancing the Next Billion in India by supporting impact entrepreneurs committed to making a substantial difference. Empowering the community of great entrepreneurs creating greater impact, for the next billion.

To know more, visit: https://nextbharat.ventures/

Email ID: sic@nextbharat.ventures

SATHI-CISCoM

Centre for In-Situ and Correlative Microscopy is a consortium of 18 partner institutes supported through the DST-SATHI program. This centre would be the first in the nation to enable real-time characterisation across multiple length scales for fundamental and industrial R&D purposes. This centre is headed by Dr. Sairam Malladi.

To know more, visit: https://sathi.iith.ac.in

Email ID: sathi.ciscom@admin.iith.ac.in

STC^2M^2P

Sustainable Technologies Centre for Critical Minerals and Metals Processing (STC M P)- CoE under National Critical Mineral Mission by Ministry of Mines, GoI. This CoE focuses on recovering critical minerals from e-waste, industrial residues, ash sources, and primary ores (Ni, Co, V, Ti). The CoE aims to drive innovation, reduce import dependency, and promote sustainable practices, strengthening India's mineral independence.

Email ID: narasimha@che.iith.ac.in

PU IITH

Jointly established Center of Excellence in Semiconductors (CES) with Purdue University, US. Purdue University has announced a partnership with India that includes the creation of the Purdue Centre for Education and Engagemen Centre of Excellence in Semiconductors.

CQC

The Center for Quantum Communications (CQC) is a Center of Excellence at IIT Hyderabad focusing on Secure Quantum Communications. The Center hosts a branch of the Quantum Communications Technical Hub of the National Quantum Mission. Researchers in the CQC work on design, development of Quantum Key Distribution (QKD) systems, design and analysis of secure quantum network protocols, and QKD systems based on Photonic Integrated Circuits.

VIGRAHA

VIGRAHA (Virtual, Intelligent, Ground-breaking Research in AR/VR & High-tech Applications for Indian Army) CoE has established in collaboration with with the Army Training Command, Shimla, represented by the Simulator Development Division (SDD), Secunderabad This collaboration aims to spearhead cutting-edge research and development for the Indian Armed Forces.

Email ID: shivaji@des.iith.ac.in

Schools

BVR SCIENT

Dr BVR Mohan Reddy School of Innovation and Entrepreneurship is a unique Institute established in collaboration with IIT Hyderabad with a collective goal to instill an entrepreneurial mindset amongst youngsters and create a thriving innovation ecosystem to transform the entrepreneurial landscape across the country.

Key Objectives:

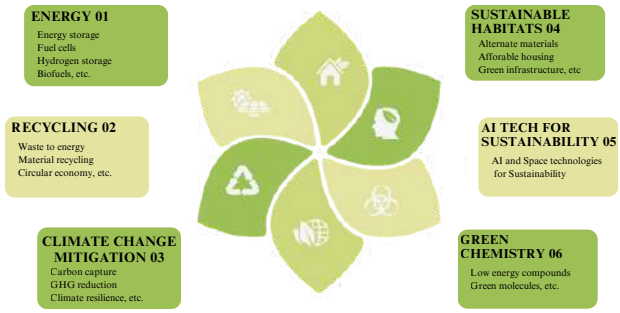
- Capability building for potential entrepreneurs
- Entrepreneurial Ecosystem Enhancement and
- Capacity building for entrepreneurial mindset.

For more details, visit: bvrscient.iith.ac.in

Greenko School of Sustainability

Greenko Group and IITH are collaborating to establish the Greenko School of Sustainability at the Indian Institute of Technology Hyderabad. The School of Sustainability is designed to shape a world that harmonizes with nature and empowers future generations toward a more sustainable tomorrow. The objectives of the school are to conduct research and development, and education programs. The Greenko School of Sustainability is structured as a cross-disciplinary centre that manages seamless participation and knowledge flow from all existing departments and centres of IITH.

Core research areas of the School:



TRP - Technology Research Park

Webpage: https://trp.iith.ac.in/

Technology Research Park (TRP), aims to provide infrastructure and facilities for industry partners to co-locate Research and Development (R&D) centers at the IITH campus. Funded by the Ministry of Education, Govt. of India (erstwhile Ministry of Human Resource Development) to the tune of Rs. 75 Crores towards capital expenses, this 1.5 Lakhs sq. ft. (Square Feet) building features state-of-the-art facilities on par with global standards. During the Financial Year 2024 -25, an additional space of 8,000 sq. ft. was inaugurated on 19th March 2025 specifically designed to host R&D labs of specific requirements. This addition has increased the total space available in TRP to 67,000 sq. ft. approximately

TRP Outside

TRP Inside

TRP Office

As on 31st March 2025, a total of 23 entities are currently occupying 33,430 sq. ft. in total. Out of these 23, 18 are private companies and 5 are Centres of Excellence in various verticals.

During the Financial Year 2024 – 25, IITH Technology Research Park has provided space to 4 different private companies that are engaged in different verticals namely, Drone Technology, Fintech & Artificial Intelligence and 1 Centre of Excellence working on Godavari River Water Study. Companies hosted in IITH TRP have set up their R&D labs and are working in areas ranging from Software Drone Technology Biomed / Biotech Artificial Intelligence Satellite Related Technologies Fabless Chip Designing RF VLSI Critical Minerals, Fintech & Pharmaceutical-related research activities.

TIP - Technology Incubation Park

The TIP building, with a total built-up area of 14313 sqm, consisting of 11 blocks with a G+5 structure, is ready to support the incubation activity at IITH. The motto of IIT Hyderabad is Inventing and Innovating in Technology for Humanity (IITH). The Incubation ecosystem of IITH aims at nurturing ideas and innovations into viable technological and business ventures. The establishment of TIP is a major step forward in strengthening the incubation ecosystem of IITH. IITH has incubated more than 320+ startups that generated more than Rs. 1500+ crores of revenues and created 1100+ jobs.

Green Office

The Green Office at IIT Hyderabad is committed to promoting greenery while keeping the local ecology as a priority to help biodiversity prosper in the campus. Some of the important initiatives and achievements in 2024–2025 included plantation of over 45000 trees in total including the high-density Miyawaki plantation in collaboration with the CSR donors, and the monthly plantation drives, and special plantation drives throughout the year, and launch of a unique Community Garden initiative with 135 community plots (~35 sq. yards each) for the urban farming on campus.

More than 5000 trees were planted through monthly plantation drives, along with landscaping efforts involving 5000 shrubs and 2000 ground covers. In our special plantation drives, the annual monsoon plantation on May 29 coincided with SPIC MACAY 2025, hosted by IITH, where 2000 native trees were planted by volunteers from across the country. The exercise was ecologically planned to help harbor the bird and butterfly diversity on campus. Another important event during the monsoon plantation was the Global Young Conference hosted at IITH, where participants and dignitaries planted 1000 trees at the inauguration of the conference. We were also graced by the Vice President's visit, where, following the national slogan Ek Ped Maa Ke Naam, a tree plantation was done by the Honourable Vice President at the campus, along with 200 native trees.

We participated in Bird Count 2025, a global event, and released a coffee table book showcasing the birds of IITH on the foundation day, curated by FIC Green Office's Dr Rashmi Singh. The exercise was guided by urban ecology expert Ajay Gonji and WWF scientist Raja Sekhar. The lead horticulturist, Vamshi, and his team were awarded the prestigious CII Van Mahotsav Award on 8th March 2025, the Van Mahotsav Award for their efforts and plantation of over 40,000 trees at IITH.

Our CSR Collaboration plantations included:

- ICICI Foundation: Completed Miyawaki plantation of 34,800 plants in 3.48 acres.
- United Way Hyderabad & Genpact: Completed Miyawaki plantation of 4,500 plants.
- SBI & Canara Bank: Donated 1,300 plants for plantation inside IITH Campus Development & Plantation Drives

Sustainability & Beautification Initiatives:

- Developed low-cost nursery shade nets using scrap materials for propagation.
- Conducted sessions with Krishi Vigyan Kendra scientists on organic farming practices
- Created a lotus and water lily pond at Faculty Towers from unused space.
- Planted flowering and seasonal plants across campus to enhance aesthetics and engaging students in innovative design contest ideas.



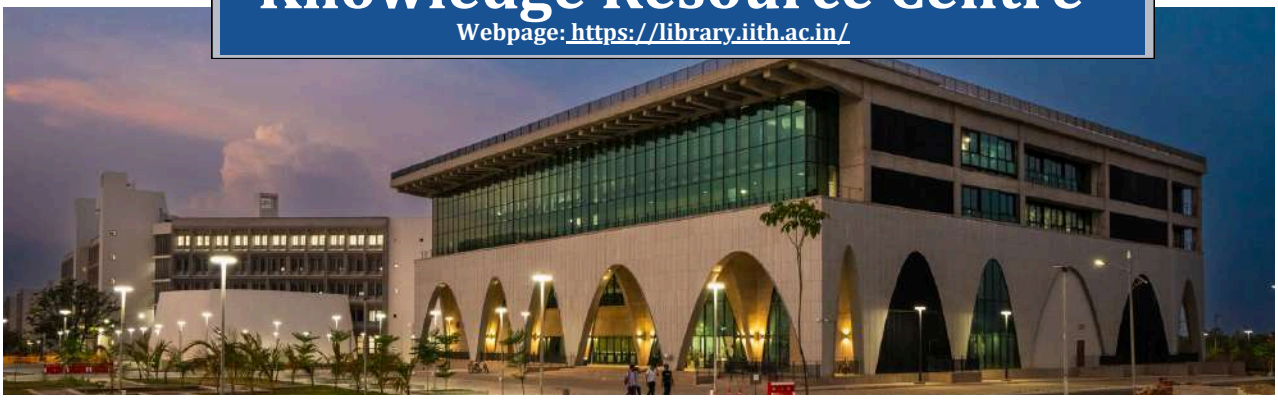

Waste Management and Pest Control Initiatives

At IITH, waste management and pest control are integral to promoting a clean, healthy, and sustainable campus environment. Our efforts focus on reducing waste, promoting recycling, and generating renewable energy while ensuring responsible pest control. Daily garbage collection is handled by Hand in Hand Management, where waste is carefully segregated, with reusable materials sent for recycling and inert waste incinerated at 1000°C, with the resulting ash repurposed as soil fertilizer. Organic waste is processed through composting and vermi-composting to produce nutrient-rich fertilizers used across campus gardens. Additionally, food waste from the mess is converted into renewable biogas to fuel campus kitchens, reducing reliance on conventional fuels.

This year, a new Resource Recovery Park was inaugurated by Director IITH, which will enhance waste segregation and processing. Pest control activities, including repellent spraying and safe snake and beehive removal, continue to maintain a safe environment. The Bicycle Department actively promotes sustainable transportation inside the campus and provided bicycles to over 878 students in year 2024–2025. To further inspire students, the "Cycle for Good Health" scheme offers reimbursements for bicycle purchases, promoting eco-friendly transport, personal fitness, and overall environmental well-being.

Knowledge Resource Centre

Webpage: https://library.iith.ac.in/



IITH Library has been functioning since 2008. The library presently holds more than 33,600+ Books, including gratis. E-resources collections include 5,000+ Full-text Resources, Bibliographic Databases, 1,83,000+ e-books, Academic Tools, and Online Newspapers & Magazines. The IITH library is fully automated with the integrated library software package using Koha and the RFID security automation system. IITH Library has been renamed as IITH Knowledge Resource Centre (KRC), relocated to the new building, and restarted its functioning on 27 March 2024.

Total built-up area and Floors:

9325.61 Sq. mt. / 100380.03 Sq. ft.; Ground + 3 floors

The Knowledge Resource Centre (KRC) is a ground plus three-storey structure. It was modelled as a library with a large digital collection, multimedia rooms and digital archives. Complex roof construction consisting of a central square surrounded by four hyperbolic paraboloid shell roofs. It has fair-faced exposed concrete parabolic arches of various heights and widths at multiple locations.

KRC is equipped with all new facilities such as:

Koha LMS, RFID, Self-Issue Return Kiosk, Digital Wall and displays, AV Rooms, Recording Studio, Group Discussion Rooms with displays, Research Commons Computer Lab, Learning Commons Lab, Conference & Meeting Rooms, Printing, Digitisation, Scholar Zone, Reading Areas, Study Carrels, Formal and Informal seating spaces and many more services to its patrons.

Following is the summary of the infrastructure, facilities, services and state-of-the-art technology available at KRC to support Teaching-Learning and Research (TLR) activities.

Library Collections

TOTAL COLLECTION AS ON MAR 31, 2025

Type of Collection	Additions in 2024-25	Total collection
Books	4115	36406
Children Books	850	1127
Hindi Books	76	113
Theses & Dissertations	2024 - 615, 2025 - 79	694
E-Resources	3	23
E-Books	73029	3,45,780

Research Output by IITH fraternity:

Publications:

Total Publications: 11,965+

Total citations: 2,20,811+

H-index: 145

Source: Scopus

Books / Edited Books:

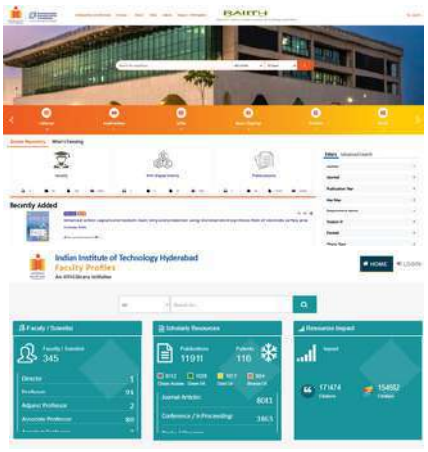
50+ Books:

Library Initiatives

Online Catalogue (OPAC): https://catalogue.krc.iith.ac.in/

The library catalogue of IITH allows users to search and browse a wide collection of books, journals, and academic resources online. Users can suggest new acquisitions, access library services, and submit feedback, supporting the research and learning needs of the campus community. This centralized platform streamlines resource discovery and library management for IITH. The catalogue is a core component of the Knowledge Resource Centre's efforts to support research, learning, and teaching within IITH, making information discovery and resource management convenient and user-oriented.

Institutional Repository (RAIITH): https://raiith.krc.iith.ac.in/



The institutional repository of IIT Hyderabad, RAIITH, serves as an open-access platform archiving the scholarly output of the institute's faculty, students, and staff. It enables users to search and access research articles, theses, conference papers, and more, promoting research visibility and long-term digital preservation. The repository boosts global access to IITH's research and supports academic and industry collaborations and enhances the research visibility of IITH's scholarly publications across the globe.

IRINS Faculty Profile: https://iith.irins.org/

The IITH IRINS portal provides detailed profiles of IITH's faculty and researchers, aggregating their publications, projects, and academic achievements. It integrates data from major scholarly databases like ORCID and Scopus, making research outputs easily discoverable.IRINS integrates with databases such as Scopus and Google Scholar to fetch h-index and citation counts automatically for each faculty member. The platform supports collaboration, enhances research visibility, and simplifies tracking academic accomplishments for the institute.

Teaching-Learning and Research Support

The IITH Library supports teaching, learning, and research by providing access to a rich collection of books, e-Books, journals, and digital resources. It offers remote access to e-resources, study spaces, group discussion rooms, and facilitates document delivery and interlibrary loans. Users can suggest new acquisitions, and the library provides printing and scanning services, ensuring a comprehensive academic environment for research and learning needs.

KRC provides robust, user-focused support for teaching, learning, and research. With comprehensive resource access, responsive acquisition policies, advanced research tools, and dedicated physical and virtual spaces, it ensures the academic success of its community.

Library Outreach Activities

LIBRARY ORIENTATION, TRAININGS, WORKSHOPS & EVENTS

User Awareness Workshop on Scite.ai - A smart citation database, 05-03-2025

Author Workshop on How to get published by IOP Publishing, 11-11-2024

Library Infrastructure

Facilities	Services	Infrastructure
Reading Areas • Scholar Zone • Group-Discussion-Rooms • Study Carrels Recording Studio Learning-Commons Research-Commons Video-Conference-Room Virtual-Class-Room Seminar Room Meeting-Room	• Circulation • Library Membership • New Arrivals Alerts • OPAC - Book Catalogue • Document Delivery Services • User Orientation Programs • Library Statistics for Reports • Online Access to e-Resources • Open Access e-Resources • Off-Campus Access • Book Suggestion/Procurement • Online Booking of facilities	• RFID Security Gate • Self Check-in / Check-Out • Reading Areas • Centralized AC • Wi-Fi Access • Book Stack areas • Printing/Scan/Copy material • CCTV • Ramp Access for Specially-Abled Users

Collections	Research Support	Library Initiatives
Print Books / E-Books • Core Subject Books • Faculty Publications • Rajbhasha (Hindi) Collection • Japanese Book Collection • Telugu Book Collection • Indian Regional Language Book • Competitive Exam Book • Young Minds Collections • Autobiography / Biography e-Resources • Off-Campus Access Database Standards	• Similarity Check/Plagiarism • Tools Access – Turnitin, Grammarly, Overleaf, etc. • Reference Managers • Scientific Tools • Citation Styles • Article Request	• •Koha LMS - OPAC • •RAIITH (Institutional Repository) • •IRINS Faculty Profile • •Research Support • •Pragyaan collections • Exit/Entry Statistics

Hindi Cell

In pursuance of the Official Language Policy of the Government of India, the Hindi Cell of the Indian Institute of Technology Hyderabad is promoting the progressive use of Hindi in the Institute. Every possible effort is made by the Hindi cell to follow the rules and regulations related to official language Hindi in the institute. Quarterly Progress Report and Annual Evaluation Report related to the progress of Official Language Hindi in our Institute is sent by the Hindi Cell to the Ministry of Education, Department of Official Language, Government of India & Town Official Language Implementation Committee(TOLIC). The highlights of Hindi Cell's official language activities are as follows:

Ongoing Activities of the Cell

Hindi Cell translates the Institute's Annual Report, Annual Audit Report and various other documents like Notifications, orders, standard drafts, press releases etc., which are covered under Section 3(3) of the Official Languages Act, 1963. In addition, various other letters and correspondence, RTI-replies etc., are either translated or prepared in Hindi. The Hindi Cell also tries to ensure the effective implementation of the "Official Language" policy of the Government of India in the Institute. Hindi Cell ensures use of bilingual display boards and various name boards, notice boards, rubber stamps, letter heads, bilingual file covers and also helps in compliance thereof. It also ensures bilingual preparation of degree certificates, PhD thesis titles etc. to be awarded by the Institute during the convocation.

Hindi Language Training

Hindi Cell emphasizes the need to impart Hindi training to all those employees of the Institute who do not have working knowledge of Hindi. The Hindi Cell nominates all such employees and gets them trained by getting them admitted in training programs like Prabodh, Praveen and Pragya through the Hindi Teaching Scheme under the Central Hindi Training Institute.

Hindi Workshops:

In order to solve the difficulties and problems faced by the employees in the use of official language in their day-to-day official work, the Hindi cell organizes Hindi workshops for the employees of the Institute in every quarter and eminent official language scholars are invited. The details of Hindi workshops organized are as shown

Date	Invited Guest Faculty	Topics of the workshop
28-06-2024	Dr. Shivanand Kalekar, Asst. Director, HTS, Secunderabad	Official Language Implementation & Official Correspondence
30-09-2024	Shri. Kamaluddin, Asst Director, HTS, Secunderabad.	Hindi Official Terminology
19-12-2024	Shri. Santosh Kumar, Assistant Director(Technical), HTS,	Hindi Computer Skills & Hindi Typing
18-03-2025	Dr. Ravi Chandra Rao, Asst. Director, HTS, Secunderabad	Official Correspondence

Hindi Pakhwada Celebrations:

Hindi Cell organized "Hindi Pakhwada Celebrations" from 14 to 30th September, 2024, in the Institute. Hindi cell organized many competitions for the faculty, staff, and students, like essay writing, Dumb charades, official terminology competition, Singing, self-written Poetry recitation, General Knowledge Competition, Dictation, and Elocution competition. Shri. Shailesh Machra, Indian Forest Service Officer, Madhya Pradesh, was the chief guest on the occasion of the closing ceremony of Hindi Pakhwada celebrations on 17-10-2024. Certificates and mementos were awarded to all the winners of the various competitions organized during the Hindi Pakhwada celebrations. A cultural program is also organized on this occasion. In the end, the vote of thanks was given by Dr. Saurabh Kumar Singh, Faculty In-charge, Hindi Cell & Member Secretary, OLIC and after the national anthem, the Hindi Pakhwada celebrations were successfully concluded.

COMMITTEES

Official Language Implementation Committee

According to the guidelines of the Department of Official Language and on the recommendations of the Hindi Cell, the Official Language Implementation Committee(OLIC) was constituted on 06-09-2021. The Director of the institute is the Chairman of this committee and the Registrar is the Vice-Chairman. All section heads are members of the committee. Faculty in charge of Hindi cell is the member secretary of the committee. The purpose of this committee is to promote the implementation of the official language policies of the Government of India and to review the progressive use of Hindi in the institute.

TOWN OFFICIAL LANGUAGE IMPLEMENTATION COMMITTEE(TOLIC)

Indian Institute of Technology Hyderabad has taken membership of the Town Official Language Implementation Committee (TOLIC)-4 from the financial year 2024 onwards, which is currently headed by the General Manager Office, South Central Railway, Secunderabad. Town Official Language Implementation Committee, being an official committee constituted by the Department of Official Language, Ministry of Home Affairs, monitor and reviews the quarterly and annual reports regarding official language implementation and other activities etc. of all the member offices comes under its jurisdiction.

In the function organized by the Town Official Language Implementation Committee (TOLIC) on 14th November, 2024 in the auditorium of Rail Nilayam, South Central Railway, Secunderabad, our institute was awarded third prize for better implementation of official language and our institute's Pravaat magazine was awarded the second prize in the best E-magazine category

PUBLICATION

In order to promote Hindi language activities in the institute, Hindi Cell started publishing Hindi quarterly e-magazine "Pravat". During the financial year 2024-25, four issues of Pravat Hindi quarterly e-magazine were published – in April, July and October 2024 and January 2025.

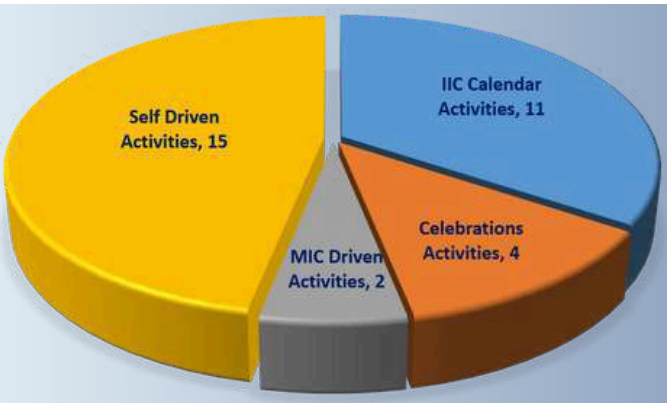
IIC - Institution's Innovation Council

Webpage: https://innovationcouncil.iith.ac.in/

Vision: Fostering innovation-driven entrepreneurship at IITH to empower an Aatmanirbhar Bharat

Mission and Mandate:

- Identification of the best ideas and providing them with a 'womb' to incubate, eventually to transform into a Startup or entrepreneurial endeavor.
- Soliciting an entrepreneur through the application of knowledge and expertise, academic as well as industrial.
- Empowering an idea with all the important ingredients and resources aiding its conversion into a successful product or service.
- Helping entrepreneurs to grow holistically with business acumen.
- Bring socio-economic change in the country by finding innovative solutions to local problems.
- Meet periodically to formalise the discussion and keep action points for activities in the coming quarter, and regularly update them.



IIC Activity Statistics at IITH for FY 2024-2025

iTIC, IITH hosted the International SPARC Workshop on Translational Bio-Nano Medical Systems

Dean ITS Office along with IIC organized "Start Up & Innovation Ecosystem" at IITH on the occasion of "National Startup Day"

Workshop on "Empowering Startups in the 5th Industrial Revolution: Opportunities, Challenges, and the Digital Mindset"

Workshop on "Disruptions in Entrepreneurship" by Mr Indraneel Ganguli, Global Head: Brand and communications at Sutherland

Tinkerer's Lab & IIC conducted a workshop on Problem Solving, Troubleshooting in AIML and Deep Learning in IITH byMr Aayush Adlakha

National Events

The Department of Sports, IIT Hyderabad, celebrated the 10th International Yoga Day IDY 2024, with the theme, "Yoga for Self & Society

IIT Hyderabad proudly celebrated the 78th Independence Day, immersed in the colors of the tricolor, and reaffirmed its commitment to honouring our roots with the spirit of Independent India

IITH commemorated the Vigilance Awareness Week by administering the Integrity Pledge ceremony and various vigilance-themed competitions. The week saw enthusiastic participation from faculty, staff, and students, who attended on a large scale and gained valuable insights into vigilance

IIT Hyderabad celebrated the 76th Republic Day with patriotic fervor and unity, featuring the hoisting of the national flag and inspiring addresses that reflected the spirit of the Constitution.

IIT Hyderabad actively participated in the Swachhata Hi Seva campaign by adopting the "Ek Ped Maa Ke Naam" initiative, encouraging the plantation of trees in honor of mothers—symbolizing love, care, and a collective commitment to nurturing both nature and our communities.

IIT Hyderabad proudly celebrated Samvidhan Diwas (Constitution Day) on 26th November 2024, commemorating 75 years of the adoption of the Indian Constitution

IIT Hyderabad has celebrated Jan Jatiya Gaurav Diwas on campus till 26th November 2024 with multiple events

The NSS and IIC at IIT Hyderabad proudly organized the "National Youth Day celebration" featuring Mrs Uma Harathi, a distinguished IAS officer from the Telangana Cadre and the District Administrator

Inventing & Innovating in Technology for Humanity

DEPARTMENTS

Department of Artificial Intelligence

Welcome to the Department of Artificial Intelligence at IIT Hyderabad, the first dedicated AI department in India, established in 2019. We offer a comprehensive range of academic programs, including BTech, MTech (2-year and 3-year), and PhD, with a curriculum rooted in programming, mathematical foundations, and cutting-edge AI applications. Our students explore diverse domains such as autonomous systems, healthcare technologies, natural language processing, computer vision, and more.

At IIT Hyderabad, we prioritize real-world learning through immersive industry experiences. Our BTech students benefit from 6-month, semester-long internships, while both BTech and MTech students can engage in summer internships or joint MTech positions with our industry partners. These hands-on opportunities equip students with practical expertise and essential professional skills, ensuring they are well-prepared to tackle complex, real-world challenges.
We invite you to explore collaboration opportunities with our department, whether through our placement drives, internships, or industry partnerships. Together, we can foster innovation, drive growth, and shape the future of artificial intelligence.
We look forward to building meaningful partnerships and advancing AI research and development with you.

For more information, please visit: **https://ai.iith.ac.in/**

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Publications:

1. Ghalme G, et al. (2024). A Discrete and Bounded Locally Envy-Free Cake Cutting Protocol on Trees. In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics): Vol. 14413 LNCS (pp. 310–328). https://doi.org/10.1007/978-3-031-48974-7_18
2. Gupta S, Ghalme G, et al. (2024a). Capacitated Online Clustering Algorithm. In Frontiers in Artificial Intelligence and Applications (Vol. 392, pp. 1880–1887). https://doi.org/10.3233/FAIA240701
3. Gupta S, Ghalme G, et al. (2024b). Online Algorithm for Clustering with Capacity Constraints. In ACM International Conference Proceeding Series (pp. 572–573). https://doi.org/10.1145/3632410.3632475
4. Pokhriyal S, Ghalme G, et al. (2024). Simultaneously Achieving Group Exposure Fairness and Within-Group Meritocracy in Stochastic Bandits. In Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems, AAMAS (Vols. 2024-May, pp. 15761584).https://www.scopus.com/inward/record.uri?eid=2s2.085196395810&partnerID=40&md5=4877dce54d88f784b9e7220e2bfcdde0
5. Chen Z, Karthik P N, et al. (2024). FIXED-BUDGET DIFFERENTIALLY PRIVATE BEST ARM IDENTIFICATION. In 12th International Conference on Learning Representations, ICLR 2024. https://www.scopus.com/inward/record.uri?eid=2-s2.085200549523&partnerID=40&md5=0325210c08471745c17b09da75cad3e3
6. Chen Z, Karthik P N, et al. (2024). Federated Best Arm Identification with Heterogeneous Clients. In IEEE Transactions on Information Theory (Vol. 70, Issue 6, pp.4258–4279). https://doi.org/10.1109/TIT.2023.3338027
7. Karthik P N, et al. (2024). Optimal Best Arm Identification with Fixed Confidence in Restless Bandits. In IEEE Transactions on Information Theory (Vol. 70, Issue 10, pp. 7349–7384). https://doi.org/10.1109/TIT.2024.3419924
8. Karthik P N, et al. (2024). Best Arm Identification with Arm Erasures. In IEEE International Symposium on Information Theory—Proceedings (pp. 2293–2298). https://doi.org/10.1109/ISIT57864.2024.10619688
9. Adhikari S, Mopuri K R, et al. (2024). Lost in Context: The Influence of Context on Feature Attribution Methods for Object Recognition. In ACM International Conference Proceeding Series. https://doi.org/10.1145/3702250.3702254

Funded Research Projects:

1. Karthik P N; Best Arm Identification with Arm Erasures; 1.29 L. [ITS/2024/002328].
2. Ganesh Sambhaji Ghalme; AI-PC experience development center P.O.No (PO#3500268440); 38.00 L. [S350].

Awards & Recognitions:

1. Dr Nagarajan Ganapathy, Department of Biomedical Engineering, and Dr Ganesh Sambhaji Ghalme, Department of Artificial Intelligence, have received a Bill & Melinda Gate Foundation Grant.

Department of Biomedical Engineering

Over the past year, the Department of Biomedical Engineering has achieved remarkable progress in advancing medical technologies and developing next-generation therapeutic solutions. Our research and innovation efforts have led to several pioneering projects that address critical healthcare challenges and improve patient outcomes.

One of our most significant accomplishments is the progressing toward clinical trial of a biomimetic hydrogel for treating blinding corneal diseases. This advanced biomimetic hydrogel, developed using decellularized extracellular matrix (ECM)-based biomaterial and human limbal stem cells, closely mimics the natural cornea's structure and function. The approach aims to overcome major limitations of conventional corneal transplantation, such as donor shortages and graft rejection, offering new hope for patients suffering from blinding corneal diseases.

In parallel, the department has developed an autologous platelet-rich plasma (PRP)-loaded personalized wound care patch designed for effective and affordable burn wound management at the patient's bedside. This innovation leverages the body's own regenerative potential, enabling rapid wound healing while minimizing the risk of infection and reducing treatment costs.

Our researchers have also introduced a bioinspired gold-coated phage nanosystem for antimicrobial and anticancer theranostics. By combining the specificity of bacteriophages with the functional advantages of gold nanoparticles, this hybrid system enhances stability, enables targeted therapy, and facilitates precise imaging—offering a promising approach to combat antibiotic-resistant infections and improve localized cancer treatments.

In the field of human–machine interaction, we are exploring the estimation of human affective responses to vibrotactile stimulation. This study investigates how different vibration patterns influence perception and emotion, paving the way for improved sensory feedback in rehabilitation devices, assistive technologies, and immersive virtual environments.

Addressing metabolic diseases, our team has designed a macroencapsulation device for immune isolation in diabetes treatment. This biocompatible device protects insulin-producing cells from immune attack, potentially reducing dependence on immunosuppressive therapy and improving the success of pancreatic islet transplantation.

Finally, we are advancing miniaturized diagnostics through the design and development of chip-scale microdevices for bioanalytical applications. These lab-on-a-chip platforms integrate complex biological assays into compact, efficient systems that promise faster, more accurate, and cost-effective diagnostic testing in both clinical and research settings.

Collectively, these innovations underscore the department's commitment to translational biomedical research, bridging engineering and life sciences to develop technologies that redefine diagnostics, therapeutics, and patient care.

For more information, please visit: https://bme.iith.ac.in/

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Patents:

Filed:

1. Aravind Kumar Rengan; A Formulation Comprising Iohexol Functionalized Dopamine Compound and a Method of Preparation Thereof; 202441102596.
2. Aravind Kumar Rengan; Fluorescent Enhanced Silver Triflate Nanoclusters Using Silver Triflate Precursor; 202441101142.
3. Falguni Pati; Systems and Methods for Generation of Patient-Specific Craniomaxillofacial Implants; 202441064413.
4. Kousik Sarathy Sridharan; A Multimodal Interaction System for Virtual Assessment and A Method Thereof; 202441095905.
5. Jyotsnendu Giri; Gelatin Nanofibrous Noninvasive Microsphere, Scaffold and A Method of Preparing the Same Thereof; 202441055104.
6. Mohan Raghavan; A Multimodal Interaction System for Virtual Assessment and A Method Thereof; 202441095905.

Published:

1. Aravind Kumar Rengan; A Fluid Collection Device for Collecting Fluids; 202341005050.
2. Aravind Kumar Rengan; Bioinspired Gold-Coated Phase Nanosomes and a Process of Preparation Thereof; 202341013944.
3. Aravind Kumar Rengan; A Flavin Analogue for Lysosome Tracking and Photodynamic Therapy; 202441000773.
4. Aravind Kumar Rengan; A Pharmaceutical Composition and a Method of Preparation Thereof; 202441036487.
5. Aravind Kumar Rengan; A Wound Dressing for Preventing Biofilm formation on a Wound; 202441036378.
6. Aravind Kumar Rengan; A Wound Dressing for Preventing Biofilm formation on a Wound; 202441036378.
7. Aravind Kumar Rengan; Chitosan-Conjugated Carboxymethyl Inulin Modified Gold Nanoclusters Incorporating IR-820 and DNA-Conjugated pfhs for Biomedical Application and Preparation Thereof; 202441035158.
8 Aravind Kumar Rengan; Liposomal Nanoparticles Encapsulting Boldine and Ir- 775 for Therapy Against Metastatic Triple-Negative Breast Cancer and Preparation Thereof; 202441034692.
9. Aravind Kumar Rengan; Phage Nanosomes for Nir Dye Delivery and a Method of Preparation Thereof; 202441036196.
10. Aravind Kumar Rengan; A Phage-Modified Casein Nanocarrier Conjugated with Glutathione and Method of Preparation Thereof; 202441080547.
11. Aravind Kumar Rengan; A Phage-Modified Chitosan Nanocarrier and Method of Preparation Thereof; 202441075680.
12. Aravind Kumar Rengan; Composition for Delivery of Therapeutic Complex Within Golgi Apparatus and Method of Producing the Same; 202441084476.
13. Aravind Kumar Rengan; Liposome of Saussurea Obvallata and Its Process of Preparation; 202441086405.
14. Aravind Kumar Rengan; A Liposome Comprising Bronzaphyrin and Method of Preparation Thereof; 202441086634.
15. Aravind Kumar Rengan; A Nanoparticle Formulation and Preparation Thereof; 202441081750.
16. Aravind Kumar Rengan; A Functionalized Complex Nanoparticle Composition and a Method of Preparation Thereof; 202441086474.
17. Aravind Kumar Rengan; A Pharmaceutical Composition and a Method of Preparation Thereof; 202441085921.
18. Aravind Kumar Rengan; Supramolecular Hyogels and Method of Preparation Thereof; 202441086354.
19. Aravind Kumar Rengan; A Nanoliposomal Formulation and a Method of Preparation Thereof; 202441086472."
20. Aravind Kumar Rengan; A Liposomal Formulation and Preparation Thereof; 202441085475.
21. Aravind Kumar Rengan; A Nanoparticle Composition Having Anti-Cancer Activity and A Method of Preparation Thereof; 202441082537."
22. Aravind Kumar Rengan; Rhenium(I) Metallocycle and Method of Preparation Thereof; 202441086380.
23. Aravind Kumar Rengan; Gallic Acid and Ir-775 Loaded Liposome Nanoparticles for Phototherapy of Cancer and Preparation Thereof; 202441084440.
24. Aravind Kumar Rengan; Co(Ii) Thione-Based Catalyst and Method of Preparation Thereof; 202441079009.
25. Aravind Kumar Rengan; A Nanoliposome Formulation to Enhance the Efficacy of Doxorubicin in Prostate Cancer; 202441090417.
26. Aravind Kumar Rengan; Solvent-Based Synthesis of Gold Nanostructures for Enhanced Anticancer Efficacy; 202441091408.
27. Falguni Pati; Chipless Millifluidics Device for Spheroid Generation; 202441086475.
28. Falguni Pati; An In-Vitro Glomerular Filtration Barrier (GFB) Membrane and A Method of Preparation Thereof; 202441071348.
29. Falguni Pati; A Method for 3D Bioprinting a Corneal Tissue Construct and the Construct Thereof; 202441034917.
30. Falguni Pati; Chitosan-Conjugated Carboxymethyl Inulin Modified Gold Nanoclusters Incorporating IR-820 and DNA-Conjugated pfhs for Biomedical Application and Preparation Thereof; 202441035158.
31. Falguni Pati; A Method for Producing Hyogel Encapsulated Spheroids and A Modified Microfluidic T-Junction Tubing Apparatus; 202441086027.
32. Falguni Pati; A Hybrid Hyogel and A Method of Preparation Thereof; 202441091664.
33. Falguni Pati; Method and Apparatus for Cell Culture Treatment; 202441088059.
34. Falguni Pati; A Nozzle for a 3D Bioprinter and Method to Fabricate a Microfiber Aligned Scaffold; 202441017064.
35. Jyotsnendu Giri; Nanostructure-Hybrid Lipid Capsule System for Delivery/Co-Delivery of Nucleic-Acid and Active-Pharmaceutical Ingredient and Its Fabrication Method; 202241054829.
36. Jyotsnendu Giri; Polypropylene Sulphide Coating On Magnetic Nanoparticles as a Novel Platform for Excellent Biocompatible Timuli Responsive Smart Magnetic Nanocarrier for Cancer Therapeutics; 202341003976.

Jyotsnendu Giri; A System and Method for Fabricating
37. Dual Ph/Temperature Responsive Nanostructure Hybrid-Lipid Capsule for Theragnostic Application; 202341015865.
38. Jyotsnendu Giri; A Cyclic Anhydride-Modified Proteins Composition and A Process for Hyogel Preparation for the Same; 202341040152.
39. Kousik Sarathy Sridharan; Method and System for Continuous Estimation and Feedback of Arousal and Valence States; 202441036947.
40. Mohan Raghavan; Method and System for Continuous Estimation and Feedback of Arousal and Valence States; 202441036947.
41. Nagarajan Ganapathy; An Artificial Intelligence (AI) Driven Non-Contact Stress Detection System; 202441036963.
42. Nagarajan Ganapathy; System and Method for Non-Invasive, Non-Contact, and Real-Time Vital Sign Monitoring; 202441037262.
43. Nagarajan Ganapathy; An Image Processing System and Method to Classify Eye Condition; 202441038983.
44. Nagarajan Ganapathy; Apparatus for Real-Time Wireless Transmission of Vital Parameters and Method of Manufacturing the Same; 202441085856.
45. Nagarajan Ganapathy; System and Method for Assessment of Ground Glass Opacity in A Computed Tomography Image; 202441084895.
46. Nagarajan Ganapathy; A Non-Invasive Device for Real-Time Screening and Assessment of Keratoconus; 202441097171.
47. Subha Narayan Rath; A System and Method for Detection of Molecules; 202441085374.
48. Subha Narayan Rath; A Versatile Microfluidic Platform and Its Application Thereof; 202341037655.

Granted:

1. Aravind Kumar Rengan; Detection Kit for Diagnosis of Cervical Cancer by Quantification of Visual Inspection of Acetic Acid; 201841016604.
2. Aravind Kumar Rengan; Thermosensitive Hydrogel for Cancer Therapeutics and Methods of Preparation Thereof; US 17/325,290.
3. Aravind Kumar Rengan; Modified PEG-400 (MPEG-AA Complex) and Uses Thereof; 202141003895.
4. Aravind Kumar Rengan; A Method for Producing Lipid-Based Nanocochleates Loaded with Hydrophobic Metformin; 202341073856.
5. Aravind Kumar Rengan; A Liposomal Composition Comprising a Near Infra-Red Triimide Dye and Method of Preparation Thereof; 202441036139.
6. Aravind Kumar Rengan; A Nanoparticle Composition and a Method of Preparation Thereof; 202441035306.
7. Aravind Kumar Rengan; Facial-Rheniumtricarbonyl (FAC-Re(Co)3) Dinuclear Metallocyclic Complexes and a Method of Synthesis Thereof; 202441035290.
8. Aravind Kumar Rengan; Rhenium (I)-Based Supramolecular Coordination Complexes and Method of Preparation Thereof; 202441032141.
9. Aravind Kumar Rengan; Hybrid Cell Membrane Nanosome and a Method of Preparing the Same; 202441036003.
10. Aravind Kumar Rengan; Barium Nanocomposites for Bioimaging and Chemo-Photothermal Therapy and Process for Preparation Thereof; 202441033822.
11. Falguni Pati; Decellularised Corneal Matrix Based Hydrogel, Bioink formulation and Methods Thereof; 201841009835.
12. Falguni Pati; Polycaprolactone-Bioactive Glass Composite Scaffolds and 3D Printable Filaments, Applications and Preparation Methods Thereof; 201841041833.
13. Jyotsnendu Giri; A Device for Fabricating Micro and Nano Fibres and Particles; 201741017782.
14. Subha Narayan Rath; Polycaprolactone-Bioactive Glass Composite Scaffolds and 3D Printable Filaments, Applications and Preparation Methods Thereof; 201841041833.

Book chapters:

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Funded Research Projects:

1. Aravind Kumar Rengan; Development of phage modified Degradable Nanoclusters for Radio-immunotherapy of Triple Negative Breast Cancer; 203.13 L. [S361].
2. Avinash Eranki; Development of indigenous robotic ultrasound for synchronous management of tumor motion and Radiation Hyperthermia; 121.24 L. [G729].
3. Avinash Eranki; Ultrasound-triggered active drug delivery (uADD) System for Triple Negative Breast Cancer Therapy; 65.26 L. [G698].
4. Jyotsnendu Giri; Platelet Rich Plasma (PRP) based allogenic "off-the-shelf" cosmeceutical product for chronic/diabetic wound healing; 50.00 L. [CSR-4].
5. Kousik Sarathy Sridharan; MoE IKS minors program - Technology for Yoga; 12.00 L. [NA].
6. Nagarajan Ganapathy; MuStPiC: Multimodal Stress Assessment in Fighter Pilots Using Contrastive Learning: A Novel Approach for Real-Time Intervention; 35.00 L. [TDG02].
7. Nagarajan Ganapathy; 3D Model Data Generation Solution Using AI-Based Architectural Drawing Technology; 71.28 L. [S363].
8. Renu John; ICMR COE in Medical Devices; 1.5 L. [G402].
9. Subha Narayan Rath; Autologous islet transplantation in pancreas resection patients with clinical validation: Role of immunoisolation devices for islet survival; 43.00 L. [G797].
10. Subha Narayan Rath; Centre on In-Situ Correlative Microscopy CISCoM; 7.9 L. [DST-SATHI].
11. Subha Narayan Rath; Chondrogenic differentiation of umbilical cord derived stem cells; 60.00 L. [G298].

Awards & Recognitions:

1. Nagarajan Ganapathy, Department of Biomedical Engineering, Ganesh Sambhaji Ghalme, Department of Artificial Intelligence, have received a Bill & Melinda Gate Foundation Grant.
2. Athul V Rajeev, PhD Scholar, working under the supervision of Dr Harikrishnan Narayanan Unni, received the Best Paper Award at the International Conference ICBES 2024
3. Sriram H K, PhD Scholar, working under the supervision of Dr Harikrishnan Narayanan Unni, received the Best Paper Award at the International Conference ICBES 2024
4. Ms Monica Gunasingh, PhD Scholar, working under the supervision of Dr Neelavalli Jaladhar, received the Best Oral Presentation Award at the 11th Annual Scientific Meeting of the Indian Chapter of the International Society of Magnetic Resonance in Medicine, held at IIT Hyderabad.

Research Highlights

1. Clinical trial of biomimetic hydrogel for blinding corneal diseases.
2. Autologous Platelet-rich Plasma (PRP) loaded personalized wound care patch at patient bedside for effective and affordable burn wound care
3. Bioinspired gold-coated phage nanosystem for anti-microbial and anticancer theranostics.
4. Estimation of human affect response to vibrotactile stimulation
5. Macroencapsulation device for immune-isolation purposes for diabetes. Design and development of chip-scale microdevices for bioanalytical applications.

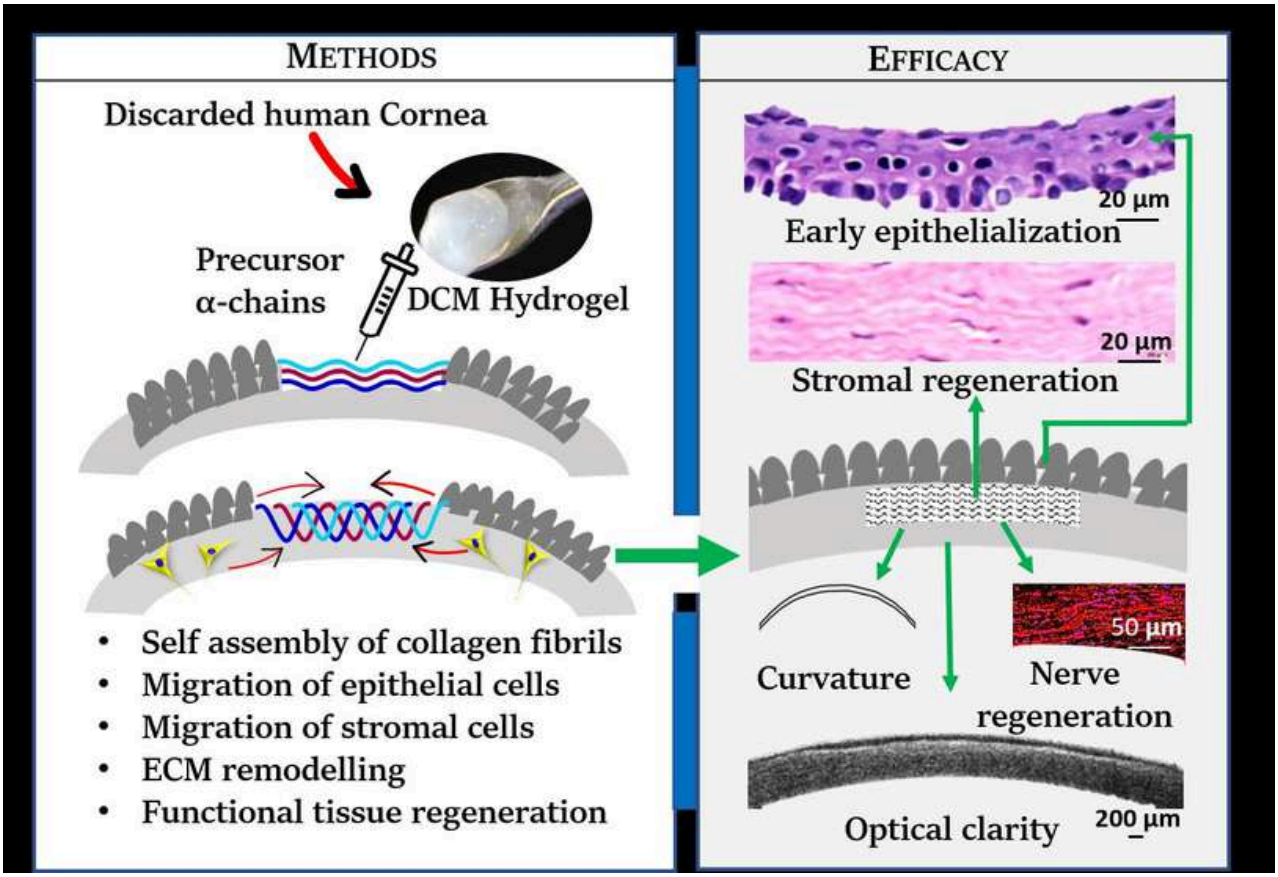


Figure 1. Treatment of blinding corneal diseases with a biomimetic hydrogel

Department of Biotechnology

Since its establishment in 2010, the Department of Biotechnology at IITH has maintained an uncompromising commitment to excellence in both teaching and research. Our journey has been marked by continuous growth in capabilities and the cultivation of exceptional future scientists who aim to drive innovation in biotechnology and bioinformatics. Our DNA-shaped building has modern infrastructure, which currently houses 17 world-class research laboratories alongside dedicated teaching facilities that provide our students with hands-on learning experiences.

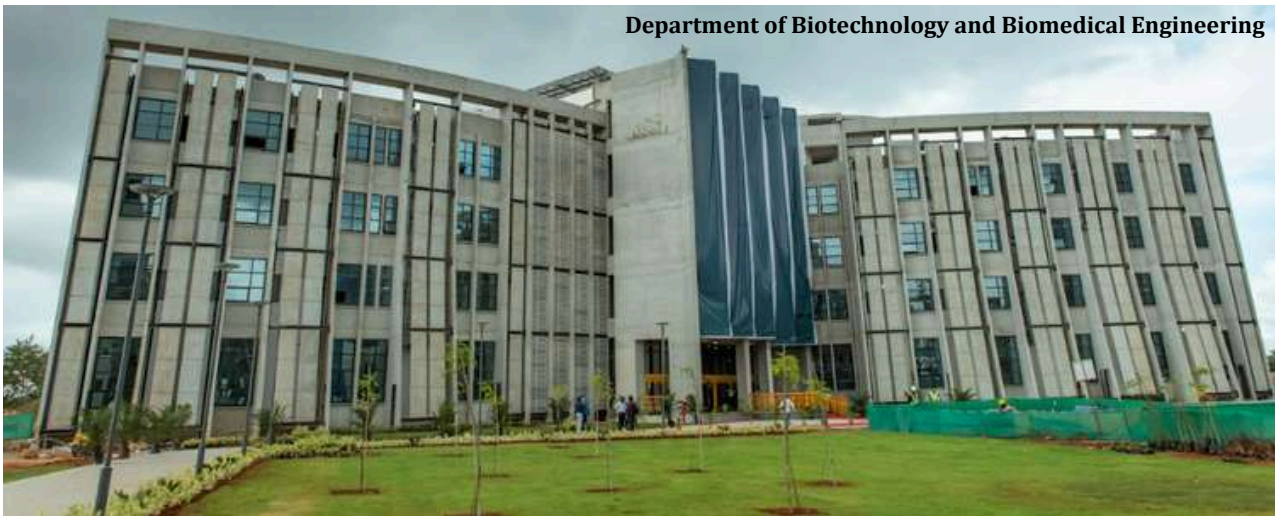
We are proud to have 203 students, 17 regular faculty members, one distinguished professor, one affiliated faculty member, and a dedicated team of 5 technical and office staff who constantly work towards enhancing the research and academic environment at the department. Last year, we welcomed Dr Savita Devi as a faculty member. She comes with excellent expertise in immunology and therapeutics.

In the financial year 2024-25, we got approval for approximately 14 crores of research and facility development funding. Notably, the Department of Biotechnology is establishing a national facility for single-molecule and super-resolution imaging under DBT SAHAJ. In the past year, our faculty published more than 50 research articles in reputed journals.
The department organised a multitude of events, which included international conferences: “International conference on circadian rhythms in health and disease (CRHD-2024) and “Horizons in Structural and Computational Biology-2025 (HSCB-2025)”.

To stay competitive in today's rapidly evolving world, the Department of Biotechnology organised several workshops to empower students from IITH and beyond: "Online Workshop on Image Processing and Data Analysis using ImageJ," "AI-Assisted Manuscript Writing Workshop," and the highly sought-after "How to Land Your First Biotech Job? Half-Day Online Workshop." To further empower our students, we facilitated participation in the "Sakura Exchange" program hosted by Hokkaido University, Japan, in 2024.

This year, 8 BTech, and 19 MTech students will receive their degrees in the upcoming convocation 2025. A majority of students have graduated with accolades and are either placed or going for higher studies. Committed to community upliftment alongside our growth, we welcomed students from diverse backgrounds across privileged and underprivileged institutions, including Yuvaraja's College (Autonomous), DEO NTR AP, Oakridge International School Hyderabad, and JNV Choppadandi, Karimnagar, Telangana. The department has a vibrant and engaged student-led “Biotech Society” which not only organised excellent seminars for academic enrichment but also enthusiastically organised and participated in celebrating the Foundation Day, Teachers' Day, Freshers' Day, Sports meet, World Health Week, and Farewell to the graduating students. As we enter another year, the department remains committed to excelling beyond boundaries.

For more information, please visit: https://biotech.iith.ac.in/



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Patents:

Filed:

1. Sandipan Ray; Liposomal Nanoparticles Encapsulting Boldine and Ir- 775 for Therapy Against Metastatic Triple-Negative Breast Cancer and Preparation Thereof; 202441034692.
2. Himanshu Joshi; Phage Nanosomes for Nir Dye Delivery and a Method of Preparation Thereof; 202441036196.
3. Sandipan Ray; Gallic Acid and Ir-775 Loaded Liposome Nanoparticles for Phototherapy of Cancer and Preparation Thereof; 202441084440.
4. Rajkumara Eerappa; Anion Polymer Poly (Cytidine Diphosphate Ribose) and Its Method of Preparation; 202441084131.

Granted:

1. Anamika Bhargava; A Method for Producing Lipid-Based Nanocochleates Loaded with Hydrophobic Metformin; 202341073856.

Books:

1. Kinger S, Mehta G, et al. (2024). Proteostasis in neurodegenerative diseases. In Advances in Clinical Chemistry (Vol. 121, pp. 270–333). https://doi.org/10.1016/bs.acc.2024.04.002.
2. Sastry G N, M H J, K a, N S. (2024). ARTIFICIAL INTELLIGENCE AND INDUSTRY 5.0.

Book Chapters:

1. Meur G, Anindya R, et al. (2024). Biochemistry and immunology of inflammation-mediated responses in the development of diabetes mellitus. In Biochemical Immunology of Diabetes and Associated Complications. https://doi.org/10.1016/B978-0-443-13195-0.0001.
2. Kumar A, Kumar R, et al. (2024). Advancement of in silico tools for stem cell research. In Computational Biology for Stem Cell Research. https://doi.org/10.1016/B978-0-443-13222-3.000186.
3. Sumona Garg, Bhavya Surendran V S, and Althuri Avanthi. Recent Trends and Applications of Biochar and Nanoparticles from Plant Biomass. In book: Medicinal and Aromatic Plants: Current Research Status, Value-addition to their Waste, and Agro-industrial Pot.
4. Mehra M K, Surendran B, Sruthi B, Althuri A. Scale-Up Strategies for Solid State Fermentation. In book: Biotechnology Engineering, Subtitle: A Practical Approach to Bioprocess Development from Lab to Industrial Scale. Ed.Vinayaka B Shet, Sandesh K, Mubarak.
5. Vinith Kumar K, Rishi B, Sruthi B, Sumona Garg, Lohit Kumar Srinivas Gujjala, and Althuri Avanthi. Fundamentals of Bioreactors and Accessories. In book: Biotechnology Engineering, Subtitle: A Practical Approach to Bioprocess Development from Lab to Industries.
6. Sruthi B, Mohit Kumar Mehra and Althuri Avanthi. Fungal Biomolecules as Nutraceuticals. In book: Bioprospecting of multi-tasking fungi for Therapeutic Applications Volume II. Ed. Dr. Kiran Babu Uppuluri, Dr Rangabhashiyma S. Springer Nature.
7. Mohit Kumar Mehra and Althuri Avanthi. Challenges and safety regulations for employing fungi in environmental applications. In book: Bioprospecting of multi-tasking fungi for a sustainable environment. Ed. Kiran Babu Uppuluri, Rangabashiyam Selvasembian.
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9. Hazarika S, Konwar A, & Sastry G N. (2024). Application of Membranes in the Petroleum Industry. CRC Press.

Publications:

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2. Garg S & Avanthi A. (2024). Tuning of chitosan with lignin-derived bioactive properties to develop a lignin-reinforced and sustainable food packaging biomaterial. In Biomass Conversion and Biorefinery. https://doi.org/10.1007/s13399-024-06037-8.
3. Meshram V D, Bhargava A, Joshi H, Patel B K, et al. (2024). Computational Insights Into the Mechanism of EGCG's Binding and Inhibition of the TDP-43 Aggregation. In Chemical Biology and Drug Design (Vol. 104, Issue 4). https://doi.org/10.1111/cbdd.14640.
4. Chakraborty Anindya R, et al. (2024). Excellent adsorption of toxic Cd (II) ions from water with effective antibacterial activity by novel GO-ZnO-curcumin composite. In Environmental Science and Pollution Research (Vol. 31, Issue 39, pp. 51971–51990).https://doi.org/10.1007/s11356-024-34685w.
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Funded Research Projects:

1. Abhishek Subramanian; Computational approaches to discover host-parasite metabolic interactions in human microeukaryotic parasite infections of the gut and lung; 10.00 L. [BT/RLF/Re-entry/04/2021].
2. Anamika Bhargava; Uncovering the functional roles and interplay of T-type calcium channels and estrogen receptors within various subtypes of breast cancers.; 15.99 L. [AC2024-1].
3. Anamika Bhargava; An experimental study of calcium channel expression and calcium dynamics in cells derived from Indian breast cancer patients; 18.25 L. [G536].
4. Anindya Roy; Role of ALKBH family Protein in promoting Triple-negative breast cancer; 33.46 L. [G697].]
5. Ashish Misra; Implantable dual drug-releasing scaffolds to reprogram the tumour immune milieu for robust cancer immuno therapy; 54.21 L. [G774].

6. Avanthi Althuri; A Novel Cellulose-Based Bio-mulch from Lantana camara, Shellac, and Gum Ghatti with Integrated PGPRs for Sustainable Agricultural Applications (Role- PI); 95.00 L. [Under Review].
7. Avanthi Althuri; Broadening the Sugarcane tops derived product portfolio with lignin hydrogel, Nanocellulose-Aerogel, and Yeast Oil-An Integrated strategy for harnessing the sustainable mercantile products for high value applications (Role- PI); 22.57 L. [G712].
8. Avanthi Althuri; Exploring the synergistic potential of LPMO and Cellulases for next generation Biorefineries (Role- Co-PI); 12.00 L. [Not yet assigned (recently approved)].
9. Avanthi Althuri; Rational Engineering of Fungal Strains for Enhanced 2G Cellulase Enzyme Production (Role-Co-PI); 117.00 L.
10. Gaurav Sharma; Genomic Diversity and Function analysis of chemosensory systems and chemoreceptor proteins along with identification of sensory ligand molecules in family vibrionaceae organisms; 28.02 L. [G724].
11. Gunjan Mehta; National Facility for' Single-Molecule and Super-Resolution Imaging'; 580.62 L. [G725].
12. Gunjan Mehta; Quantifying the role of chromatin remodelers in meiotic recombination using 1D southern hybridisation; 7.00 L. [AC2023-02].
13. Gunjan Mehta; Exploring the cohesin ring-independent functions of Rec8 during yeast meiosis; 7.50 L. [G398].
14. Himanshu Joshi; Multiscale molecular modelling of self-assembled and bio-inspired nanomaterials; 7.00 L. [F467].
15. Indranil Mailk; Mechanisms of chimeric peptide production and targeting dipeptide repeat toxicity in C9orf72-associated ALS/FTD; 26.00 L. [G810].
16. Rahul Kumar; Investigating the role of miR-122 super-enhancer in hepatocarcinogenesis for therapeutic intervention; 39.00 L. [BT/PR52559/MED/30/2534/2024].
17. Rajakumara Eerappa; Mechanistic and structural studies on the allosteric regulation of phospho-mimetic variants of poly(ADP-ribose) polymerases one activities by DNA break, PAR and PARP inhibitors; 86.00 L. [G727].
18. Rajakumara Eerappa; Mechanistic studies on regulation of poly (ADP-ribose) polymerases one activities by non-DNA factors, and PAR mimetics inhibitors design; 63.50 L. [G731].
19. Sandipan Ray; Circadian Rhythms in Health and Diseases (CRHD 2024); 3.50 L. [SSY/2024/001583].
20. Sandipan Ray; Investigation on the cross-talk among circadian aberrations, sleep deficiency, aging, and DNA damage for potential health and therapeutic benefits; 24.13 L. [G570].
21. Sandipan Ray; Validation of a translatable chronobiological signature of early relapse bipolar disorder; 541.48 L. [G691].
22. Savita Devi; Investigating the regulation of human Inflammasome activation in homeostasis and inflammatory disease; 64.19 L. [ANRF/ECRG/2024/003131/LS].

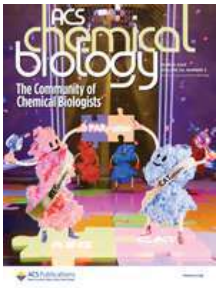
Awards & Recognitions:

1. Bhavya Surendran V S, PhD Scholar, working under the supervision of Althuri Avanthi, received the Best Poster Presentation Award in the Thematic Area of Microbial & Industrial Biotechnology at the International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2024).
2. Utkarsha Mahanta, PhD Scholar, working under the supervision of Gaurav Sharma, secured Second Position for the Poster Presentation at the INBIX-ADNAT 2024 international scientific conference titled: "Integrating Archaeogenetics, Forensics & Multi-omics for Human Health Breakthrough" organised by Banaras Hindu University.
3. Nitesh Kumar Podh, PhD Scholar, working under the supervision of Gunjan Mehta, received the Best Poster Award at the International Chromosome Stability meeting organised at JNCASR.
4. Kavita, PhD Scholar, working under the supervision of Rahul Kumar, received the Best Poster Award, accompanied by Rs. 50,000 cash at the Cancer NEXT 2024 conference, organised by the Federation of Asia Biotech Association (FABA) & Nizam Institute of Medical Sciences.
5. Sandipan Ray joined the editorial board of the Journal of Proteins and Proteomics on invitation by the editor-in-chief.
6. Sandipan Ray has been elected as the Vice President of the Indian Society for Chronobiology (InSC).
7. Saibal Saha, PhD Scholar, working under the supervision of Dr Sandipan Ray, received the 2nd Prize in Poster Presentation at the European Molecular Biology Organisation (EMBO) international meeting "Understanding Biological Clocks – Theoretical Framework to Cellular Basis" organised at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR).

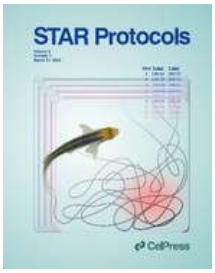
Research Highlights:

This year, our faculty were honoured with two cover page articles

1. Rajakumara Eerappa's Lab published a research article titled "Regulatory and Catalytic Domains of Poly (ADP-ribose) Polymerases Cross-Complement for DNA-Break-Dependent Allosteric Stimulation of Catalytic Activity", which was featured on the cover page of ACS Chemical Biology (American Chemical Society)!



2. Anamika Bhargava's group, in collaboration with Dr Yogesh Bhargava from Dr Harisingh Gour Central University, has made a significant contribution to ethical and accessible science! They've developed "ZebraTrack" – an open-source tool for analyzing zebrafish behaviour, a key alternative to higher animal models in research. While ZebraTrack was already a game-changer, its latest transformation into a step-by-step protocol in the prestigious the highlight is that their protocol has been featured on the cover page of the current issue!



Department of Chemical Engineering

ChE@IITH is known for its pursuit of excellence in chemical engineering education, research, and expert consulting support for industries in the energy, health, and processing sectors. With the support of 23 core faculty, one adjunct faculty from Shimane University, Japan, and 10 staff members, the department adopts a holistic approach of (i) fractal and hands-on / project-based practical teaching, (ii) connecting interdisciplinary research approaches to socially relevant problems, and (iii) inculcating a start-up culture and making high-quality education accessible for all our students. Broadly, our teaching covers various aspects of chemical, biochemical, mineral, materials, and process systems engineering. Our electives provide exposure to the state-of-the-art developments in the fields of energy, new materials, nanoscience, machine learning, and biochemical engineering. ChE@IITH offers BTech, MTech, and PhD programs featuring a curriculum that is both comprehensive and flexible, with options for exploring mini-research projects and internship opportunities. Faculty from the department are known for their contribution to the field and have been recognised with awards like the prestigious National Geoscience Award, Vasvik Award, and INSA Associate Fellow (IAF). Further, several department faculty members appear among the top 2% scientists in the world(Stanford University list 2024), bearing testimony to the quality and research environment in the department.

A large number of the faculty from the department are actively involved in hosting conferences and outreach workshops (TEQIP, ATAL-FDP). Faculty also participate in conferences/workshops by delivering invited / keynote lectures, benefiting the students and faculty across several institutes in India. The department also houses state-of-the-art research and teaching laboratories. The faculty members in the department conduct research in a wide variety of exciting areas such as catalysis, fluid flow, nanotechnology, materials for energy and biological applications, bioengineering, atomistic simulations, efficient energy harvesting and storage, process control and optimisation, machine learning, techno-economic analysis, supply chain management, mineral processing, and climate change. The department also contributes to nation-building by engaging in several national mission projects associated with the Ministry of Mines and DRDO.

For more information, please visit: https://che.iith.ac.in/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Patents:

Published:

1. Chandra Shekhar Sharma; A Biomass-Derived Porous Carbon as Sulfur Host for Energy Storage Device and a Method of Preparing Thereof; 202341033390.
2. Chandra Shekhar Sharma; A Process of Synthesis of Su8-Derived Aligned and Non-Aligned Carbon Nanofibres and Fabrication Therefor; 202341070538.
3. Chandra Shekhar Sharma; Metals-Embedded Resorcinol-Formaldehyde Xerogel-Based Carbon Cathode for High-Performance Batteries and a Method of Preparation Thereof; 202341042659.
4. Chandra Shekhar Sharma; A Process of Synthesis of Graphite Ink-Coated SU8 Polymer Derived Aligned and Non-Aligned Carbon Nanofibres and Fabrication Therefor; 202443047236.
5. Lopamudra Giri; An In-Vitro Method for Detecting Proteins in a Biological Sample and a Kit Thereof; 202441037060.
6. Lopamudra Giri; A Biocompatible Head Plate for Semibatch Bioreactors; 202441035701.
7. Suhanya Duraiswamy; In-Situ Co-Flow Synthesis of Photocatalyst in Microphotoreactor for Organic Degradation; 202441036926.
8. Suhanya Duraiswamy; A Method for Producing Hyogel Encapsulated Spheroids and A Modified Microfluidic T-Junction Tubing Apparatus; 202441086027.
9. Suhanya Duraiswamy; Chipless Millifluidics Device for Spheroid Generation; 202441086475.
10. Suhanya Duraiswamy; Programmable Self-Assembly and Surface Organisation of Anisotropic and Isotropic Gold Nanoparticles; 202441086462.

Granted:

1. Chandra Shekhar Sharma; Interlayer for Battery and Method of Preparing Interlayer Using Coal Tar Pitch; 202131028646.
2. Janardhanan Vinod; Kirti Chandra Sahu; Direct Paper-Based Fuel Cells for Micro-Nano System; 3515/CHE/2015.

Books:

1. Sunil Kumar Maity, Tridib Kumar Bhowmick, Kalyan Gayen; Nanobiotechnology Applications of Nanomaterials in Biotechnology, Medicine, and Healthcare; CRC Press (2024); https://doi.org/10.1201/9781003305583-fm.

Book Chapters:

1. Apparla N K, Sharma C S, et al. (2024). A Brief Review on Heteroatom-Doped Dual-Carbon Metal-Ion Hybrid Capacitors: The Role of Carbon Nanomaterials. In ACS Applied Nano Materials (Vol. 7, Issue 16, pp. 18676–18694). https://doi.org/10.1021/acsanm.
2. Mishra N, Shee D, et al. (2024). Novel high-entropy materials for hydrogen production. In Novel Materials for Energy Translation and Storage. https://www.scopus.com/inward/record.uri?eid=2-s2.085205531468&partnerID=40&md5=c35102f81e20bb48b0d1c361145474.
3. Ravi kiran I, Nayak S, and Mitra K. Machine Learning Assisted Metaheuristic Based Optimization of Mixed Suspension Mixed Product Removal Process, In Advanced Machine Learning with Evolutionary and Metaheuristic Techniques", Editors: Jayaraman V K.
4. Mahadevan J, Mitra K, & Giri L. (2024). Nonviral Platform for Expression of Recombinant Protein in Insect Cells. In Methods in Molecular Biology (Vol. 2829, pp. 289–300). https://doi.org/10.1007/978-1-0716-3961-0_23.
5. Mahadevan J, Mitra K, & Giri L. (2024). Nonviral Platform for Expression of Recombinant Protein in Insect Cells. In Methods in Molecular Biology (Vol. 2829, pp. 289–300). https://doi.org/10.1007/978-1-0716-3961-0_23.
6. Dhyani V, Giri L, et al. (2024). A Pipeline for Dynamic Analysis of Mitochondrial Content in Developing T Cells: Bridging the Gap Between High-Throughput Flow Cytometry and Single-Cell Microscopy Analysis. In Methods in Molecular Biology (Vol. 2800, pp.
7. Agarwalla S, Singh S K, Ibrahim M A, Noothalapati H, & Duraiswamy S. (2024). Antimicrobial Coatings: Current Mechanisms, Challenges, and Opportunities. In Functional Coatings: Innovations and Challenges. https://www.scopus.com/inward/record.uri.
8. Bhabatush Biswas, Kalyan Gayen, Sunil K Maity, Tarun Kanti Bandyopadhyay, Tridib Kumar Bhowmick, Chapter 1: Importance of Nanomaterials for Biological Applications. In Tridib Kumar Bhowmick, Kalyan Gayen, Sunil K. Maity, Nanobiotechnology Applications.

Publications:

1. Kavya M, Priyanka V, Jacob A R, & Nisha P. (2024). Investigating the Influence of Hydrogel and Oleogel Ratios on Physicochemical Characteristics, Microstructure, Rheology, and Texture of a Food-Grade Bigel. In Biomacromolecules. https://doi.org/10.1021/acs.biomac.4c00959.
2. Anand M Kiranmai P & Garimella S M. (2024). Stability of fully developed pipe flow of a shear-thinning fluid that approximates the response of viscoplastic fluids. In Applications in Engineering Science (Vol. 19). https://doi.org/10.1016/j.apples.2024.100191.
3. Roy T R, Dutta-Gupta S & Iyer B V S. (2024). Deformation-induced evolution of plasmonic responses in polymer-grafted nanoparticle thin films. In Nanoscale (Vol. 16, Issue 24, pp. 11705–11715). https://doi.org/10.1039/d4nr00789a.
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Funded Research Projects:

1. Alan Ranjit Jacob; Balaji Iyer Vaidyanathan Shantha; Mahesh Ganesan; Modelling and establishment of various process parameters for PCS fibers and modelling of PCS-SiC conversion process; 341.98 L. [G781].
2. Alan Ranjit Jacob; Rheological Signatures and Structure-Property Underpinning of Soap- Polymer interactions - Skin Cleansing; 33.71 L. [S357].

3. Anand Mohan; An Efficient Framework for Simulating Blood Flow in a Stenosed Channel; 33.48 L. [G714].
4. Balaji Iyer Vaidyanathan Shantha; Effect of Functional Anisotropy on Mechanical Properties of Polymer Nanocomposites; 37.63 L. [G694].
5. Chandrasekhar Sharma; CLEANZ COE; 9800.00 L. [G795].
6. Chandrasekhar Sharma; Financial assistance for organizing EAC-WMT mid-term evaluation of ongoing projects; 9.87 L. [G722].
7. Chandrasekhar Sharma; Brainstorming session on advanced materials; 31.80 L. [S342].
8. Debaprasad Shee; A combined experimental and theoretical approach towards rational design of supported metal catalysts for the reductive depolymerization of corncob lignin to produce bulk aromatic chemicals; 8.00 L. [G416].
9. Debaprasad Shee; CoE: Clean coal energy and net zero; 5000.00 L. [G795].
10. Kishalay Mitra; Application of Deep learning techniques for Robust Optimal Design of Integrated Water networks towards sustainable water management in
11. Petroleum Refineries; 63.60 L. [G644].
    Kishalay Mitra; Clean Coal Energy & Net Zero (CLEANZ CoE); 9800.00 L. [G795].
12. Kishalay Mitra; Development of an On-board Spray Controller Model for UAVs Using AI for Precision Agricultural Application; 40.18 L. [G436].
13. Kishalay Mitra; A Combined Experimental and Theoretical Approach Towards Rational Design of Supported Metal Catalysts for the Reductive Depolymerization of Corncob Lignin to Produce Bulk
14. Aromatic Chemicals; 40.18 L. [G416].
    Kishalay Mitra; Development of a Compression Ignition Engine working on Ammonia/Natural Gas & Biodiesel Blends; 100.00 L.
15. Kishalay Mitra; The Experimental Investigation and Numerical Modeling of Heat Absorption Efficacy of Additive Enhanced Endothermic Rocket Fuels; 230.00 L. [S253].
16. Kishalay Mitra; Prediction of Microstructure & Correlating it with Mechanical Properties for all grades of steel rolled in HSM; 49.40 L. [S219].
17. Kishalay Mitra; Portable Imaging Solutions Towards Affordable Healthcare: Microfluidic Devices for the Detection of Disease-specific Proteins; 68.80 L. [S369].
18. Lopamudra Giri; Sustained dual drug release of Timolol Maleate and Latanoprost for Glaucoma Treatment: In vivo studies towards cross-linker free drug-polymer formulation for usage as eye drop; 188.74 L. [G796].
19. Lopamudra Giri; Portable Imaging Solutions towards affordable healthcare: Microfluidic devices for the detection of disease specific proteins; 25.00 L. [G709].
20. Mahesh Ganesan; Rheological Signatures and Structure-Property Underpinning of Soap-polymer Interactions - Skin Cleansing; 33.72 L. [S357].
21. Narasimha Mangadoddy; Synergizing Excellence: Fostering a Bilateral Critical Minerals Research Hub between India and Australia; 640.00 L. [P3941].
22. Narasimha Mangadoddy; CFD modelling of large-scale DE & CVD hydrocyclones; 52.21 L. [S372].
23. Narasimha Mangadoddy; Multi-phase CFD modelling of large-scale dense medium cyclones; 28.78 L. [S371].
24. Narasimha Mangadoddy; Development of Cold Plasma treatment-based technology; 15.00 L. [S315].
25. Saptarshi Majumdar; Liquid Liquid Phase Transitions in Cells; 85.00 L. [G608].
26. Saptarshi Majumdar; CLEANZ CoE; 9.8 L. [G795].
27. Saptarshi Majumdar; ICMR Project in Glaucoma Eye Drops; 3.7 L. [G796].
28. Satyavrata Samavedi; Implantable dual drug releasing scaffolds to reprogram the tumor immune milieu for robust cancer immunotherapy; 53.64 L. [G774].
29. Suhanya Duraiswamy; Microfluidics for antimicrobial susceptibility testing; 19.41 L. [G696].
30. Suhanya Duraiswamy; Bacterial Cellulose based Microfluidic Point-of-Care Device for Antibiotic Susceptibility Testing; 52.64 L. [G692].
31. Sunil Kumar Maity; Production of natural edible pigments (chlorophyll) from isolated microalgae: Pilot scale study and techno-economic analysis; 0.00 L. [CRG/2023/00383].
32. Vinod M Janardhanan; CFD analysis of multiphase flow field and thermal balance in Mg fused salt electrolytic cell; 0.00 L. [G572].
33. Vinod M Janardhanan; Development and characterization of unitized regenrative fuel cells for high temperature operation; 9.00 L. [G415].

Awards & Recognitions:

1. Chandra Shekhar Sharma has been elected as an INSA Associate Fellow (IAF) for 2025.
2. Giridhar Madras, Kirti Chandra Sahu, Kishalay Mitra, Narasimha Mangadoddy and Sunil Kumar Maity have been featured in the Stanford top 2% scientists list for the year 2024.
3. Kirti Sahu has been invited to join the Editorial Board, Industrial & Engineering Chemistry Research (ACS Publications).
4. Kirti Sahu has been invited to join the External Affairs Committee - American Physical Society, Division of Fluid Dynamics.
5. Narasimha Mangadoddy received the prestigious National Geoscience Award - 2023 for his contributions to Mineral Benefaction and Sustainable Mineral Development.

Research Highlights:

CompFlu 2024

CompFlu 2024 - a flagship scientific conference that brings together the vibrant and rapidly growing soft matter research community from India along with speakers from abroad was conducted in December 2024 at IIT Hyderabad. The conference had a participation of over 500 people, including academicians, industry scientists as well as international researchers. The topic presented in this conference spanned a broad gamut of areas in soft matter research, including experimental, theoretical, simulations as well as material development studies. Unique to this version of CompFlu was a panel discussion on academic - industry collaboration and an industry-led workshop for students on preparing for industrial research career pathways. The event was hosted in the LHC with events spread across the rich and unique campus of IITH. Dr Alan Jacob, Dr Satyavrata Samavedi, Dr Ranajit Mondal, Dr Ramkarn Patne, Dr Suhanya Duraiswamy, Dr Balaji Iyer and Dr Mahesh Ganesan - faculty members from the Department of Chemical Engineering were key members of the organizing committee. The event received a resounding appreciation from the soft matter community

System Biology Seminar Series

The Department of Chemical Engineering has taken an effort in arranging a Lecture series on Systems Biology. The Systems Biology Seminar series is aimed at providing a better understanding of analytical tools in the area of Systems Biology for students and researchers. The seminar series includes the talks on “Integrated computational modeling and experimental validation of inflammatory response in mouse macrophages”, “From Complexity to Coherence: Leveraging Investigative Physiology® AI for Precision Health”, “Fundamental limits of spatially resolved cell-state decoding of the circadian clock from single-cell gene expression", and Modelling HIV dynamics and control: Learning in vivo immune responses using ex vivo data ".

Workshop on Applications of Statistics and ML in Life Sciences

The thematic focus of the workshop is on statistical methods and learning algorithms used in the domain of Systems Biology. The topics covered in the workshop "Workshop on Applications of Statistics and ML in Life Sciences " is as follows: Variational Autoencoder, Principles of variational inference, Estimation of Information Theoretic Quantities, Computer vision for life Science, Encoder and decoder, Stochastic Differential Equations, and Optimization, Hyperparameter tuning in Neural Network.

Centre of Clean Coal Energy & Net Zero (CLEANZ), An IITH-CIL Initiative

India ranks fifth in the world in terms of coal reserves and is the world’s second largest coal producer and one of the largest coal reserves in the world. Coal is a fundamental asset in India’s energy ecosystem and economy. However, most of this coal reserve in India is of low-rank coal with high ash content. This coal reserve has the potential to serve as the bedrock of India’s energy security for several centuries.

However, due to environmental concerns and India’s global commitment towards Greenhouse Gas Emissions and Net Zero, the development of clean coal technologies and diversification in coal utilization is of vital national importance amid a domino effect on India’s energy markets and economy.

Towards this goal, the Centre of Clean Coal Energy C Net Zero (CLEANZ) is being proposed, which will work towards the above-mentioned objectives. This Centre of Excellence (CoE) will be a joint initiative between IIT Hyderabad and Coal India Ltd.

About CLEANZCoE and its Focused Areas

As Coal India is the largest stakeholder in this sector within the country, this collaborative effort is expected to yield the development of high-impact technologies towards sustainable growth of the country.

The broad thematic areas where the proposed CoE will focus are:

- Enhanced Coal Bed Methane/Coal Mine Methane Recovery
- Carbon Capture Technologies Mineral Beneficiation, REE & Critical Mineral
- Gasification & Syngas Utilization
- Coal Liquefaction & Pyrolysis
- Circular economy and waste management
- AI ML applications
- Energy efficiency and conservation
- Development of Novel Carbon Materials

A set of 16 projects is being proposed that will be executed in a period of 5 years. These projects are divided into three groups:

Phase-1: The projects where a proof of concept already exists and will be delivered within 3 years.

Phase 2, type A: The projects will include exploratory projects that are expected to have a high impact on clean coal technology and net-zero applications.

Phase-2, type B: A few additional projects in the early stages of research have also been proposed under this CoE. These will be initiated following a review by an expert committeefrom NaCCER or the CIL Apex Committee. Additional funding will be required to carry out these projects.
All the projects will be delivered at a high TRL of 5 or 6.

This centre will be supported by CIL with an initial funding of approximately Rs 110 Crs spanning over a period of 5 years. This funding will include both recurring and non- recurring expenditure of the centre.

Waste to Wealth through Smart Supply Chains: GOKUL's Bold Leap- Prof. Kishalay Mitra

Turning bio-waste into biofuel is a powerful step toward Waste to Wealth (W2W) creation. Despite 70% of India's population depending on agriculture and forests, the bioenergy sector remains underutilized. The national target to blend 20% biofuels with fossil fuels acts as a catalyst for this transformation.
The Global Optimization and Knowledge Unearthing Laboratory (GOKUL) approaches this challenge from a supply chain (SC) network design perspective—a unique and comprehensive method. GOKUL successfully designed a nationwide biofuel SC for achieving 20% blending of bioethanol and biodiesel using second-generation biomass for the 2018–2026 horizon. With dual objectives of maximizing net present value (NPV) and minimizing greenhouse gas emissions, this mixed-integer linear programming problem incorporates uncertainties in demand, supply, and price using robust optimization.
In parallel, GOKUL is also redefining smart city development through e-waste-based closed-loop SC design. Applying the 5R principle (Refuse, Reduce, Reuse, Repurpose, Recycle), a ten-layered, pull-based SC network for Pune was developed for the 2014–2025 period. This multi-site, multi-echelon model optimizes the location of collection, repair, dismantling, recycling, and disposal centers, achieving a staggering 98.49% reduction in e-waste carbon emissions.
GOKUL proudly acknowledges collaboration with CMET Hyderabad through the IITH-CMET Master's program on E-Waste Resource and Engineering Management. GOKUL continues to lead India's W2W journey with optimization-powered innovation.

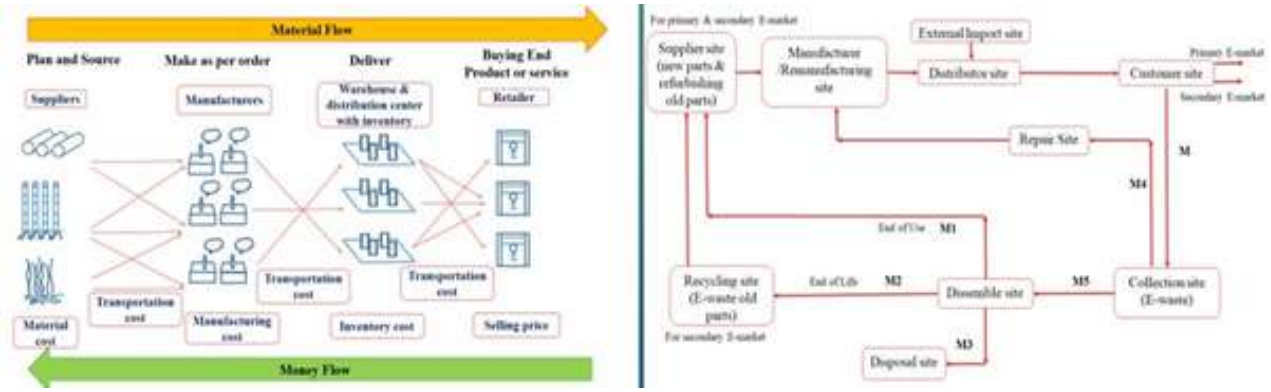


Figure. A. Bio-Supply Chain Network Design B. Closed loop Supply chain for e-Waste developed by researchers @ GOKUL (Prof. Kishalay Mitra's research lab)

Prof. Narasimha Mangadoddy:

Developed the GPU based 3D Discrete Element Model (DEM) solvers and tested for spherical and non-spherical particle dynamics recently. Specific applications in Mineral processing such as tumbling mills, hopper flow and gravity sedimentations are modelled using these DEM models & validated. An improved understanding these processes for their optimum performance elucidated.

An exploratory work was carried out to recovery of galena, sphalerite from the lead/zinc tailings by fine and ultrafine grinding & classification and novel ultrasonic treated shear floc-flotation under the Ministry of Mines' project during 2022-24. A galena concentrate having 1.42% total Pb grade with total recovery 50.17% is found as at grind size of 58 microns by the Ball mill. In Zinc flotation ultrasound treatment of 10 min had a positive impact with the overall grade of 5.73% and 58.10% recovery. Combination of collectors PEX and PAX had a positive impact on Zinc percentage in Zinc concentrate and but was detrimental on increasing the collectors dosage further. Nearly 92% of feed silver component (minor metal) is recoverable with this process.

Effect of non-spherical particles on tumbling mill dynamics has been investigated by experiments. For spherical particles, increasing mill speed and volume filling led to higher shoulder angles and power draw, while toe angle decreases with the filling. The center of circulation shifted upward with both speed and filling. At different aspect ratio Non-spherical particles (cubes, cuboids, cylinders, oblate) exhibited more complex behaviors. Higher aspect ratio shows more interlocking and friction than lower aspect ratio, resulting in higher shoulder and toe angles and higher power draw.

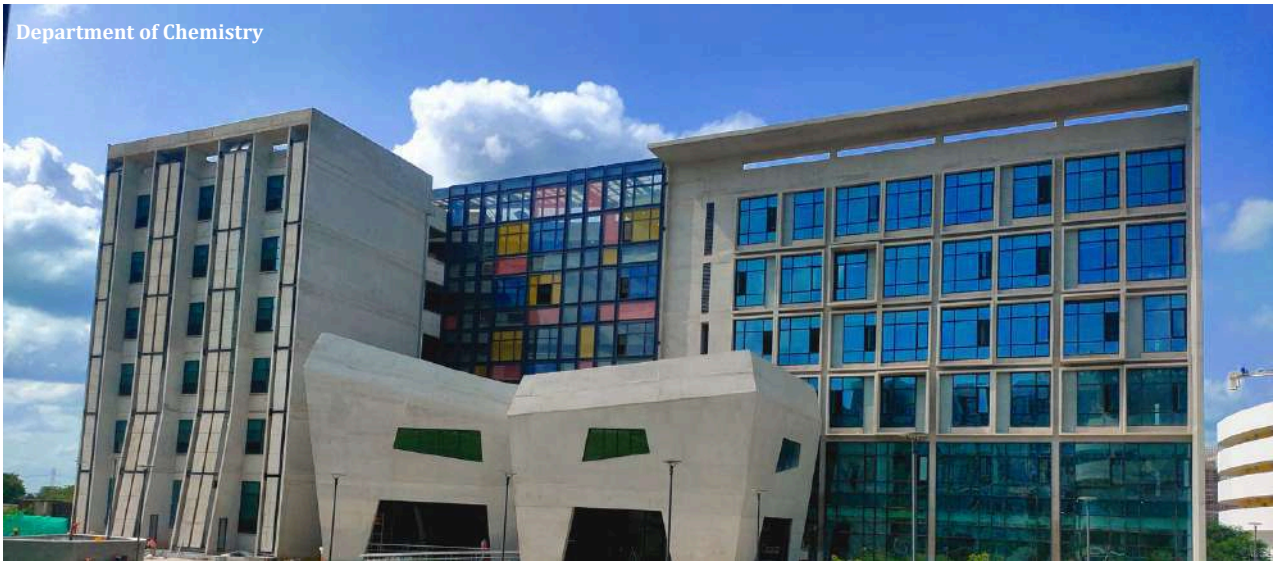
Department of Chemistry

The Chemistry Department started functioning from the very first day of the inception of IITH in 2008. Today the department has flourished into a state-of-the-art hub for basic and applied chemistry research. Chemistry is also one of the largest department at IITH in terms of number of PhD students, faculties and publications. The Department is committed to excellence in chemistry by establishing research programs for meeting scientific and technological challenges faced by the ever-changing, science-centered world of the 21st century. The Department of Chemistry is actively researching cutting-edge areas of Inorganic, Organic, Physical, and Theoretical Chemistry. Our Ph.D. program has been designed with an appropriate combination of coursework and research activities and faculty advisors' guidance. At the completion of the Ph.D. program, students should have a professional command of the fundamentals of their disciplines and the ability to initiate independent and creative research in their fields. With the help of non-teaching staff, we provide rigorous training to all students to build the foundation of modern chemistry. Both B. Tech. and M.Sc. programs are designed to have about 30 % hands in experience in research and core laboratory in their coursework, which enables them to achieve their career goals.

The department building has a unique architecture and a Periodic table look-alike frontier. The department owns basic to cutting-edge research instruments like 400 and 600 MHz NMR, XPS, In-situ XRD, Raman, AFM, ESR, HRMS, Single Crystal-XRD, CD, Fluorescence/lifetime and Raman spectrometers, atomic force microscopy (with conductive, CCD, Potentiostats-Galvanostats, glove boxes, Coin and pouch cell lithium- sodium-ion battery fabrication and testing facility, Gas Chromatography-Mass spectrometer, HPLC, high-resolution lasers, etc.

The department invites experts from around the world periodically for seminars and collaborations. The department organises an in-house symposium and an alumni day every year. Our alumni are spread across the globe, serving several non-academic and academic responsibilities, proudly maintaining a strong tie with the department, and contributing vividly to the progress of the nation. The productive and substantial experience at all levels of the programs will help the students have a pronounced career.

For more information, please visit: https://chemistry.iith.ac.in/



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Patents:

Filed:

1. Ganesan Prabu Sankar; Fluorescent Enhanced Silver Triflate Nanoclusters Using Silver Triflate Precursor; 202441101142.

Published:

1. Challapalli Subrahmanyam; A Non-Thermal Plasma Incinerator to Remove Dilute Volatile Organic Compounds in Indoor Concentrations; 202241039380.
2. Ashutosh Kumar Mishra; A Flavin Analogue for Lysosome Tracking and Photodynamic Therapy; 202441000773.
3. Narendra Kurra; A Hybrid Electrodeti3C2TX.Cpdi and a Method for Preparing the Same; 202441030249.
4. Venkata Rao Kotagiri; A Hybrid Electrodeti3C2TX.Cpdi and a Method for Preparing the Same; 202441030249.
5. Challapalli Subrahmanyam; A Wound Dressing for Preventing Biofilm formation on a Wound; 202441036378.
6. Kishore Natte; Aryl Difluoromethyl Ether Compounds and Method of Preparation Thereof; 202441071161.
7. M Annadhasan; Liposome of Saussurea Obvallata and Its Process of Preparation; 202441086405.
8. Ganesan Prabu Sankar; Co(Ii) Thione-Based Catalyst and Method of Preparation Thereof; 202441079009.

Granted:

1. Surendra Kumar Martha; Corrosion-Protected Positive Grid for a Lead-Acid Battery; 201841025931.
2. Ganesan Prabu Sankar; Modified PEG-400 (MPEG-AA Complex) and Uses Thereof; 202141003895.
3. Ashutosh Kumar Mishra; A Pyrene Conjugated Boranil Derivative for Visualisation of Latent Fingerprints; 202441036292.
4. Ashutosh Kumar Mishra; A Frequency Division Duplexer (FDD) to Facilitate Wideband Isolation of Transmitting and Receiving Frequency; 202441037093.

Book Chapters:

1. Maity D, Maitra S, & Deepa M. (2024). Au nanoparticles decorated textured Si with Fc/Fc+ and I−/I3− redox active gels for photoelectrochemical light harvesting. In Photoelectrochemical Engineering for Solar Harvesting.
2. Kumawat S, Natte K, et al. (2024). Valorization of bio-renewable glycerol by catalytic amination reactions. In Green Chemistry (Vol. 26, Issue 6, pp. 3021–3038). https://doi.org/10.1039/d3gc02699j.
3. Bhar M, Martha S K, et al. (2024b). Integrated technologies and novel nanostructured materials for energy storage. In Nanostructured Materials Engineering and Characterisation for Battery Applications. https://doi.org/10.1016/B978-0-323-91304-1.00015-0.
4. Bhar M, Martha S K, et al. (2024a). Electrochemical Mechanisms in Sodium-Ion Batteries. In Advanced Technologies for Rechargeable Batteries: Alkaline Metal Ion, Redox Flow, and Metal Sulfur Batteries: Volume 1. https://doi.org/10.1201/9781003310167-8.
5. Sagar S, Panda T K, et al. (2024). Crafting sustainable solutions: Architecting biodegradable copolymers through controlled ring-opening copolymerization. In Dalton Transactions (Vol. 53, Issue 31, pp. 12837–12866). https://doi.org/10.1039/d4dt01054j.

Publications:

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Funded Research Projects:

1. Subrahmanyam Challapalli; Single stage conversion of carbon dioxide to e-methanol- Demonstration of catalytic nonthermal Plasma Approach for e-Methanol Synthesis under ambient conditions; 41.10 L. [G695].
2. Subrahmanyam Challapalli; Development of Al Ion technology; 55.10 L. [G813].
3. Satyanarayana G; Synthesis of Oxacarbazepine; 22.00 L. [G584].
4. Satyanarayana G; The synthetic electrochemical strategies and their applications to natural and pharmaceutically relevant products; 62.00 L. [G663].
5. Satyanarayana G; Development Organic Electrochromic Molecules; 18.00 L. [S310].
6. Tarun Kanti Panda; Preparation of Tris; 240000.00 L. [S 282].
7. G Prabu Sankar; Development of Phage Modified Degradable Nanoclusters for Radioimmunotherapy of Triple Negative Breast Cancer; 203.13 L. [EMDR/IG /15/2024 -01- 02351].
8. G Prabu Sankar; Conversion of diagnostic X -ray systems into therapeutic radiation, mediated by Nano-multisensitizers through a circadian-oriented approach for the treatment of metastatic solid tumors; 93.33 L. [FIW- 2024-01- 0000020 8].
9. Surendra Kumar Martha; Mechanistic Thermal Runaway in Lithium and Sodium-Iron Batteries; 25.00 L. [G737].
10. Surendra Kumar Martha; Development of 3.8 V/30Ah Pouch-type Lithium-ion cells for EV 2 and 3-wheelers; 20.00 L. [With JICA].
11. Somnath Maji; Hybrid transition metal redox catalyst nanocomposite platform for plasmon enhanced electrochemical/photochemical reduction of CO2; 61.64 L. [G652].
12. Somnath Maji; Biohydrogen Production from dark fermentation effluent using MEC; 23.00 L. [S316].
13. Surajit Maity; Adsorption of CO2 and CO on Isolated Aromatic Molecular Surfaces: Spectroscopic Characterisation of Non-Covalent Bonding and Measurement of Desorption/Dissociation Energy; 2.00 L. [G662].
14. Ashutosh Kumar Mishra; Bioinspired novel design built around neutral flavin core skeleton as fluorescent probes for bioimaging and sensing applications; 7.00 L. [G530].
15. Venkata Rao Kotagiri; Centre of Excellence on Clean Coal Energy and Net Zero; 9800.00 L. [G795].
16. Narendra Kurra; Investigation of MXene Materials for Advanced Asymmetric and Hybrid Metal-ion Supercapacitors.; 45.00 L. [G784].
17. Natte Kishore; Design and Development of biocarbon supported Mn and Co-based Nano Catalysts for the transter hydroEenation/Deuteration Reactions using CH30H / CD3OD as Hydrogen / Deuterium source and synthesis of pharmaceutical intermediates; 12.00 L. [G681].
18. Koyel Banerjee Ghosh; EFFECT OF ELECTRON'S SPIN IN INDUCING CHIRALITY DURING ELECTROCHEMICAL POLYMERIZATION AND ITS APPLICATION INDEVICE FABRICATION; 17.68 L. [G786].
19. Sudarsanam Putla; Production of aviation fuels from mixed plastic waste using heterogeneous nanoalloy/silica catalysts; 65.00 L. [G807].
20. Sivakumar Vaidyanathan; Molecular Design and Synthesis of Dual-Emissive Lanthanide Complexes for White Light Emitting Diodes and Luminescent Thermometer; 35.69 L. [G766].
21. Sivakumar Vaidyanathan; Synthesizing Chiral Thermally Activated Delayed Fluorescence Molecules for Circularly Polarized Luminescence and Multiresonance Deep Blue Emitters; 29.88 L. [PDF66].
22. Priyadarshi Chakraborty; Antibacterial, adhesive, and conductive supramolecular biomaterials towards functional cardiac patches; 34.94 L. [G700].
23. Debasish Koner; Investigations on near and far from equilibrium dynamical properties in quantum matter; 5.17 L. [G788].
24. Tarali Devi; Design and development of transition metals-based electro/photochemical catalysts for water oxidation; 35.13 L. [G752].
25. Anup Bhunia; Methylation and Fluoromethylation: Electro(Photo)chemical Taming of Fundamental Intermediates and Their Applications; 46.00 L. [NRF/ECRG/2024/001187/CS].
26. Surendra K. Martha; Development and Realization of High Energy Lithium-based Rechargeable Batteries for Electric Vehicles; Greenco School of Sustainability ; March 2024; 1.1 cr

Awards & Recognitions:

1. Sudarsanam Putla has been elected as an Associate Fellow of the Telangana Academy of Sciences (AFTAS).
2. Malla Reddy has been elected as a Fellow of Indian Academy of Sciences (FASc), one of the toughest Indian Academies to become a Fellow.
3. Surendra K Martha received ECSI Amara Raja Award 2024
4. Sakshi Manekar, PhD Scholar, working under theguidance of Debaprasad Shee, received the Best Oral Presentation in DST-PURSE supported 24th National Symposium on Catalysis (CATSYMP-24) on "Catalysis for Sustainable Chemicals, Materials & Energy (CSCME-2025)'

Research Highlights:

1. Somnath Maji group has developed new anticancer metallodrugs based on Copper polypyridyl complexes, which are very effective for DNA binding, cleavage, and in vitro antiproliferative activities, which are beneficial in the design and development of future antitumor agents.

2. Priyadarshi Chakraborty's group has developed hydrogel-metal nanoparticle-based catalysts for effective dye degradation.

3. Surendra Martha's group has developed novel NASICON-type >3.5 V cathodes for Sodium-ion batteries, developed novel synthesis routes to mitigate residual lithium compound formation for long cycle life NMC-811 cathodes for lithium ion batteries, and aqua-thermal regeneration of spent graphite for Li-ion batteries.

4. Koyel Banerjee Ghosh led research on electron-spin catalysis employing chiral-induced spin-selectivity (CISS) effect, which is emerging as an unconventional yet powerful strategy to modulate reaction pathways by exploiting the quantum property of electron spin.

Research Facilities

Circular Dichroism Spectrophotometer
In circular dichroism (CD) spectroscopy, the absorbance of right and left circularly polarized light by molecules in solution is measured.

Nuclear Magnetic Resonance Spectroscopy
Nuclear Magnetic Resonance Spectroscopy is a research tool for organic chemists which can determine both the physical and chemical properties of atoms or molecules. The NMR Spectroscopy relies on the phenomenon of nuclear magnetic resonance and provides detailed information about the structure, reaction state, and chemical environment of molecules.

Department of Civil Engineering

Welcome to the Department of Civil Engineering at IIT Hyderabad!

We take pride in being one of the largest departments, with 455 enrolled students and 29 active faculty members, including two adjunct professors and three distinguished faculty members. Our dedicated support staff includes 6 Senior Technical Superintendents, 1 Technical Superintendent, 3 Technicians, 2 Junior Technicians, 1 Executive Assistant, and 1 Junior Assistant.

Our department offers five specializations, each represented by faculty members engaged in cutting-edge research. As of June 30, 2025, our impressive record includes over 1200 publications and a departmental h-index of 74, highlighting our commitment to impactful research.

We are actively involved in numerous projects, including 80 Grant-in-Aid and Sponsored projects valued at 55 Crores, and 260 Consultancy projects worth 20 Crores during the last financial year. This involvement reflects our dedication to advancing civil engineering through research and practical applications.

In the previous academic year, we organized several outreach activities. For instance, Ms. Matsuno, Managing Director and CEO of P9LLC, delivered a talk on "Environment and Sustainability: Experiences in Japan, and Future Applications in India. Faculty members gave invited lectures and provided input for policy-making at various events. The Department of Civil Engineering cordially organized a talk by Prof. S. Majid Hassanizadeh, Adjunct Professor, IIT Hyderabad, on "Enriching your CV, Expanding Networks, and Building a Reputation".

The faculty have published their research and academic works in internationally recognized conferences, journals, design competitions, and workshops. Our department organized a two-day Conference on Geotechnical Practices towards Sustainable Infrastructure [Geo Practices 2024] organized by the IGS Hyderabad Chapter and the Department of Civil Engineering.

We take immense pride in our academic community and continuously strive to create an environment that fosters excellence in research, innovation, and education.

For more information, please visit: https://civil.iith.ac.in/

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Funded Research Projects:

1 Ambika S; Sustainability Impact Assessment Study on Solid Waste Management' focusing on What has been the contribution of Indian Smart Cities in the Solid Waste Management Sector? Ministry of Housing and Urban Affairs, Government of India, 2024; 6.00 L. [G648].
2. Ambika S; Sustainability Impact Assessment Study on Local Air Quality, focusing on What has been the impact of SCM in the improvement of local air quality in Indian smart cities? Ministry of Housing and Urban Affairs, Government of India, 2024; 6.00 L. [G647].
3. Amirtham Rajagopal; Microstructure evolution and fracture in concrete; 55.00 L. [G468].
4. Asif Qureshi; Audit of city action plan and technical assistance; 1.13 L. [G718].
5. Asif Qureshi; Centre for Godavari River Basin Management and Studies; 134.00 L. [G687].
6. Asif Qureshi; Study on efficiency of mechanical road sweepers by assessing the silt on roads; 10.03 L. [S329].
7. Biswarup Bhattacharyya; Time-dependent reliability analysis and structural health monitoring of ship structures considering uncertainty; 6.38 L. [S308].
8. Debraj Bhattacharyya; Improving the Nutrient and Micropollutant Removal Efficiency of Johkasou under Indian Condition; 1.08 L. [S326].
9. Debraj Bhattacharyya; Developing Improved Aeration systems for biological wastewater Treatment processes; 36.07 L. [S327].
10. Debraj Bhattacharyya; Seawater Desalination and Recovery of Value-added Products Using Novel Technologies; 30.00 L. [S325].
11. Digvijay S Pawar; Evaluating Effectiveness of Lane Departure Warning System in Distracted Driving WorldP.O.No:RPI/100842748 & Date:12.06.2024 (Total Expenditure SEP2024-OCT 2024 in INR:429362 Total Amount in GBP 3904@1 GBP = 109.993 INR as on 08.10.2024); 17.41 L. [S347].
12. Digvijay S Pawar; Comprehensive Evaluation of Human factor and ADAS for Enhancing Driver Safety; 26.59 L. [S360].
13. Mahendra Kumar Madhavan; Updating Teaching Resource Material; 14.16 L. [S296].
14. Mahendra Kumar Madhavan; Experimental and Numerical Optimization of circular economy-driven Sustainable Lightweight Composite Slabs (SLCS); 39.00 L. [TDG-09].
15. Maheswaran Rathinasamy; Unravelling multiscale connections to improve the Seasonal to sub-seasonal forecasting of Precipitation and Temperature; 129.57 L. [G787].
16. Meenakshi Sharma; Development of low-carbon concrete using carbonated recycled concrete aggregates and early-age carbonation curing; 24.94 L. [G744].
17. Phanindra K B V N; One Year AMC and Capacity Building on In-GRES; 35.40 L. [S340].
18. Ramya Mullapudi; Development of Hybrid GFRP Dowels for Slab On-grade and Rigid Pavement Applications as Co-PI; 25.00 L. [TDG-06].
19. Roshan Khan; Pavement-friendly Autonomous Vehicle Platooning through preset Inter-Vehicular Wheel Wandering Offsets; 35.00 L. [G641].
20. Roshan Khan; Evaluation of dynamic load-settlement characteristics of graviloft earth retention system for high speed railway embankments; 20.00 L. [S284].
21. Roshan Khan; Attenuation of vibration and earth pressure in retaining walls supporting high-speed railway embankments using EPS Geofoam; 20.00 L. [S285].
22. Satish Kumar Regonda; Centre for Godavari River Basin Management and Studies (cGodavari); 134.00 L. [G687].
23. Satish Kumar Regonda; Unravelling multiscale connections to improve the seasonal to sub-seasonal forecasting of Precipitation and Temperature; 124.00 L. [G787].
24. Satish Kumar Regonda; AI for Sustainable Infrastructure and Resource Planning, Analysis and Monitoring (AiSwARYAM); 200.00 L. [G693].
25. Sireesh Saride; Evaluation of MIF factors for geo tech geogrids to be used in flexible payements; 34.92 L. [C1321].
26. Shruti Upadhyaya; “PrecipCube” Geospatial Satellite Observations Data Cube for Precipitation research; 50.44 L. [G745].
27. Subramaniam K V L; TARE Scheme: Development of Self-Sensing Cementitious Composites using Nano
28. Tailored Spent Catalysts for Enhanced Structural Health Monitoring awarded to Dr ESTR Chandrasekhar B of St Joseph Engineering College, Vamanjoor, Mangalore; 18.30 L. [G748].
29. Suriya Prakash S; GFRP Rebar Characterization and Development W.O.No: NE1/230183016; 50.40 L. [S333].
30. Suriya Prakash S; Development of the testing methodology for CFRP composites; 12.98 L. [S341].
31. Suriya Prakash S; Development of precast prestressed Hollow Core slabs using ultra High-Performance Concrete for Large-span Applications; 20.53 L. [S365].
32. Umashankar Balunaini; Laboratory and Field Investigations on Geosynthetic Reinforced Unpaved and Paved Roads Overlying Soft Subgrades; 90.00 L. [G556].
33. Umashankar Balunaini; Use of Geosynthetics in Pavements Over Soft and Expansive Subgrades; 56.00 L. [G458].
34. Umashankar Balunaini; Advanced Numerical Models to Simulate Different Transportation Infrastructure Systems; 30.00 L. [G480E].
35. Umashankar Balunaini; Use of Slag and C&D Wastes as Bases/Subbases of Pavements; 80.00 L. [G480D].
36. Umashankar Balunaini; Evaluation of Soil Stabilised Base Courses with Cement and StabilRoad Additive; 25.00 L. [S151].

Awards & Recognitions:

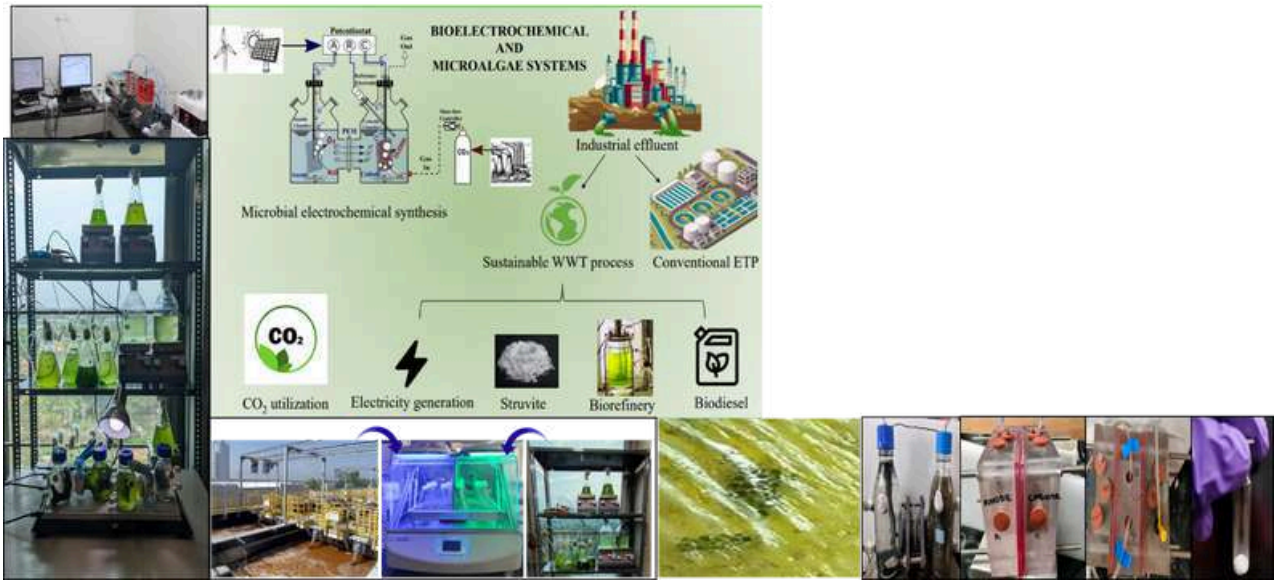
1. Amarteja Kocherla received the Marie Skłodowska-Curie Individual Fellowship Award to carry out research at the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung, BAM) in Germany. The details of the project can be found here: https://cordis.europa.eu/project/id/101151488.
2. Mahendrakumar Madhavan has been elected as a fellow of the Institution of Structural Engineers (FIStructE), UK and a Chartered Structural Engineer (CEng).
3. Nitin Kumar (Alumnus- MTech), who worked under the guidance of Prof Amirtham Rajagopal, has been selected as an Assistant Professor at IIT Patna.
4. Md Abul Hasanath received the Best Poster Award in an international conference titled IWA Leading Edge Conference on Water and Wastewater Technologies, held at Essen, Germany.
5. Rohit Dhondge (Alumni) secured the first rank in the UPSC Civil Engineering examination.

Research Highlights

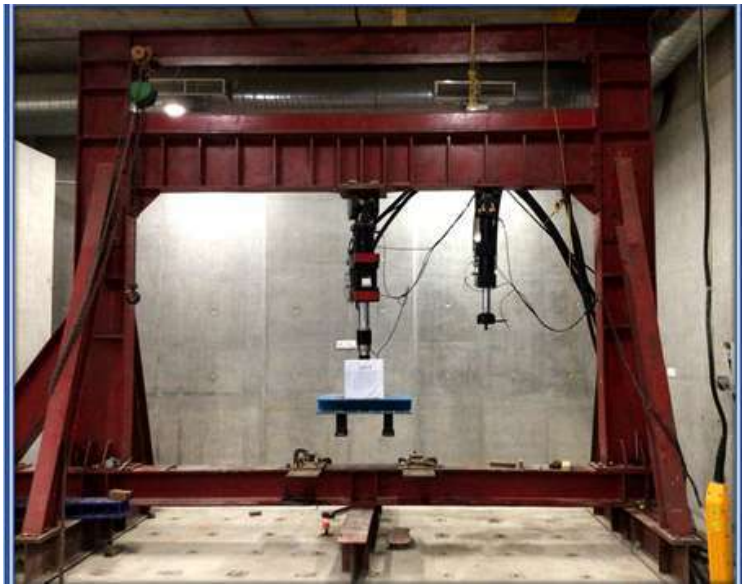
Revolutionizing Waste into Resources by Pritha Chatterjee

Research Description

- Application of Microbial electrosynthesis to reduce CO2 into valuable products
- Easibility of interaction of microalgae-microbial fuel cell for enhancement of antibiotics removal from pharmaceutical wastewater
- Nutrient Removal and Recovery from domestic and industrial wastewater using microbial fuel cell
- Application of Microalgae for industrial wastewater treatment and biodiesel production



A few Research Facilities



MTS Pseudo Dynamic Test System

MTS Pseudo Dynamic Test System
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Department of Computer Science and Engineering

The Computer Science and Engineering (CSE) department has been growing steadily since its inception in 2008 and is one of the most sought-after destinations for incoming students as well as faculty. The department faculty comprises 25 faculty members with a good representation in the areas of theoretical computer science, artificial intelligence/machine learning, and computer systems areas. The CSE department has graduated around 68 PhDs, with many of the PhD graduates taking positions in top R&D labs and academic institutes - nine of our PhD graduates have taken up faculty positions at other IITs. The department faculty and students consistently publish in top-tier conferences and journals. The undergraduate program has been consistently preferred by the top-ranked JEE performers - as evidenced by the improving opening and closing ranks. Our industry engagement has also been very strong with the MTech in Data Science (MDS) program, providing an opportunity for industry professionals to stay up-to-date with the latest R&D developments in the area of data science. The CSE department also collaborates with various other industry and R&D labs, including Samsung, Intel, Microsoft, Google, AMD, DRDO, Honeywell, KLA, IBM, Adobe, Suzuki Motors, Fujitsu AI, and Weather News Inc., to name a few. The department faculty members routinely engage with other colleges and institutions by giving invited lectures and also serving in positions of advisory capacity on the Board of Studies and Board of Governors.

In the year 2024-25, the department of CSE admitted 16 PhD students, 97 MTech students and 66 BTech students. A steady stream of PhD students has been graduating every year, with 8 of them graduating in 2024-25. In the last year, two new facilities were established in the department: The Marvell Data Acceleration and Offload Research Facility and the Centre for Cryptography and Cybersecurity. The department also hosted internationally acclaimed events such as ACM ROCS (Research Opportunities in Computer Science), ACM Women India Grad Cohort, HAHT (Harnessing AI for Healthcare Transformation) -IUS 2024 workshop and the ICDCN (International Conference on Distributed Computing and Networking) 2025 conference.

For more information, please visit: https://cse.iith.ac.in/

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Patents:

Filed:

1. Antony Franklin; Slice-Specific Rapid N2-Based Handover for A Single or A Group of Ues in 5G Networks; 202441097874.

Published:

1. Antony Franklin; A Method and System for Updating High-Definition Maps in Vehicle Navigation Systems; 202341083188.
2. Jyothi Vedurada; Method and System for Performing Approximate Nearest Neighbour Search on Billion-Scale Vectors; 202441037405.
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Granted:

1. Antony Franklin; System and Method for Performing Efficient Scheduling in Cloud Radio Access Network; 202141020062.
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Books:

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1. Kotaro Kataoka, Rural and Social Innovation: India Japan Collaboration", Book: "India, Japan and Beyond: Human Security, Environment, Development, Innovation and Resilience", Springer Nature Singapore, 2024."

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Funded Research Projects:

1. Antony Franklin; Information Security Education and Awareness (ISEA) Project Phase-III; 201.60 L. [G736].
2. Antony Franklin; Center for Cybersecurity and Cryptography; 6823.00 L. [G756].
3. Ashish Mishra; Brahma Sutra a NeuroSymbolic Synthesis Toolchain for Verified Programs in Complex Domains; 61.00 L. [ANRF/ECRG/2024/006437/ENS].
4. Bheemarjuna Reddy Tamma; Co-PI of ISEA Phase-3 project on Security of Wireless Systems; 47.80 L. [G736].
5. Bheemarjuna Reddy Tamma; Co-PI of Center for Cryptography and Cybersecurity; 200.00 L. [G756].
6. Krishna Mohan C; Design and Development of Road Element Segmentation; 11.94 L. [G798].
7. Krishna Mohan C; Teachers Associateship for Research Excellence(TARE); 18.30 L. [G779].
8. Krishna Mohan C; Enhancing small language models through domain adaptive federated framework; 15.00 L. [S339].
9. Krishna Mohan C; Synthetic data model generation & Graph Analytic Model P.O. No:NPCI-PO-0006849 & Dt:15.05.2024; 144.00 L. [S324].
10. Maria Francis; Poist-Quantum Cryptography; 113.50 L. [S331].
11. Maunendra Sankar Desarkar; Bharat-GPT A Suite of Generative AI Tech for India; 106.00 L. [S356].
12. Panduranga Rao M V; NQMTG on Quantum Communications; 20.01 L. [G791].
13. Panduranga Rao M V; Center for cyber Security; 6823.30 L. [G756].

14. Praveen Aravind Babu Tammana; Performance Aware Cloud-level Load Balancer for connected and Autonomous Vehicles; 50.00 L. [S328].
15. Praveen Aravind Babu Tammana; Accelerated computer Facility (As Per PO. N248001108 dated 10.03.2025); 62.50 L. [S367].
16. Rajesh Kedia; Accelerating innovation and research using Arm technologies; 12.95 L. [S366].
17. Rameshwar Pratap; Improving Similarity Search in Practice; 70.00 L. [ANRF/ECRG/2024/001063/ENS].
18. Sathya Peri; AI/ML-Based seeker processing with High performance Computing; 83.85 L. [G762].
19. Sathya Peri; An Efficient Framework for Distributed Execution of Smart Contracts; 74.04 L. [G767].
20. Shirshendu Das; Do not Forget Cache Content Management Policies while Designing Secure Last-level Cache; 23.00 L. [SERB/CSE/F330/2023-24/G661].
21. Sobhan Babu Chintapalli; Identifying Anomalous dealers using big data Analytics; 1190.75 L. [S322].
22. Srijith P K; Centre of Excellence in AI for Sustainable Cities; 200.00 L. [G693].
23. Srijith P K; Development of a Technological Innovation aware large language model; 48.00 L. [S359].
24. Subrahmanyam Kalyanasundaram; Conflict-free Coloring of Graphs and Related Problems; 0.00 L. [G524].
25. Upadrasta Ramakrishna; Qualcomm Complier Collaboration; P.O. No:4300068093 & Dt:16.08.2024; 10.00 L. [S352].
26. Vineeth N Balasubramanian; AI for Sustainable infrastructure and Resource Planning, Analysis and Monitoring; 200.00 L. [G693].
27. Vineeth N Balasubramanian; Microsoft Unrestricted Research Grant: Kancheti Sai Srinivas; 10.00 L. [F004].

Awards & Recognitions:

1. Debaditya Roy, (PhD Alumnus), who worked under the supervision of Prof C Krishna Mohan, has been selected as an Assistant Professor at IIT Kharagpur.
2. Sriram Bhyravarapu, (Alumnus), who worked under the supervision of Subrahmanyam Kalyanasundaram has been selected as an Assistant Professor at IIT Guwahati.
3. Vineeth N Balasubramanian elected as an INSA Associate Fellow-2024.
4. Vineeth N Balasubramanian elected as Fellow of Indian National Academy of Engineering (INAE).

Research Highlights

Introduced several useful products across multiple verticals as part of the center of excellence in AI for sustainable cities, led by Srijith PK

AI Tech Stack and User Interfaces: AI technology stack with reusable modules and APIs to analyze and understand data from diverse sources, including IoT devices, surveillance cameras, mobile, and social media. The stack provides AI and ML-based predictive analytics with integrated modules for explainability, fairness, and privacy. It also provides easy-to-use interfaces with a unified dashboard and chat-based services.

Waste Management: Developed AI-based solutions and technologies for sustainable waste management practices, addressing problems in the entire waste management life cycle. The technologies use state-of-the-art AI and ML approaches and will be deployed in the real world to improve waste management practices across cities as part of the Phase 2 plans of CoE in AI for sustainable cities.

Department of Design

This year has been outstanding for the Department of Design at IIT Hyderabad — a period marked by growth, innovation, and the realisation of our core vision to "creatively engage in the space between technologies and people". We ran several exciting academic programs: the Bachelor of Design (B.Des) programme continues with its four-level structure, enabling students to evolve from foundational exploration to specialist domains in Product Design, Visual Communication and Interaction Design. Our Master of Design (M.Des) programmes—Regular and Practice modes—have also matured further, offering student-driven specialisations, flexible online modes for working professionals and enriched curricula in emerging areas such as sustainability, systems design and XR.

On the research and innovation front, we spearheaded major initiatives this year: hosted the 4th All India DIC Meet 2024 at IIT Hyderabad, in the presence of the Secretary, Ministry of Education (MoE), MoE delegates, and representatives from various IITs and CFIs, with participation from over 1300 members. During the event, DIC IIT Hyderabad was conferred the Nodal Centre status by the Secretary, MoE, global biennial conference ICoRD '25 with over 650 participants, reinforcing our position as a leader in design research. We also held our student-led annual fest Ayaam 2025, fostering vibrant creativity and community engagement.

Our labs and studios have been further upgraded: from digital-heritage visualisation to XR/interaction design and advanced fabrication, enabling hands-on, people-centred, interdisciplinary work. Industry and society oriented initiatives continue to be integral to our ethos. We strengthened partnerships with MSMEs, established a Center of Design Excellence, integrated circular-economy design perspectives into projects, and embedded ethical, sustainable frameworks into all levels of teaching and research. Our growing pool of visiting faculty and industry mentors enhances exposure for students while helping align our programmes with real-world demands.

Our students and faculty have achieved outstanding recognition — award-winning student projects, design registrations and strong placement records reflect the applied and future-ready nature of our department. We continue to build on the institute's broader culture of innovation, and leverage IITH's excellent ecosystem that ranks among the top in NIRF Innovation and Engineering. Looking forward, our mission remains clear: to cultivate a new generation of designers who shape the quality of human experience in products, communications and system-integrated solutions. Together, we are positioned to make design not only a discipline of creation but one of impact. I thank all students, faculty, staff and industry partners for their dedicated contributions this year and invite you to join us in the next phase of our journey toward design excellence.

For more information, please visit: https://design.iith.ac.in/

Department of Design

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Chief Mentor, MITSD School of Design
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Books:

1. Ankita Roy and Malay Mandal. Embark Explore Experience ANCIENT EGYPT with Augmented Reality, ISBN: 978-8193208571, 2024

Book Chapters:

1. Ankita Roy. Quest for the Chest – A Pop-Up Storybook. Kiriith_ISSN: 2583-7222, KID: 20240310, 2024.
2. Ankita Roy. Visual Voices of Kerala's Politics. Kiriith_ISSN: 2583-7222, KID: 20240319, 2024
3. Ankita Roy. Roots and Rooms – Migration and Memory. Kiriith_ISSN: 2583-7222, KID: 20240309, 2024
4. Mathew Deepak John, Solanki Chaitanya. (2024). 3D Game Asset Generation of Historical Architecture Through Photogrammetry. Encyclopedia of Computer Graphics and Games.
5. Chakraborty S & Ji S. (2024b). Analyzing spatial technology trends in urban heritage preservation: A bibliometrics study. In International Journal of Architectural Computing. https://doi.org/10.1177/14780771241287348.
6. Chakraborty S & Ji S. (2024a). A review of integrating space syntax analysis into heritage impact assessment: A comprehensive framework for sustainable historic urban development. In International Journal of Urban Sciences. https://doi.org/10.1080/12265934.2024.2438190.
7. Sonali Srivastav. Published unit in IGNOU's MOOC - Bachelor of Arts (Journalism and Digital Media) (BAJDM). Unit-1 Writing: Processes and Methods.
8. Sonali Srivastav. Published unit in IGNOU's MOOC - Bachelor of Arts (Journalism and Digital Media) (BAJDM). Unit-2 Effective Writing.
9. Sonali Srivastav. Published unit in IGNOU's MOOC - Bachelor of Arts (Journalism and Digital Media) (BAJDM). Unit-9 Story Formats and Storytelling.

Patents:

1. **Indian Institute of Technology Hyderabad, Deepak John Mathew, Ketan Madan Chaturmutha**
   Title: Urban Air Mobility Aircraft
   Type: Design Patent Granted
   Level: National
   Filed Under: SD_Designs
   Patent No.: 400332-001
2. **Indian Institute of Technology Hyderabad, Deepak John Mathew, Ketan Madan Chaturmutha**
   Title: Autonomous Advanced Air Mobility
   Type: Design Patent Granted
   Level: National
   Filed Under: SD_Designs
   Patent No.: 443767-001
3. **Indian Institute of Technology Hyderabad, Deepak John Mathew, Ketan Madan Chaturmutha**
   Title: Autonomous Urban Air Mobility
   Type: Design Patent (Filed)
   Level: National
   Filed Under: SD_Designs
   Patent No.: 442793-001
4. **Indian Institute of Technology Hyderabad, Deepak John Mathew, Ketan Madan Chaturmutha**
   Title: Autonomous Urban Air Mobility for Intra-city Travel of Passengers
   Type: Design Patent (Filed)
   Level: National
   Filed Under: SD_Designs
   Patent No.: 450704-001
5. **Indian Institute of Technology Hyderabad, Srikar, Shivadekar**
   Title: MYCELIUM BIO-COMPOSITE EMERGENCY SHELTER
   Type: Design Patent (Filed)
   Level: National
   Filed Under: Design
   Patent No.: 455512-001
6. **Indian Institute of Technology Hyderabad, Srikar, Shivadekar**
   Title: MYCELIUM BIO-COMPOSITE REVERSIBLE DESKTOP MINI-PEDESTAL
   Type: Design Patent (Filed)
   Level: National
   Filed Under: Design
   Patent No.: 455790-001
7. **Indian Institute of Technology Hyderabad, Srikar, Shivadekar**
   Title: MYCELIUM Phone Stand
   Type: Design Patent Granted
   Level: National
   Filed Under: Design
   Patent No.: 441804-001
8. **Indian Institute of Technology Hyderabad, Srikar, G.Lal**
   Title: High Chair
   Type: Design Patent (Filed)
   Level: National
   Filed Under: Design
   Patent No.: 441803-001
9. **Indian Institute of Technology Hyderabad, Srikar, Rishabh**
   Title: Micro Ambulance Design to Enhance Access to Remote Locations in India
   Type: Design Patent Granted
   Level: National
   Filed Under: Design
   Patent No.: 393073-001

Design registration:

1. **Indian Institute of Technology Hyderabad, Mohammad Shahid, Nishi Bajaj**
   Title: GOAL CARD FOR A CARD GAME
   Registration No: 445089-001
2. **Indian Institute of Technology Hyderabad, Mohammad Shahid, Nishi Bajaj**
   Title: GOAL CARD FOR A CARD GAME
   Registration No: 445092-001
3. **Indian Institute of Technology Hyderabad, Mohammad Shahid, Nishi Bajaj**
   Title: GOAL CARD FOR A CARD GAME
   Registration No: 445098-001
4. **Indian Institute of Technology Hyderabad, Mohammad Shahid, Nishi Bajaj**
   Title: GOAL CARD FOR A CARD GAME
5. **Registration No: 445097-001**
   Indian Institute of Technology Hyderabad, Mohammad Shahid, Nishi Bajaj
   Title: GOAL CARD FOR A CARD GAME
   Registration No: 445099-001

Publications:

1. Gokul R and Ankita Roy, Navigational Integration: Enhancing User Experience through Illustration-Driven Wayfinding in a Multi-Storied Building in real and augmented environments. Proceedings of the 14th Indian Conference on Human-Computer Interaction, IndiaHCI, Studies in Computational Intelligence, vol 1162. Springer, Singapore, 2024 https://doi.org/10.1007/978-981-97-4335-3_8
2. H Gond and Ankita Roy, Revival of the traditional Gond Art of Madhya Pradesh through modern technologies of digital platforms and UX-UI. Proceedings of the 14th Indian Conference on Human-Computer Interaction, IndiaHCI, Studies in Computational Intelligence, vol 1162. Springer, Singapore, 2024 https://doi.org/10.1007/978-981-97-4335-3_6
3. Remedios D J, Mathew D J, & Schleser M. (2024). Navigating parallel interactive narratives in virtual reality. In Media Practice and Education (Vol. 25, Issue 2, pp. 188–201). https://doi.org/10.1080/25741136.2024.2324088

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Funded Research Projects:

1. Ankita Roy; Co-PI for the Project Titled - Adolescent Sexual Health Education through Picture Books: Designing and Disseminating Picture Books on Sexual Health – Taking the Conversation to Children, Doctors, Teachers; 18.00 L. [ICSSR/RPD/MJ/2023-24/G/157].
2. Deepak John Mathew; Virtual Recreation and Digital preservation of cultural heritage temple sites of southern states of India; 97.42 L. [G777].
3. Deepak John Mathew; Compact and affordable Portable Solar Cooker (Tiffin Box) for Daily Wages worker, who works in open field; 25.00 L. [TDG/IITH/F132/2024-25/TDG-03].
4. Deepak John Mathew; All India DIC Meet 2024; 24.00 L. [S321].
5. Mohammad Shahid; Cheriyal Craft of Telangana state; 11.60 L. [S269].
6. Prasad S Onkar; Centre of Design Excellence (CoDE); 585.00 L. [G790].
7. Shiva Ji; Creating Digital Immersive Heritage Experience, Risk Assessment and Vernacular Architecture Analysis of Five Historically Significant Temple Marvels of Kashi; 90.00 L. [G483].
8. Sonali Srivastav; Digital Video Technologies and Women Filmmakers: An Exploration of the Emergent Narratives in Indie cinema; 35.00 L. [SG 190].

Awards and Recognitions

1. Shiva JI received the Best Paper Award at the International Conference on Research into Design 2025
2. Mohammad Shahid received the Best Paper Award at the International Conference on Research into Design 2025
3. Ankita Roy was selected as a Winner – Top 30, Click! Japan Photo Contest 2025, Japan Foundation, Embassy of Japan in India.
4. Srikar AVR received the Research Fellowship Award (2024 & 2025); UBU, Thailand.
5. Chimti (IIT Hyderabad, Student Film, 2D Animation) guided by Delwyn Remedios and Directed by Prashasti Chaudary was listed for Official Selection at Animela 2025
6. Dr. Saurav Khuttiya Deori received the award for Excellent teaching contributions, curated by Honourable Director, Prof. B. S. Murty of IIT Hyderabad during the 16th Foundation Day '24.
7. Film titled 'Loud and Unheard', made by Atul Anthony, under the guidance of Dr Sonali Srivastav was selected for screening at the Waterfront International Film Festival, Mumbai, 2025.

Highlights

4th ALL INDIA DIC MEET 2024

The 4th All India Design Innovation Centre (DIC) Meet 2024 was a landmark national event hosted by the Design Innovation Centre (DIC), Indian Institute of Technology Hyderabad (IITH), which has been conferred the Nodal Centre status by the Ministry of Education (MoE), Government of India. This prestigious gathering served as a confluence of creativity, innovation, and collaboration, bringing together over 1300 participants, including faculty members, researchers, coordinators, and student innovators from various IITs, IIITs, NIDs, CFIs, and other academic institutions across India that are part of the DIC network.

10th International Conference on Research in Design 2025 (ICoRD '25)

The dynamic world of design research explored at ICoRD'25 from January 8th to 10th, 2025, at the Department of Design, IIT Hyderabad which also celebrated the shaping of a decade of "Design Excellence" at the Intersection of Innovation and Collaboration.

Organized jointly with the Department of Design and Manufacturing (DM) (erstwhile Centre for Product Design and Manufacturing – CPDM), Indian Institute of Science (IISc), Bengaluru, this event brings together practitioners, researchers, pupils, and educators in a vibrant space where technology and human experience intersect. Join us in shaping the future of design innovation.

Department of Electrical Engineering

Welcome to the Electrical Engineering Department. This report provides a comprehensive overview of the department's achievements, activities, and advancements during the past year. Our commitment to excellence in electrical engineering education and research remains unwavering, and we are proud to present the highlights of our journey in 2024-2025.

The Electrical Engineering Department has been a cornerstone of engineering education since its establishment. We offer a comprehensive range of undergraduate and graduate programs in Electrical Engineering, specializing in areas such as Microelectronics & VLSI, Power Electronics and Power Systems, Systems and Control, Communications, Signal Processing, and Learning. Our department fosters an innovative and collaborative learning environment to nurture the next generation of electrical engineers.

This year EE department is reaching a total of 609 students (on roll up to March 2025: BTech + MTech + PhD). Our department is home to 38 dedicated faculty members, each possessing a strong academic background and expertise in diverse electrical engineering domains, and 16 support staff members, who played a crucial role in maintaining a conducive learning environment for our students. We strive to foster innovation, critical thinking, and a collaborative spirit among our students.

Project Funding

The department secured significant funding from various sources to support research initiatives, develop advanced technologies, and foster academic growth. The support and funding received through various private/public agencies have been instrumental in advancing the research and educational endeavours of the Electrical Engineering department during 2024-2025. These financial resources have enabled the department to make significant strides in cutting-edge research and innovation, enriching the learning experience of our students, and strengthening our impact in the field of electrical engineering.

Placement

The high placement rate achieved by our Electrical Engineering students showcases the department's dedication to nurturing skilled and industry-ready professionals. We are proud of our students' accomplishments and express gratitude to the faculty, staff, and industry partners for their support in making these achievements possible. We remain committed to empowering our students with the knowledge and skills needed to excel in their chosen careers and contribute significantly to the field of Electrical Engineering.

For more information, please visit: https://ee.iith.ac.in/

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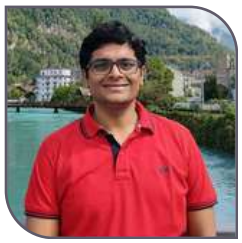

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Patents:

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3. Kiran Kumar Kuchi; Selection of Control Channel; US 18/795,398.
4. Kiran Kumar Kuchi; Systems and Methods for Generating Waveform with Low Peak-To-Average Power Ratio (Papr); 202441058167.
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6. Kiran Kumar Kuchi; Physical Random Access Channel (PRACH) Receiver; 202441058336.
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17. Kiran Kumar Kuchi; Base Station with Proximity Zones; US 18/795,277.
18. Kiran Kumar Kuchi; Waveform Differentiation Using Cyclic-Shifted Sequences; US 18/795,311.
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28. Mohammed Zafar Ali Khan; A Method of Semantic Transmission and Reception of a Video Frame for Static Environments; 202441087158.
29. Shishir Kumar; A Device for Localised Temperature Control of a Microfluidic Chip; 202441038865.
30. Shiv Govind Singh; A Device for Neuromodulation and Neuromonitoring; 202441036426.
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12. Kiran Kumar Kuchi; Method and System for Scheduling a Pool of Resources to a Plurality of User Equipment's; 201841029885.
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24. Kiran Kumar Kuchi; A Method for Allocating Resources to a Plurality of Users by a Base Station; 202041005719.
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31. Rajalakshmi P; On-Chip System Architecture for Low-Complex DWT-Based Eye Blink Identification for Controlling IoT Environments; 201741010868.
32. Rupesh Ganpatrao Wandhare; A Dual Loop Bidirectional CLLLC Resonant Converter; 202441004623.
33. Shishir Kumar; A Detachable Connector for Transferring Fluids to a Microfluidic Device; 202341074239.
34. Sushmee Badhulika; Core-Shell Microfibers for Advanced Supercapacitor Applications and Method of Preparation Thereof; 202441025917.
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199. Bere P S, Khan M Z A & Hanzo L. (2024). A Low-Complexity Diversity-Preserving Universal Bit-Flipping Enhanced Hard Decision Decoder for Arbitrary Linear Codes. In IEEE Open Journal of Vehicular Technology (pp. 1–22). https://doi.org/10.1109/OJVT.2024.3437470.

Funded Research Projects:

1. Abhinav Kumar; Reconfigurable Intelligent Surface for Next Generation Communication Networks; 5.50 L. [S337].
2. Abhinav Kumar; Digital tin of network gateway and communication protocols for intra-vehicular networks; 52.50 L. [S335].
3. Abhinav Kumar; Australian Alumni Grant Scheme; 6.53 L. [S336].
4. Abhinav Kumar; development of an OTFS Physical Layer on an FPGA for porting; 9.82 L. [S338].
5. Abhishek Kumar; Design of transceiver for on-board wireless interface of distributed control systems; 60.38 L. [G734].
6. Abhishek Kumar; Compressive Sensing-based Wide Open Sub-Nyquist Frequency Estimation; 180.00 L. [G772].
7. Abhishek Kumar; Initial Advance Payment (CARS for Design & Development of EBD & VM); 121.26 L. [S348].
8. Abhishek Kumar; QIF-India-A Tunable Fdd Duplexer using Electrical Balance with N-Path Filters P.O.No: 4300068092 & Dt:16.08.2024; 10.24 L. [S345].
9. Aditya T Siripuram; Fast DFT Computation for signals with additively structured support; 6.60 L. [G673].
10. Amit Acharyya; Artificially Intelligent Hyper-Elastic Glove for IoT-based Assessment of Post-Stroke Grasp Impairment of Mobile Health applications; 45.91 L. [G746].
11. Amit Acharyya; ML/DL aided Passive Seeker Direction Finding; 203.78 L. [G770].
12. Amit Acharyya; AI-based Fault-tolerant ultra-low power Architectures for Neuromorphic Circuits; 66.65 L. [G726].
13. Amit Acharyya; Qualcomm Innovation Fellowship P.O.No: 4300068145 & Dt: 20.08.2024; 10.24 L. [S346].
14. Amit Acharyya; Training and Development at IIT Hyderabad P.O. No: 5100658063 & Dt: 21.06.2024; 29.62 L. [S332].
15. Aneesh S; Photonic tensor accelerators; 35.00 L. [SG-194].
16. Aneesh S; An Efficient All-Optical Dot-Product Engine for Photonic Accelerators Using Cascaded Intensity Modulation; 70.72 L. [G829].
17. Ashudeb Dutta; Air Quality Monitor P.O. No: A001874638 Dt: 11.10.2024; 13.80 L. [S355].
18. Gajendranath Chaudhury; 5G Enabled Wireless Portable ECG Monitoring IoT System; 1.12 L. [S362].
19. Gajendranath Chaudhury; Design and Development of battery-free-low-maintenance Transient IoT Environment Monitoring System; 6.40 L. [G749].
20. Kapil Jainwal; Sanction Seeker Compressive sensing; 180.00 L. [DIA-CoE_IITH_030].
21. Kapil Jainwal; A fully integrated low-latency, high dynamic range, bio-inspired event-based dynamic and active vision sensor (DAVIS) with global shutter operation for object tracking, classification, and recognition in a highly dynamic scene; 43.80 L. [G587].
22. Lakshmi Prasad N; Versatile Codes for 6G Communications; 16.50 L. [F176/DO1].

23. Mohammed Zafar Ali Khan; Detetction in Foilage; 17.00 L. [S244].
24. Naresh Kumar Emani; India Taiwan Collaborative Workforce Development Program in Semiconductor Manufacturing; 801.00 L. [G706].
25. Naresh Kumar Emani; NQMTG on Quantum Communications; 20.00 L. [G791].
26. Pechetti Sasi Vinay; Design Development and Implementation of Secure Dual Function Radar Communication Schemes; 32.15 L. [G747].
27. Rajalakshmi P; Automated Pipeline for Early Identification of Water and Nitrogen Stress Through Drone-based Hyperspectral Sensors for Smart Agriculture; 58.98 L. [G778].
28. Rajalakshmi P; TiHAN - Spraying and Surveillance Drone; 19.99 L. [TG003].
29. Rupesh Ganpatrao Wandhare; Hybrid bridge isolated DC-DC converter with zero voltage switching for a wide range of operations and suitable for auxiliary supply in EV; 7.15 L. [G460].
30. Rupesh Ganpatrao Wandhare; A HYBRID CHARGING SYSTEM; 14.00 L. [G571].
31. Rupesh Ganpatrao Wandhare; Design of power converter for 3-phase grid integration of Hydrogen-fed PME Fuel cell using high frequency link multistage converter; 12.70 L. [G433].
32. Sawant Vishal Sopan; Time-optimal Consensus of Multi-Agent Systems; 30.00 L. [SG/IITH/F344/2024-25/SG-202].
33. Shashank Vatedka; Distributed estimation and learning with limited communication; 10.00 L. [G522].
34. Shiv Govind Singh; India US Collaborative Workforce Development Program in Semiconductor Manufacturing; 706.00 L. [G707].
35. Shiv Govind Singh; Development of Portable lab-on-chip device for detection of adulteration in milk; 60.00 L. [S349].
36. Shiv Govind Singh; Identifying Anomalous dealers using big data analytics; 10.44 L. [S322].
37. Shubhadeep Bhattacharjee; India US Collaborative Workforce Development Program in Semiconductor Manufacturing; 70.00 L. [G707].
38. Shubhadeep Bhattacharjee; Scalable co-integration of 2D materials for the hardware realization of spiking neural networks; 34.97 L. [G710].
39. Siva Rama Krishna Vanjari; Flexible, Transparent and High Density Subdural Microelectrode Arrays for Brain Activity Mapping; 41.67 L. [G769].
40. Sri Rama Murty Kodukula; Speech-to-Speech translation for tribal languages; 17.39 L. [G384].
41. Sri Rama Murty Kodukula; NLTM Bashini - Voice Search Module; 27.00 L. [G459].
42. Sumohana S Channappayya; Machine Learning Models for Predicting Airflow Hotspots in Urban Settings P.O. No: A001887734; 9.20 L. [S354].
43. Sundaram Vanka; Scalable Network Architectures for Unmanned Aerial Vehicles; 17.00 L. [S293].
44. Vajha Myna; Codes for Storage, Streaming and Design of Next Generation Communication Systems; 23.75 L. [SG-183].

Awards and Recognitions:

1. Bhanu Ganesh Ganta (PhD Scholar), working under the guidance of Pradeep Yemula, received the Silver Award for the Best Student Paper for his full conference paper titled "Feasibility Study and Economic Analysis of an Add-on Battery for Electric Vehicles", submitted to the 2024 International Conference organized by the Asian Institute of Technology.
2. Kiran Kumar Kuchi was honored with the prestigious national award, the Pandit Deendayal Upadhyaya Telecom Excellence Award 2024.
3. Rajalakshmi P has been selected for the 3rd batch INSA-NCGG Leadership in Science & Technology (LEADS) Programme, aimed at training Scientists to become future leaders, to be held at INSA, New Delhi.
4. Sushmee Badhulika received the Applied Materials Innovation Challenge Award organised by Applied Materials (AMAT) in Delhi.

Research Highlights

Kiran Kumar Kuchi:

- Led a delegation with DoT that codified India-Specific Requirements into the ITU 6G Vision, positioning India as a key stakeholder.
- Briefed the Prime Minister on India's 5G/6G successes, patent strength, and growing global standing; received assurance of full support for Atmanirbhar initiatives.
- Enabled an IITH–Sharp demo of a 5G-Advanced system: an IITH 5G-Adv base station connected to Sharp's 5G-Adv, 6G-upgradable SoC.
- Inducted into the India 6G Apex Committee (chaired by the Secretary, DoT) and into the governing councils of TSDSI and the Bharat 6G Alliance.
- At the India-hosted August 2025 6G standards meeting, ensured the framework retains his team's 5G inventions/IP and advances consideration of a new 6G waveform his team developed.

Tarandeep Singh (MTech-AI), Dr. Shashank Vatedka, Dr. Lakshmi Prasad Natarajan and Prof. Soumya Jana

Faculty members of the EE department (Shashank Vatedka, Lakshmi Prasad and Soumya Jana) and an MTech-AI student (Tarandeep Singh) collaborated with the Department of Posts and the National Remote Sensing Centre, ISRO, Government of India to develop DIGIPIN – an open-source, machine-interpretable geospatial addressing system designed to provide precise and standardised digital addresses across the country.

DIGIPIN is a compact, intuitive, and human-readable geohash, capable of encoding the latitude and longitude of any point of interest in India, from urban households to remote maritime locations. The system is designed for offline usability, privacy, and robustness, making it suitable for diverse applications including e-commerce, emergency response, and public service delivery.

Dr Rupesh Ganpatrao Wandhare

IEEE Sponsored PhD Summer school / Workshop: The IEEE PELS PhD Summer School, hosted by the Department of Electrical Engineering, IIT Hyderabad, was successfully conducted from 19th July to 23rd July 2025. The event witnessed enthusiastic participation of PhD students across India as well as industry professionals, with a total attendance of 103. The summer school provided a comprehensive blend of technical sessions, hands-on lab experiences, and networking opportunities with academia and industry. It was sponsored by the IEEE Power Electronics Society with a total support of USD 10100. Total budget outlay was around INR 14 Lakh. This PhD Summer School also celebrated women in engineering, under the IEEE Women in Engineering (WiE) initiative.

Startup established by Dr Rupesh Wandhare, Dept. of EE, - "PEEC Research and Manufacturing Private Limited" in the iTIC incubation centre. This startup is engaged in the design and development of Power Electronics-based converters for renewable energy sources, storage and other industrial applications such as high capacity UPS, industrial welding, electroplating, induction heating, etc. The startup is also targeting higher-end power converters and import substitutes such as programmable power supply, bidirectional VFD, electronics loads, SMPS, and amplifiers.

Department of Entrepreneurship and Management

The Department of Entrepreneurship and Management at IIT Hyderabad is one amongst few departments in the country to offer academic programs in the domain of Entrepreneurship and Management. The second batch of MTech Techno-Entrepreneurship program with 17 students is intended to convocate in 2025. Apart from the MTech Techno-Entrepreneurship program, the department also offers a Minor in Entrepreneurship, Double Major in Entrepreneurship for Undergraduate students & PhD program. The department also takes active interest in offering several workshops and certificate programs to students and entrepreneurs in the space of entrepreneurship and management individually as well as in collaboration with internal and external stakeholders.

For more information, please visit: https://em.iith.ac.in/

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Publications:

1. Kumar Tarei P, Patnaik J, et al.(2024). Analysing barriers to humanitarian logistics for distributing relief aid in pre- and post-disaster situations. In International Journal of Disaster Risk Reduction (Vol. 104). https://doi.org/10.1016/j.ijdrr.2024.104388.
2. Patnaik J & Hashir A. (2024). Challenges in Rural Innovation and Entrepreneurship: A Lens Through Effectuation Theory. In 2024 IEEE Global Humanitarian Technology Conference, GHTC 2024 (pp. 297–302). https://doi.org/10.1109/GHTC62424.2024.10771576.
3. Patnaik J & Tarei P K. (2024). Design Thinking for Frugal Innovation: Unleashing Sustainable Business Models in Emerging Markets. In Proceedings of the European Conference on Innovation and Entrepreneurship, ECIE (Vol. 19, Issue 1, pp. 611–618). https://doi.org/10.34190/ecie.19.1.2417.
4. Wasi K, Patnaik J, et al. (2024). Analyzing factors influencing competitiveness of Indian tech start-ups: Modified total interpretive structural model (m-TISM) approach. In International Journal of Productivity and Performance Management. https://doi.org/10.1108/IJPPM-01-2024-0032.
5. Roy l, & Maiyar L M. (2024). An Ecologically Sustainable Omnichannel Fresh Food Distribution Model Considering Freshness-Keeping Effort and Carbon Emissions. In Lecture Notes in Networks and Systems: Vol. 994 LNNS (pp. 871–888). https://doi.org/10.1007/978-981-97-3180-0_58.
6. Singhal V, Maiyar L M, & Roy I. (2024). Environmental sustainability consideration with just-in-time practices in industry 4.0 era – A state of the art. In Operations Management Research. https://doi.org/10.1007/s12063-024-00478-0.

7. Parameswar N, Hasan Z, Shri C & Saini N. (2024). Exploring the barriers to ESG adoption using modified TISM approach. In Kybernetes (Vol. 53, Issue 12, pp. 5775–5800). https://doi.org/10.1108/K-05-2023-0888.
8. Parameswar N & Venkitachalam K. (2024). A framework on interplay of knowledge types and dimensions in pandemics – Example of COVID-19. In Knowledge and Process Management (Vol. 31, Issue 3, pp. 221–229). https://doi.org/10.1002/kpm.1775.
9. Wasi K, Parameswar N, et al.(2024). Analyzing factors influencing competitiveness of Indian tech start-ups: Modified total interpretive structural model (m-TISM) approach. In International Journal of Productivity and Performance Management. https://doi.org/10.1108/IJPPM-01-2024-0032.
10. Wasi K, Parameswar N, et al.(2024). Exploring the competitiveness of Indian technological start-ups – the case study approach. In Foresight (Vol. 26, Issue 6, pp. 1040–1066). https://doi.org/10.1108/FS-05-2023-0076.
11. Pradhan R P, Maradana R P, et al. (2024). Climate change disclosure and firm value in a frontier market: Exploring the determinants. In Natural Resources Forum. https://doi.org/10.1111/1477-8947.12462.
12. Samarakoon S M R K, Maradana R P, et al. (2024). How does equity derivative market affect economic growth? Evidence from the Asia-Pacific region. In Review of Financial Economics (Vol. 42, Issue 2, pp. 186–205). https://doi.org/10.1002/rfe.1195.
13. Samarakoon S M R K, Maradana R P, et al. (2024). What determines the success of equity derivatives markets? A global perspective. In Borsa Istanbul Review (Vol. 24, pp. 15–28). https://doi.org/10.1016/j.bir.2023.10.008.
14. Samarakoon S, Maradana R P, et al. (2024). DYNAMICS OF PRICE AND VOLATILITY SPILLOVERS AMONG STOCK AND FOREIGN EXCHANGES: EVIDENCE FROM SOUTH ASIAN COUNTRIES. In Journal of Economic Development (Vol. 49, Issue 2, pp. 111–138). https://doi.org/10.35866/caujed.2024.49.2.006.

Funded Research Projects:

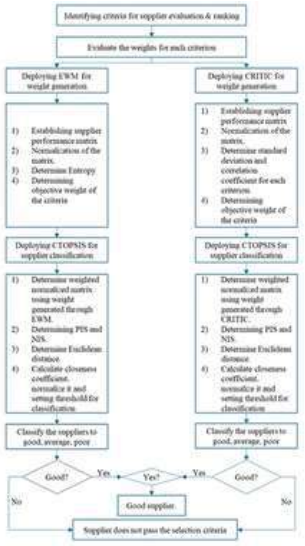
1. Jayshree Patnaik; Exploring design thinking practices in identifying the utility of frugal innovation for rural development: Avenues for a sustainable future; 15.6L [SG 148]
2. Lohithaksha Maniraj Maiyar; Exploring the Impact of the Jal Jeevan Mission on the Wellbeing of Rural Women in Telangana: A socio-Economic and Health Study; 9.00 L. [09/2024-25/JJMGEN/RP/ICSSR].
3. Lohithaksha M Maiyar; Reducing Food Waste and Inculcating Sustainability in Technology-Enabled Post-COVID Fresh Food Supply Chains, Principal Investigator (2022-2024). Funded by IIT Hyderabad (11.00 L INR).
4. Nakul Parameswar; Sustainable Dairy Farming and Value Chain Development through Primary Dairy Cooperatives: Livelihood Diversification Strategies for Small and Marginal Dairy Farmers in Rural Uttar Pradesh, Bihar, and Madhya Pradesh; 75.00 L. [Project is Coordinated from Institute of Rural Management Anand (I am a Co-PI in the Project)].
5. Nakul Parameswar; Strategic Alliance by Start-ups and Entrepreneurial Ventures: An Exploratory and Longitudinal Study; 17.5 L. [SG/IITH/F269/2021-22/SG-105].
6. Nakul Parameswar (PI), Major Project by ICSSR on "Competitiveness of Indian Technological Start Ups-An Exploratory Study"; 6.93 L. [G468].
7. Rajesh Ittamalla; Start-up Branding: Determinants, Dynamics, and Management Strategies; 13.00 L. [SG149].
8. Rajesh Ittamalla; Creating Agritourism Experiences: Customers' Perspectives, Service Providers' Perspectives, and Entrepreneurial Perspective; 12.90.00 L. [G561].
9. Ranapratap Maradana; Venture Capital Funding and University Startups Connection: Catalysts' Role for Innovation; 14.20 L. [SG/IITH/F314/2023-24/SG-173].

Awards & Recognitions:

1. Manimaran V, (PhD Scholar) working under the supervision of Dr Lohithaksha M Maiyar, received the Best Thesis Proposal Award for his Presentation titled "Cost-efficient Humanitarian Logistics Network Design for Relief Material Deliveries Considering social vulnerability" at the International Conference on Emerging, Technologies, Analytics, and Operations (ICETAO 2024) at ICFAI Business School (IBS) Hyderabad.
2. Sibasish Dhibar, (Full Time Post-Doctoral Fellow) working under the supervision of Dr Lohithaksha M Maiyar, has received the Best Presentation Award for presenting of his paper titled "Bi-objective Optimization of Warehouse Management System with Orbital System and Additional Service" in the 2nd Transformative Leadership in STEMM (TLS) Workshop held at IIT Delhi.

Research Highlights

Research being undertaken in the areas of –Sustainable Food Supply Chain, Startup Branding and New Venture Marketing, Venture Capital Investments and Innovation, Financial Inclusion, Corporate Social Responsibility, AI Startup, Sustainable Entrepreneurship, Gen AI and Entrepreneurship, Women in Entrepreneurship and Competitiveness of Tech Start-ups.



Proposed framework for supplier selection and evaluation. Co-authored by Anadi Gautam, Lohithaksha M Maiyar and Indira Roy.

Highlights of Activities in the Department

The Department undertook many activities during the year to promote and nurture entrepreneurial mind set and innovative thinking among the students of IIT Hyderabad. A few notable programmes undertaken during the year are:

Tongali Program 2025

The Department of Entrepreneurship and Management (EM) at IIT Hyderabad, in association with the Institute's Innovation Council, hosted the third edition of the "Tongali" from 24th to 28th February 2025. . The Startup Challenge Event is a prestigious Indo-Japanese collaboration, in association with different universities of Japan. As part of the "IITH Tongali Entrepreneurship Program from Student entrepreneurs from Japan, along with two professors, Dr. Sawako Tanaka from Nagoya University and Dr. Sai Chandra Teja from Japan, visited our institute under the program titled "Overseas Training for Fostering Global Entrepreneurs (Tongali Project)." The Department of EM hosted and supported them for all the field visits in Hyderabad and conducted several events like the Business Plan Development Challenge (LEAD Pitch) for Japanese and Indian students.

IIT Hyderabad witnessed an inspiring exchange of ideas as M. Tech Techno-Entrepreneurship (Batch 2024-2026) students collaborated with Japanese startups. This program focused on enhancing leadership skills, refining product-market fit, and developing commercialization strategies for innovative Japanese ventures. The distinguished panel of judges, including Prof. Tarun Kanti Panda (Dean International Relations IITH), Ms. Chikako Kasai (JICA FRIENDSHIP Project Representative), EM faculty, provided expertise and insightful evaluations that greatly contributed to the event's success.

Entrepreneurship Talk Series

The flagship Entrepreneurship Talk Series, organized by the Department of Entrepreneurship and Management, gained further traction in the year 2024-2025, wherein 12 talks were undertaken as part of the series (details of these talks are mentioned below)

1	Mr. Jogendra Singh	President & Group CFO of Hero Enterprise
2	Dr. Shin Sakane	CEO & CSMO of GFIT Inc. Japan.
3	Satyanarayana Kuchibhatla	Co-founder & Director, Parisodhana Technologies Pvt. Ltd
4	Sricharan Lakkaraju	Founder, Student Tribe
5	Abhik Giri	Principal OR Scientist, Sandisk
6	Indraneel Ganguly	Founder and CEO of ReachIG, a Brand Consultancy firm, and Global Head of Brand and Communications at Sutherland
7	V.S. Rao	Chairman and MD of BT&BT
8	Aditya Agare	Co-Founder & Director of Thermoflyde
9	Dr. Sandeep Patalay	Delivery Head, TCS
10	Mr. Amarednra Sahu	Co-Founder & CEO, Nestaway
11	Mr Akash Jadhav	Founder, GoPool
12	Mr. Purushothaman Cannan	Founder, GreenII

Workshop on "Ideas to Impact"

The Department of Entrepreneurship and Management, IIT Hyderabad organized a 1 day workshop on 1st March 2025 on "Ideas to Impact" attended by 83 participants. The workshop offered insightful sessions led by Dr. Jayshree Patnaik and Dr. Nakul Parameswar delving into key aspects of entrepreneurship, including developing an entrepreneurial mindset, crafting compelling value propositions, and building effective business models. Participants gained valuable knowledge, broadened their perspectives, and engaged in meaningful discussions that encouraged innovative and strategic thinking

Deeptech Symposium 2025

The Department of Entrepreneurship and Management, IIT Hyderabad organized a Deeptech Symposium 2025 on 23rd March 2025, bringing together thought leaders, industry experts, and aspiring entrepreneurs to explore deeptech's role in driving India's self-reliance. An engaging panel discussion on "Building a Sustainable Deeptech Startup Ecosystem in India" featured industry pioneers sharing insights on navigating the deeptech landscape, overcoming commercialization challenges, and fostering innovation.

Workshop on "Business Plan Development"

The Department of Entrepreneurship and Management, IIT Hyderabad, hosted an engaging Business Plan Development Workshop led by Mr. Ajay Parasrampuria, Founder of Business Design Lab and Calm Studio on 13th January 2025. Mr. Parasrampuria shared his vast knowledge and expertise, guiding participants through the essentials of crafting impactful business plans. The session emphasized actionable strategies, frameworks, and real-world insights, helping aspiring entrepreneurs turn innovative ideas into viable business models sailing across different parameters of crafting a business model.

Workshop on "Design Thinking and Entrepreneurship"

The Department of Entrepreneurship and Management, IIT Hyderabad hosted a workshop titled "Design Thinking and Entrepreneurship", led by Mr. Deepak Reddy, Founder of Bhaumya Innovations Private Limited on 19th November 2024. The session focused on inspiring journey as an entrepreneur of Mr. Deepak, drawing from his engineering background and agricultural roots. He introduced the audience to the principles of design thinking, highlighting its transformative role in addressing real-world challenges and fostering innovation.

Workshop on "Entrepreneurship Essentials"

The Department of Entrepreneurship and Management, IIT Hyderabad,along with BVR SCIENT, conducted a 2-day workshop on "Entrepreneurship Essentials" on 28-29 May 2024. The workshop covered topics on entrepreneurial mindset, developing innovative ideas from a business and customer perspective, and becoming familiar with business models, finance, and marketing aspects of entrepreneurship.

Workshop on "Deeptech Entrepreneurship: Opportunities and Challenges in Deeptech"

The Department of Entrepreneurship and Management, IIT Hyderabad and BVR SCIENT conducted a 4-day program on "Deeptech Entrepreneurship: Opportunities and Challenges in Deeptech" from July 22-25, 2024, at IIT Hyderabad. The program was designed to equip aspiring entrepreneurs, early-stage startup founders and professionals with the knowledge and skills necessary to build successful Deeptech startups. The program covered various topics related to entrepreneurship and the Deeptech ecosystem, featuring lectures, interactions with corporate experts and a startup showcase.The program imparted valuable information, providing the participants with practical frameworks, models, and methodologies to turn their innovative ideas into viable business ventures. The program ended on a high note, with participants gaining a comprehensive overview of Deeptech entrepreneurship and its applications in India.

Department of Liberal Arts

The Department of Liberal Arts at IIT Hyderabad currently has 21 full time faculty, 7 Adjunct faculty of distinct repute, and 1 distinguished professor. The department currently has 95 MA and PhD students, 3 staff members and one attendant. We are a fast growing and extremely diverse group of academics and scholars, where faculty and students strive through their research and practice to contribute to social, cultural, economic, and political development of the nation and the world. In Liberal Arts we engage with a significant amount of phenomenological and theoretical work as well as hands on learning and field-based research such that there is a strong continuum between academia, society, industry, healthcare, policies, and media, to name a few. The department received its own building space in August 2024 and is now fully functional with eight labs, seminars rooms, classrooms, conference rooms, and a state-of-the-art experimental theater. In terms of research and teaching the department of Liberal Arts at IIT Hyderabad is keenly aware of the Sustainable Development Goals of the United Nations, and our pedagogy and research work relentlessly toward these goals. As a department we boast of Economists dealing with National Agricultural Market and Electronics; Economic Growth of India's Urban Poor in post-Covid Times; Gender, Education, and use of AI and other disruptive technologies on society and economy. We also house psychologists, anthropologists, gender studies experts, and littérateurs who together work on Mental and Physical health including Disability, Gender, Reproductive Health, Disease and Pathology, Body Image, Geriatric Healthcare, Cancer Care, Chronic Disease Management, Personality Psychology, Health Behavior Change, Caste and Feminism, Gendered Violence, and also Issues of Climate Change, Global Warming and Environmental Crises. We, likewise, have Development Studies and Cognitive Science experts who variously work on Migration and Labor Policies, Mathematical and Formal Foundations of Language, Biolinguistics, Issues of Cognition, Brain, Learning, and Memory Consolidation; to name a few. We also have substantial work going on in the areas of Media and Popular Culture and literary studies along with cutting edge discourses in Digital Humanities. Our department has also recently begun its Public Humanities initiative which is a unique forum for academic exchange and practice in India. Finally, we are also immensely happy to foster both practice and training in creative and performing arts. We run a hugely popular Minor program in creative arts for our students and also offer them a minor in Economics.

Our students have also won several awards and have been actively publishing and presenting their work on various national and international platforms of repute. Many of our alumni are now faculty members at other IITs, IIMs, and universities of repute.

In sum, at Liberal Arts we therefore work with both traditional and upcoming discourses in the Humanities, the Social Sciences, and the Fine and Performing Arts. We deeply aspire to connect humanity and culture to science and technology in holistic and profound ways, forge interdisciplinary ties that encourage cutting-edge scholarship, and cultivate a deeper understanding of humanity at large.

For more information, please visit: https://la.iith.ac.in/

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Funded Research Projects:

1. Anandita Pan; Vulnerable Bodies in Literature and Culture; 1.50 L. [Conference Grant].
2. Anandita Pan; Women's Reserved Seats in Municipal Councils in India and Taiwan; 11.83 L. [S344].
3. Anindita Majumdar; Viksit Bharat ki Atmanirbhar Betiyan: Exploring the role of CCTs and Beti Bachao Beti Padhao in Empowering Girls in India; 20.00 L. [G755].
4. Amrita Deb; Resilience and Mental Illness: Exploring Multisystemic Resilience among Adults using Participatory Action Research (PAR); 16.00 L. [ICSSR/LA/F054/2025-26/G812].
5. Neeraj Kumar; Neural structures and Mechanisms Involved in Motor Reconsolidation; 68.75 L. [G740].
6. Prabheesh K P; Assessment & Management Plan for Godavari River Basin; 200.00 L. [G687].
7. Shuhita Bhattacharjee; Victorian Diversities Research Network [ONGOING]; 1.84 L. [UKRI AH/Y002598/1].
8. Shuhita Bhattacharjee; Adolescent Sexual Health Education through Picture Books: Designing and Disseminating Picture Books on Sexual Health-Taking the Conversation to Children, Doctors, Teachers [ONGOIN]; 18.00 L. [ICSSR/RPD/MJ/2023-24/G/157].

Awards & Recognitions:

1. Rishab Prasad Soni, a full-time research Scholar working under the supervision of Dr M P Ganesh, received the Best Methodology Award for the Presentation of his paper titled "Beyond the Buzz: Exploring the Effectiveness of Moment Marketing for Consumer Engagement" in the 8th International Marketing Strategy and Policy Conference, organized at the Goa Institute of Management.

2. Vineet Gairola, PhD Scholar, working under the supervision of Dr Shubha Ranganathan, was selected by the International Relations Committee (IRC) of the Society for Psychoanalysis and Psychoanalytic Psychology (Div. 39) of APA to receive the 2025-2026 IRC Scholar Award. As part of this, he received a cash award, a waiver of registration for the annual meeting, and other benefits related to free membership, subscription, etc.

Research Highlights:

Highlights of the Department

- National Conference entitled "Vulnerable Bodies in Literature and Culture"
- International seminar called 'Lifestyles in Conflict: Chronicity and Healing in Contemporary India'
- Demographic Shifts and Reproductive Futures: Entanglements of Science, Technology, Medicine, and Society
- Lifestyles in Conflict: Chronicity and Healing in Contemporary India
- International Conference on Circadian Rhythms in Health and Diseases: From Discovery to Function
- Workshop: Rethinking Neurodiversity, Intellectual Disability, and Care
- Development Economics Virtual Workshop
- Critical Interrogations of The Digital Urban in India: A Pedagogic Approach
- Gender and Economics Virtual Workshop
- Early Warning Systems for Financial Crisis: Theory and Evidence
- SPARC Writing Workshop in Science and Technology Studies (STS) for Early Career Researchers
- Inaugural Workshop of the Science and Technology Studies India Network
- Ethnography and Writing: Some Reflections Golden Jubilee Academic Writing Workshops
- Global Initiative for Academic Networks (GIAN) Course
- Four-Week Masterclass on Impact Evaluation
- Workshop on Early Warning Mechanisms

Department of Materials Science & Metallurgical Engineering

The Department of Materials Science and Metallurgical Engineering (MSME) at IIT Hyderabad continued to strengthen its teaching and research ecosystem during the financial year April 2024 – March 2025. Our philosophy emphasizes the interplay between composition, structure, processing, characterization, and properties of materials, preparing students to innovate in areas ranging from nanomaterials, biomaterials, and energy materials to thin films, devices, thermomechanical processing, and computational materials science.

A major infrastructure milestone was the establishment of the Sophisticated Analytical and Technical Help Institute – Centre for In-Situ and Correlative Microscopy (SATHI-CISCoM) at IIT Hyderabad, supported by DST. MSME faculty played a key role in conceptualizing and driving this centre, which is now equipped with state-of-the-art electron microscopy facilities and Atom Probe Tomography (APT) — one of only a handful in the world. These capabilities enable atomic-scale resolution and in-situ characterization of complex materials, positioning IIT Hyderabad as a national hub for advanced characterization accessible to academia, industry, and national labs.

In parallel, the department successfully secured a DST-FIST project, through which we are procuring a Gleeble Thermomechanical Simulator. This facility will provide unique capabilities for simulating and studying thermo-mechanical processing routes, advanced deformation behaviour, and alloy development under controlled thermal and mechanical loading conditions. Together, the SATHI-CISCoM centre and the FIST-funded Gleeble simulator mark a step-change in our experimental infrastructure, complementing MSME's established strength in computational modeling and GPU-accelerated simulations.

The department also inaugurated the ASM Hyderabad Chapter, attracted major sponsored projects from DST, SERB, DRDO, and industry (Tata Steel, Eaton), and launched new programs such as the M.Tech in Semiconductor Materials & Devices, while continuing successful online offerings in Industrial Metallurgy and interdisciplinary modules like Integrated Computational Materials Engineering (ICME). Faculty recruitment in emerging areas further diversified our expertise, ensuring that MSME remains at the forefront of both foundational teaching and cutting-edge research.

For more information, please visit: https://msme.iith.ac.in/

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Patents:

Published:

1. Chandrasekhar Murapaka; A Skymiron Based Counter; 202441071776.
2. Chandrasekhar Murapaka; A Skyrmion-Based Tsetlin Machine Inference System; 202441086334.
3. Mudrika Khandelwal; Packaging System for Extending Shelf-Life of Post-Harvest Fresh Produce and Method Thereof; 202241063104.
4. Mudrika Khandelwal; An In-Vitro Glomerular Filtration Barrier (GFB) Membrane and A Method of Preparation Thereof; 202441071348.
5. Sai Rama Krishna Malladi; A Method of Preparing Substrate with Tunable Optical Resonance; 202441086828.
6. Sai Rama Krishna Malladi; A System for Collecting a Reflective Light Beam Spectrum; 202441086736.
7. Sai Rama Krishna Malladi; An Optical Apparatus for Real-Time Monitoring of an Ongoing Chemical Reaction in A Sample Solution; 202441084007.
8. Shourya Dutta Gupta; A Method of Preparing Substrate with Tunable Optical Resonance; 202441086828.
9. Shourya Dutta Gupta; A System for Collecting a Reflective Light Beam Spectrum; 202441086736.
10. Shourya Dutta Gupta; An Optical Apparatus for Real-Time Monitoring of an Ongoing Chemical Reaction in A Sample Solution; 202441084007.
11. Shourya Dutta Gupta; A System and Method for Detection of Molecules; 202441085374.

Granted:

1. Chandrasekhar Murapaka; Domain Wall Tunnelling and Logic Operations in Ferromagnetic Nanostructures; 201941048936.
2. Chandrasekhar Murapaka; System and Method for Skyrmion-Based 3D Low-Complex Runtime Reconfigurable Architecture Design Methodology of Universal Logic Gate; 202341039644.
3. Ranjith Ramadurai; BCZT/CFO Polycrystalline Superlattice Structures with Optimum Strain Gradient for Strong Electro-Mechanical Coupling; 202111048321.

Publications:

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2. Murugaiyan P, Kamaraj A, et al. (2024). Influence of Tensile Stress Annealing on Soft Magnetic and Core Loss Properties of Nanocrystalline Fe83Si2B9P4Nb1Cu1 Alloy. In Journal of Superconductivity and Novel Magnetism (Vol. 37, Issues 8–10, pp. 1635–1646). https://doi.org/10.1007/s10948-024-06789-4
3. Prasad D S, Kamaraj A, et al. (2024). A novel approach for the efficient recovery of lead from End-of-Life Silicon Photovoltaic modules. In Solar Energy Materials and Solar Cells (Vol. 266). https://doi.org/10.1016/j.solmat.2023.112672
4. Sripushpa K, Kamaraj A, et al. (2024). Analysis of Vortex Stability During the BOF Tapping Process. In Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science (Vol. 55, Issue 5, pp. 3894–3911). https://doi.org/10.1007/s11663-024-03221-z
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6. Kumar S, Deshpande A S, et al. (2024). Quantum capacitance: The large but hidden capacitance in supercapacitors. In Carbon Trends (Vol. 16). https://doi.org/10.1016/j.cartre.2024.100385
7. Garlapati K K, Panigrahi B B, et al. (2024). VOx anchored Ti3C2Tx MXene heterostructures for high-performance 2.2 V supercapacitors. In Journal of Power Sources (Vol. 605). https://doi.org/10.1016/j.jpowsour.2024.234503
8. Garlapati K K, Panigrahi B B, et al. (2024a). AlCoCrFeNi HEA reinforced Al–Si–Mg alloy composite through hot-press sintering. In Bulletin of Materials Science (Vol. 47, Issue 4). https://doi.org/10.1007/s12034-024-033582
9. Garlapati K K, Panigrahi B B, et al. (2024b). FeS2@Ti3C2Tx Pseudocapacitive Anode for Supercapacitors: Effect of Counter-Electrode Electrochemical Behavior on Supercapacitor Metrics. In ACS Applied Energy Materials (Vol. 7, Issue 16, pp. 6950–6960). https://doi.org/10.1021/acsaem.4c00962
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15. Haragopal V, Murapaka C, et al. (2024). Field-Induced Multistate Magnetization Switching in Ferromagnetic Nanowire with Parallel Anti-dots for Memristor Applications. In Journal of Superconductivity and Novel Magnetism (Vol. 37, Issues 11–12, pp. 1793–1800). https://doi.org/10.1007/s10948-024-06821-7
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GdFeCo thin films. In Journal of Applied Physics (Vol. 136, Issue 20). https://doi.org/10.1063/5.0231132
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38. Kumar S, Khandelwal M, et al. (2024). Quantum capacitance: The large but hidden capacitance in supercapacitors. In Carbon Trends (Vol. 16). https://doi.org/10.1016/j.cartre.2024.100385
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Development of an Advanced Lightweight High-Temperature Al-Ti-Ta Alloy. In Materials (Vol. 17, Issue 21). https://doi.org/10.3390/ma17215373
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Funded Research Projects:

1. Anuj Goyal; Accelerated Design of High-performance Materials for Piezoelectric Energy Harvesting using Multiscale Modeling; 0.00 L. [DST/NPNST/AM/2025/1918 - Not Granted].
2. Ashok K; Investigation on direct reduction using Ammonia: A Novel Green Alternate Ironmaking

Process; 25.00 L. [G668A].
3. Ashok K; Investigation on direct reduction using Ammonia and Electric Furnace Steelmaking: A Novel
4. Green Steelmaking Route; 53.00 L. [G668B].
Ashok K; Characterization and valorization of silica and lime slidge from Alufluoride industry; 36.58 L. [S358].
5. Atul Suresh Deshpande; Coal energy & Net Zero (CLEANZ) center of excellence Collaborative effort by IITH and Coal India Ltd; 9800.00 L. [G795].
6. B S Murty; Synergising Excellence: Fostering a Bilateral Critical Minerals Research Hub between India and Australia; 634.00 L. [G708].
7. B S Murty; AICMRH; 17.00 L. [G708A].
8. Deepu J. Babu; Cleanz CoE, PI for two projects and Co-PO for one; 753.00 L. [G795].
9. Deepu J. Babu; Electric Swing Adsorption for Carbon Capture and Lithium Recovery; 100.00 L. [GSS/IITH/02/2024-25/05].
10. Deepu J. Babu; Development of low-cost organic porous solids for CO 2capture" Greenko School of Sustainability (Role: Co-PI); 100.00 L. [GSS/IITH/02/2024-25/06].
11. Hemam Rachna Devi; From Nanoscale to Single-Atom Catalysts: Sustainable Green Hydrogen Generation via Solar Water Splitting; 69.72 L. [ANRF/ECRG/2024/005438/ENS].
12. Hemam Rachna Devi; Rational design of single- and dual atom catalysts for efficient and durable overall water splitting.; 30.00 L. [SG/IITH/F366/2024-25/SG-199].
13. Janaki Ram G D; Electron beam powder bed fusion of nickel-base superalloys CM247LC and BZL12Y; 1830.00 L. [DRDO/MSME/F234/2023-24/G678].
14. Mayur Vaidya; Quantitative Assessment of Grain Size and Temperature Effects on Diffusion in Medium Entropy alloys; 47.81 L. [G721].
15. Mayur Vaidya; Computational design and development of new Ti-Al-Nb based alloys with rare earth metal additions for AM and PM applications; 14.75 L. [G794].
16. Mayur Vaidya; Fabrication and Characterisation of high entropy shape memory alloys; 45.31 L. [S323].
17. Mudrika Khandelwal; Biodegradable self-sanitising bacterial nano cellulose fabric for air and water filtration; 58.00 L. [G638].
18. Mudrika Khandelwal; Bacterial Cellulose based Microfluidic Point-of-Care Device for Antibiotic Susceptibility Testing; 52.65 L. [G692].
19. Mudrika Khandelwal; Circular Agrotech for nutritional security, agricultural waste-derived materials for active and innovative fresh food packaging for enhanced shelf life; 78.00 L. [G820].
20. Mudrika Khandelwal; Dual action - antimicrobial and analgesic- patches for wound dressing based on bacterial nanocellulose for extended use; 6.00 L. [G475].
21. Pinaki Prasad Bhattacharjee; (PI) Microstructures of selected steels (CSR Grant); 16.80 L. [CSR 3].
22. Pinaki Prasad Bhattacharjee; Recycled High Entropy Alloys (HEAs) for Bolstering Circular Economy; 20.00 L. [JICA].
23. Pinaki Prasad Bhattacharjee; (Implementation team) Establishment of thermomechanical processing simulator; 700.00 L. [DST-FIST].
24. Rajesh Korla; Optimisation of Electron Beam AM Process of Ti-6Al-4V to minimise the anisotropy in, high temperature mechanical properties, creep, fatigue and fatigue crack growth and demonstrate printing of real-time component with optimised process parameters; 552.50 L. [G679].
25. Sai Rama Krishna Malladi; Study of Microstructural Evolution of high-strength steels and super alloys for defence applications at multiple length scales in real-time; 250.52 L. [G793].
26. Sai Rama Krishna Malladi; Study of Microstructural evolution of high-strength steels and super alloys for defence applications at multiple length scales in real-time; 250.52 L. [G753].
27. Sai Rama Krishna Malladi; Geometrical shaping of organic crystals via Ion Beam milling for industrial scale production of photonic integrated circuit components; 7.06 L. [G739].
28. Saswata Bhattacharya; Level C FIST Establishment of thermomechanical physical simulator with accessories Gleeble 3800; 707.00 L. [SR/FST/ET-II/2024/1353].
29. Shourya Dutta Gupta; Development of Transmission Electron Microscopy Holder and laser integrated Electron Microscopy platforms for In-Situ Experiments; 120.00 L. [DST/MSME/F190/2025-26/G828].
30. Shourya Dutta Gupta; SATHI-Centre for In-situ and correlative microscopy; 8000.00 L. [G650].
31. Shourya Dutta Gupta; Development of online optical platform with an integrated microfluidic chip for monitoring and control of nanostructure synthesis; 34.97 L. [TDG/IITH/F199/2024-25/TDG-08].
32. Shourya Dutta Gupta; (Momentive Pvt Ltd) Surface analysis of Hair samples treated with different chemicals; 27.47 L. [S288].
33. Subhradeep Chatterjee; National Centre for Clean Coal Research and Development; 6.71 L. [G158].
34. Suhash Ranjan Dey; Exploring ancient Indian panchadhatuasthadhatu-making with new compositions and combinations for modern age applications; 90.45 L. [G783].
35. Suresh Perumal; Microstructural Engineering in Higher Manganese Silicide: Novel Approaches for Ecofriendly and Higher Performance Thermoelectric Power Generation (MEET); 80.74 L. [G735].

Awards & Recognitions:

1. D Srinivasan, ICME student, under the guidance of Dr Ashok Kamraj, has won the World Championship title in the 18th version of Steel Challenge organized by the World Steel Association at London.
2. Kiran Kumar Garlapati, PhD Scholar, Department of Materials Science & Metallurgical Engineering & Chemistry, received the Best Poster Award in the International Conference on Energy & Environmental Materials (E2M-2024) held at IIT Indore.
3. Krishna Chaitanya Nuli, PhD Scholar, received the Best Poster Award during the NMD-ATM 2024 program held at GKVK, Bengaluru, in the theme of "Structure-Property Correlation."
4. Mudrika Khandelwal was selected for the 3rd batch INSA-NCGG Leadership in Science & Technology (LEADS) Programme, aimed at training Scientists to become future leaders, to be held at INSA, New Delhi.

Research Highlights

During April 2024 – March 2025, the department published extensively in leading international journals, reflecting both depth and diversity of research:

In Acta Materialia, faculty reported advances in diffusion kinetics of multicomponent alloys, development of inverse modeling frameworks using physics-informed neural networks (PINNs) for tracer diffusivity extraction, and phase-field models of thermomigration, clarifying how thermal and compositional gradients drive microstructural evolution.

2. In Physical Review B, MSME contributed a rigorous thermodynamic analysis of isosymmetric transitions in ferroelectric solid solutions, resolving long-standing questions of phase stability.

   Publications in Scripta Materialia and related outlets highlighted rapid communications in high-entropy alloys and advanced steels, while work in Small, IEEE sensors, Biosensors and Bioelectronics, and Journal of Materials Chemistry C showcased functional nanomaterials and thin-film devices, including real-time moisture sensing and flexible electronics.

3. A landmark article in Advanced Energy Materials presented a sustainable, low-temperature route to battery-grade graphite, integrating mechanistic insights, operando characterization, and techno-economic analysis — underscoring MSME's impact in next-generation energy storage.

4. Our Computational Materials Science article on MicroSim 5.0 established one of the first indigenous GPU-accelerated solvers for large-scale phase-field modeling, demonstrating scalable CUDA-based performance and providing a national resource for mesoscale simulations.

5. We have demonstrated magnetic 2D layer Vanadium doped MoS2 layer as a spin-orbit torque layer with tunable spin Hall conductivity (Advanced Functional Materials). We have made significant breakthrough on the growth of Topological Insulators for spin-orbitronics applications. Demonstrated high spin Hall angle in BiSb grown on Saphire (epitxial) and Si substrate bringing it close to CMOS integration (ACS Appl. Electr. Mater. And J. Appl. Phys.). Using skyrmion motion in magnetic networks, we have proposed and demonstrated spintronic computing architectures (Full adder and Half adder) (Nanoscale, Indian Patent Granted).

9. Complementary breakthroughs in spintronics (Journal of Magnetism and Magnetic Materials), bio-derived materials (Journal of Drug Delivery Science and Technology), and operando electron microscopy (Communications Chemistry, Nature Research) further demonstrate the department's expanding reach from structural alloys to functional and sustainable materials.

   Together, these outputs position MSME at IIT Hyderabad as a hub where computational innovation, advanced characterization, and experimental discovery converge — addressing challenges in energy storage, microelectronics reliability, alloy design, and quantum-enabled device materials.

A few Research Facilities

Department of Mathematics

The Department of Mathematics of the Indian Institute of Technology Hyderabad has been in existence since the inception of the institute. The department shares the common vision of the institute in striving for excellence, and aims at becoming a center for applicable, theoretical, and interdisciplinary research.

Department Vision: To foster eclecticism and excellence in mathematical education and research, which is well poised between abstraction and application.

Long-term goal: To evolve into an internationally acclaimed centre for theoretical, interdisciplinary, and applicable mathematical research, supporting and complementing expertise extant in and around Hyderabad.

The Department of Mathematics, IIT Hyderabad, is equipped with modern infrastructure to support academic, research, and administrative activities. The department is housed in the AD3 Building, with facilities distributed across multiple floors. The department provides state-of-the-art infrastructure for teaching, research, collaboration, and administration, ensuring an environment conducive to academic excellence and innovation.

For more information, please visit: https://math.iith.ac.in/

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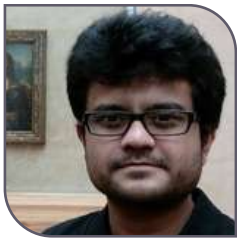

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Publications:

1. Aiyappan S, Cardone G, & Perugia C. (2024). Optimal control problem stated in a locally periodic rough domain: A homogenization study. In Applicable Analysis (Vol. 103, Issue 10, pp. 1757–1768). https://doi.org/10.1080/00036811.2023.2265967
2. Aiyappan S, Griso G, & Orlik J. (2024). Homogenization of Helmholtz equation in a periodic layer to study Faraday cage-like shielding effects. In Complex Variables and Elliptic Equations (Vol. 69, Issue 4, pp. 607–625). https://doi.org/10.1080/17476933.2022.2155637
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Funded Research Projects

1. Bhakti Bhusan Manna; Existence and Qualitative behaviour for solutions for nonlinear elliptic systems; 6.60 L. [G703].
2. Dhriti Sundar Patra; Weak contact structure and Einstein-type manifolds; 15.00 L. [G655].
3. Jyotirmay Rana; "Magnetic drug delivery in cancer treatment", Project Number: G635, 15.76 Lakhs.
4. M Rajesh Kannan; Spectral theory of signed graphs; 32.22 L. [G758].
5. Neeraj Kumar; Sequences and bigraded Betti numbers of symmetric and Rees Algebra: Theoretical, Algorithmic and coding aspects; 21.36 L. [G759].
   Pradipto Banerjee; Investigations into algebraic properties of integer polynomials; 0.00 L. [SERB/MA/F147/2021-22/G443].
6. Sayantee Jana; Data mining and Machine Learning modelling to reduce Unclaimed deposits in banks under private sector Banks Category; 10.00 L. [S320].
7. Subrahmanya Sastry Challa; SPARSE APPROXIMATIONS WITH PRIOR SUPPORT CONSTRAINT AND APPLICATION TO INTERIOR TOMOGRAPHY; 3.76 L. [G404, (25(0309)/20/EMR-I)].
8. Sukumar D; A study on the exponential spectrum; 6.60 L. [G701].
9. Venkata Ganapathi Narasimha Kumar Ch; On the structure of Drinfeld modular forms of arbitrary level and the Atkin- Lehner Theory; 35.49 L. [G760].
10. Venku Naidu Dogga; Boundedness of integral operators on Reproducing Kernel Hilbert Spaces; 6.60 L. [G702].
11. Vikas Krishnamurthy; A study of vortex sheets as limiting cases of point vortex equilibria; 12.68 L. [G732].

Research Highlights

Research Activities & Training Programs:

- Applied Mathematics Day, LHC-3 @ IITH, 2024 was held on 25-07-2024.
- Advanced Functional Analysis and its Applications 2024 was held from 09-12-2024 to 13-12-2024.
- AFS-I - Annual Foundation School - I (2024) IIT Hyderabad was held on 03-12-2024 to 28-12-2024.
- National Mathematics Day 2024, MA01 @ IITH held on 22-12-2024.
- Short-Term Program on Theory of Differential Equations was held on 03-03-2025 to 08-03-2025.

Highlights:

- Advanced the study of the structure of Drinfeld modular forms for non-trivial levels, extending the foundational works of Gekeler (1973) and Vincent (2000) on trivial level.
- Proved the existence of hyperinvariant subspaces for Schatten class perturbations of particular partial isometries.
- Developed an algorithm to construct coherent systems using combinatorial signatures, with applications in representation theory and symmetric functions.
- Successfully solved Sarason's problem in twisted Fock spaces—the first such resolution in spaces with non-radial weights.
- Investigated analogues of algebraic connectivity under various norms, uncovering their combinatorial significance in graph theory and network analysis.

National Mathematics Day Celebrations

Department of Mechanical and Aerospace Engineering

The Mechanical and Aerospace Engineering (MAE) Department at IIT Hyderabad has been focusing on many basic and applied areas under Mechanics and Design (MAD), Thermo-Fluid Engineering (TFE), Integrated Design and Manufacturing (IDM), and Aerospace Engineering (AE) streams with the support of 38 faculty members, 15 staff, and more than 520 students.

During the year, the department hosted several key events aimed at fostering academic and industry collaboration. These included the MAE Industry–Academia Connect 2024 event and the student-centric MAE Department Day 2025, held on 18th January 2025. Additionally, the department organized a one-day symposium titled "Advanced Measurement Techniques in Dynamics, Vibration, and Robotics" in 2025, and a Workshop on AI for Research to strengthen interdisciplinary skill development.

A major milestone was the launch of a new MTech program in Robotics and Intelligent Systems, reflecting the department's focus on emerging technologies and research-driven education. Faculty achievements included the promotion of Dr Gangadharan Raju, Dr Harish Nagaraj Dixit, Dr Pankaj Kolhe, and Dr Saravanan B to the rank of Professor, and Dr Sayak Banerjee to Associate Professor. Further strengthening the department's academic capabilities, four new faculty members—Dr Ankush Kumar Jaiswal, Dr Himabindu Allaka, Dr Neetu Tiwari, and Dr Thulsiram G—joined as Assistant Professors.

The department also witnessed notable student and faculty accomplishments. MAE students secured 2nd place in the CIEDS–DRDO Swarm Rescue Challenge held in France. PhD scholars were recognised with Prime Minister's Research Fellowships, and several research works received national and international recognition, including publications highlighted as Editor's Suggestions in reputed journals.

Through new programs, impactful research, and strong outreach initiatives, MAE continues to contribute significantly to IIT Hyderabad's vision of innovation, excellence, and leadership in engineering education and research.

For more information, please visit: https://mae.iith.ac.in/

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Patents:

Published:

1. Chandrika Prakash Vyasarayani; An Inertial Parameters Measurement System for a Rigid Object; 202441042132.
2. Chandrika PrakashVyasarayani; A Method and an Apparatus for Measuring Inertial Parameters of a Rigid Object; 202441040592.
3. Chandrika Prakash Vyasarayani; An Apparatus to Measure a Load at a Fixed Joint; 202441041974.
4. Lakshmana Dora Chandrala; An Apparatus to Measure a Load at a Fixed Joint; 202441041974.
5. Lakshmana Dora Chandrala; An Inertial Parameters Measurement System for a Rigid Object; 202441042132.
6. Lakshmana Dora Chandrala; A Method and an Apparatus for Measuring Inertial Parameters of a Rigid Object; 202441040592.
7. Nallagundla Venkata Reddy; System for Roll Forming and Process Thereof; 202331022121.
8. Nallagundla Venkata Reddy; Method and System Thereof to Fabricate Parts Using Metal Additive Manufacturing and Double-Sided Incremental Forming; 202241046376.
9. Nallagundla Venkata Reddy; A Multiple Tool Assembly to Improve Productivity and Energy Efficiency During Double-Sided Incremental forming; 202441022735.
10. Nizamuddin Khaderi Syed; An Apparatus to Measure a Load at a Fixed Joint; 202441041974.
11. Surya Kumar Simhambhatla; Method and System Thereof to Fabricate Parts Using Metal Additive
12. Manufacturing and Double-Sided Incremental Forming; 202241046376.
13. Surya Kumar Simhambhatla; A Fluid Collection Device for Collecting Fluids; 202341005050.
14. Surya Kumar Simhambhatla; A Device for Preparing Honeycomb Structure for Acoustic Applications; 202441043639.
15. Surya Kumar Simhambhatla; A System for forming Fabricated Polymer Panels for Sound Absorption; 202441042518.
16. Venkatesham B; A Device for Preparing Honeycomb Structure for Acoustic Applications; 202441043639.
17. Venkatesham B; A System for forming Fabricated Polymer Panels for Sound Absorption; 202441042518.
18. Venkatesham B; A Mechanical Array to Facilitate Mounting of Sensors or Emitters for Uniform Directivity; 202441037091.

Granted:

1. Surya Kumar Simhambhatla; Detection Kit for Diagnosis of Cervical Cancer by Quantification of Visual Inspection of Acetic Acid; 201841016604.
2. Nallagundla Venkata Reddy; A System for Sheet Metal Working and a Process Thereof; 201941008005.
3. Nallagundla Venkata Reddy; A System for Sheet Metalworking and a Process Thereof; US 17/434,688.
4. Venkatesham B; Extendable Socket Apparatus to Accommodate Oversized Adaptors; 202341039785.

Books:

1. Mahesh M S, Sucheendran and Lokanna Hoskoti. Introduction to Aerospace Vehicles. White Falcon Publishing, ISBN: 978-8119510450(2024).
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Book Chapters

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108. Hari Govindha, A Banerjee S, et.al. (2024). Intricate Evaporation Dynamics in Different Multidroplet Configurations. In Langmuir (Vol. 40, Issue 35, pp. 18555–18567). https://doi.org/10.1021/acs.langmuir.4c01929
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144. Singh A, Chinthapenta V, & Mylavarapu P. (2024). Efficacy of Laser Shock Peening Post-milling: A Semi-numerical Study. In Journal of Materials Engineering and Performance (Vol. 33, Issue 8, pp. 4106–4113). https://doi.org/10.1007/s11665-024-09241-9

Funded Research Projects:

1. Allaka Himabindu; Development of a Sensor Suite for Enhanced Situational Awareness and GNSS-Denied Navigation in Multi-Domain Manned and Unmanned Systems; 70.63 L. [ANRF/ECRG/2024/005592/ENS].
2. Anirban Naskar; Exploring Advanced Strategies through Mechanistic Understanding of Machining Processes in Cold-spray Deposits Using a Coupled Computational and Experimental Approach; 64.91 L. [G806].
3. Anirban Naskar; Experimentally validated multi-scale modelling framework for grinding-induced subsurface deformation of single-crystal Ni-base Superalloy (CMSX-4); 48.24 L. [G723].
4. Ankush Kumar Jaiswal; Advanced Evaporative Cooling Vest for Mitigating Human Thermal Stress in Extreme Heat; 49.14 L. [ANRF/ECRG/2024/000113/ENS].
5. Anurup Datta; A proof-of-concept study on laser additive manufacturing of single crystal superalloys through spatio-temporally tailored laser beam; 18.22 L. [G730].
6. Chandra Prakash; Development pf design/analysis criterion for aerospace structures subjected to shock loads of varying intensities and duration; 27.25 L. [G763].
7. Chandra Prakash; Damage Modeling of Machining Induced Damage in C-Sic Composites; 38.00 L. [G780].
8. G Thulsiram; Development of Studies on the Interaction of EM Waves with Disbond Delamination Defects in Multilayered CFRP Pressure Vessel using reflection Microwave NDE Technique; 26.77 L. [G792].
9. G Thulsiram; Design and Development of a self-powered inline inspection tool (SPILIT) for long-length pipeline using AI-NDE techniques; 59.52 L. [G804].
10. Gangadharan R; Experimental investigation and Numerical simulation of warpage and spring in behaviour of hybrid carbon and glass epoxy composite; 34.98 L. [G742].
11. Gnanaprakash; Investigation on coal-biomass blends as reductant and fuel in rotary kiln DRI making towards CO2 mitigation; 161.44 L. [G789].
12. Gnanaprakash; Investigation on metallized hydro-reactive propellants and propulsive performance of water-breathing ramjet engines; 145.64 L. [G831].
13. Gnanaprakash; Investigation of combustion characteristics and flame dynamics of recyclable metal fuels for sustainable clean energy applications; 64.32 L. [G826].
14. Gnanaprakash; Combustion Response Measurements of Composite Solid Propellants using T-Burner and Pulsed BEM; 153.02 L. [G814].
15. Gnanaprakash; In situ Measurements of Aluminium Agglomerate Size, Velocity and Temperature using simultaneous digital inline Holography and Imaging Pyrometry; 165.24 L. [G799].
16. Harish Nagaraj Dixit; Modelling and establishment of various process parameters for PCS fibers and modelling of PCS-SiC conversion process; 341.98 L. [G781].
17. Karthick S K; Investigation of end-wall acoustic loading on a deep duct present ahead of a recirulation bubble for a wide range of Mach numbers; 37.30 L. [G741].
18. Karthick S K; Design and Development of Arc Jet Plasma setup for Erosion Testing; 82.30 L. [G711].
19. Lakshmana Dora Chandrala; Simulation of Aero-Optical Effects; 9.95 L. [S343].
20. Mahesh M S; Development of a Numerical tool for predicting the internal ballistics of a gun; 35.00 L. [G646].
21. Muvvala Gopinath; Services towards residual stress measurement in rotor blades; 1.91 L. [G761].
22. Muvvala Gopinath; Real-time monitoring and in-situ defect control in laser and resistance spot welding of Haynes 25 alloy for impingement tube of aero engine; 50.50 L. [G743].
23. Niranjan Shrinivas Ghaisas; Investigation of end-wall acoustic loading on a deep duct present ahead of a recirculation bubble for a wide range of Mach numbers PI: S. K. Karthick. My Role: Co-PI; 37.30 L. [G741].
24. Niranjan Shrinivas Ghaisas; Development of an unsteady wind tunnel for simulating flight relevant flow conditions for nano-ornithopter, fixed-wing drones, and their swarms PI: Vishnu R. Unni. My Role: Co-PI; 270.10 L. [G771].
25. Niranjan Shrinivas Ghaisas; Machine learning models for predicting airflow hotspots in urban settings. PI: Sumohana S. Channappayya. My Role: Co-PI; 9.20 L. [S???].
26. Niranjan Shrinivas Ghaisas; Optimal sampling points on performance maps with prior map patternsP.O.No: 5500010087 & Dt: 02-AUG-2024; 8.79 L. [S330].
27. Pankaj Sharadchandra Kolhe; Fuel Flexible Novel Flow Burring Injector Based Swirl Stabilized Burner; 43.84 L. [G713].
28. Prabhat Kumar; Topology optimization of pneumatically activated soft grippers; 2.20 L. [G689].
29. Prabhat Kumar; IITH Racing Club; 8.00 L. [S351].
30. Prakhar Gupta; Design of next-generation flexoelectric-based piezoelectric fabrics; 11.00 L. [G768].
31. Prakhar Gupta; Constitutive and damage model of materials under high strain rates; 20.54 L. [G801].
32. Prakhar Gupta; Modelling and establishment of various process parameters for PCS fibers and modelling of PCS-SiC conversion process (Co-PI); 341.98 L. [G781].
33. Prakhar Gupta; Design and Fabrication of Lightweight Metamaterial Structures for Flapping Wing Systems; 60.22 L. [G764].
34. Prakhar Gupta; Development of design/analysis criterion for aerospace structures subjected to shock loads of varying intensities and duration; 27.25 L. [G763].
35. Raja Banerjee; Development and Application of a Multiscale Dual Grid Eulerian-Lagrangian Solver to Study Atomization of a Simplex Atomizer; 74.04 L. [G765].
36. Ramji M; Novel neck screw design with miniplate for fixation of mandibular condylar neck fractures- An evaluation using 3-Dimensional finite element analysis/ 3D-Digital Image Correlation; 32.90 L. [G785].
37. Ranabir Dey; Ultrasound Triggered Active Drug Delivery System for Triple Negative Breast Cancer Therapy; 34.94 L. [G698].

38. "Sachidananda Behera; Aerodynamic breakup of non-spherical droplets; 57.70 L. [G802]."
39. Safvan Palathingal; Design and Fabrication of Lightweight Metamaterial Structures for Flapping Wing Systems; 60.22 L. [G764].
40. Sai Sidhardh; Stiffness tailoring via curvilinear fiber-reinforcements of flapping wings for enhanced model performance in ornithopters; 43.18 L. [G776].
41. Saravanan Balusamy; Thermoacoustic characteristics of 3D printed LPG/H, fueled triple- swirl turbulent burners using optical diagnostics; 45.94 L. [G716].
42. Sayak Banerjee.; Experimental and Modelling Study on the Feasibility and Optimization of CI Engine Operation using Ammonia-Methane-Diesel Ternary Fuel Blends; 58.12 L. [G754].
43. Suryakumar S; Large Area Additive Manufacturing(IAAM): Design and Development of Powder-based Directed Energy Deposition System for Direct Fabrication of Rocket Components; 0.00 L. [G364].
44. Suryakumar S; 3D Printing of Energetic Materials: Design & Development of 3D Printer Accompanied by Feasibilty Studies; 493971.00 L. [S181].
45. Syed Nizamuddin Khaderi; Impact Test Development for MRF Tyre (S.O.No: 2400316892 & Dt:21.01.2025); 27.62 L. [S364].
46. Venkata Reddy N; Integrated product and process design for hybrid incremental sheet forming and non-planar metal additive manufacturing; 0.00 L. [G605].
47. Venkata Reddy N; Circular Manufacturing research and educational collaboration between Norway, India, and Japan, Norwegian Research Council; 43.16 L. [S228].
48. Vishnu Rajasekharan Unni; Development of a platform that would aid a nano-ornithopter to learn to fly; 95.82 L. [G782].
49. Vishnu Rajasekharan Unni; Development of an unsteady wind tunnel for simulating flight-relevant flow conditions for a minor or nano UAV; 270.13 L. [G771].
50. Viswanath Chinthapenta; Novel neck screw design with miniplate for fixation of mandibular condylar neck fractures- An evaluation using 3-Dimensional finite element analysis/ 3D-Digital Image Correlation; 25.33 L. [G785].
51. Viswanath Chinthapenta; A device based on digital photoelasticity for in-vivo characterization of corneal birefringence; 146.16 L. [G733].

Awards and Recognitions:

1. Anjishnu Choudhury (Alumnus BTech 2011, then converted to MTech and later earned his PhD in 2021) was selected as an Assistant Professor in the Department of Mechanical Engineering at IIT Bombay.
2. Atul S Vivek, an external PhD student, jointly supervised by Dr Ranabir Dey and Dr Harish N Dixit, has been selected as Editor's Suggestion in Physical Review Fluids (PRF). PRF is the flagship journal in fluid mechanics by the American Physical Society (APS).
3. Cherishma Mallavarapu, MTech student, received the Best Presentation Award in 8th National Symposium on Shock Waves at IIT Kanpur
4. Gangadharan Raju has been invited to join the Editorial Board Member of the ISSS Journal of Micro and Smart Systems.
5. Muvvala Gopinath, Assistant Professor, has been selected as INAE Young Associate (2024).
6. Neeraj Balachandar, Shriram Hari & A Padmaprabhan, and Kevin D'Souza, who worked under the guidance of Dr Ashok Kumar Pandey, and Dr Vishnu R Unni, secured second place among Indian teams at the CIEDS-DRDO Swarm Rescue Challenge, held at École Polytechnique de Paris.
7. Sahil Dhiman, IITH-Deakin JDP student, affiliated with the Centre of Interdisciplinary Programs at IITH and with the School of Engineering at Deakin, received the Best Poster Award in 30th International Conference on Processing of Advanced Materials and Fabrication of Products. He is working under the supervision of Dr Viswanath Chinthapenta.
8. Vinod V, PhD Scholar, received the Best Presentation Award in the 8th National Symposium on Shock Waves at IIT Kanpur.
9. Vishnu K, a joint MTech student, working under the supervision of Dr Sachidananda Behera & Dr Anirban Naskar, received the Best Oral Presentation Award at the International Conference on Laser and Other Deposition Techniques (iCOLD25), jointly organized by IIT Hyderabad and IIT Madras.

Research Highlights:

Faculty members of the MAE department continued to produce high-impact research across diverse domains, including advanced materials, robotics, AI for fluid dynamics, additive manufacturing, combustion, and structural mechanics. Several faculty members received sponsored research grants from DRDO, ISRO, DST, and international collaborators. Noteworthy projects include the development of autonomous aerial vehicles, experimental investigations on supersonic jet impingement, and AI-driven topology optimization for lightweight structures.

To support this growing research activity, new laboratories have been established. Notably, the Nondestructive Xploration (NDX) Lab has been set up for advanced nondestructive evaluation (NDE) of metals and non-metals, enabling critical diagnostics for aerospace and structural materials. These facilities expand the department's experimental capabilities and provide hands-on exposure to students in emerging technologies.

MAE researchers published over 100 peer-reviewed articles in reputed international journals, with several receiving Editor's Picks and high citation impact. The department has active participation in national missions like IMPRINT, TDF, and I-STEM and is forging collaborations with both academia and industry.

Department of Physics

Physics@IITH continues its pursuit of excellence in physics education, frontier research, and societal engagement. With a vibrant team of 33 core faculty and dedicated technical staff, the department blends foundational training with cutting-edge applications across astrophysics & cosmology, condensed matter (theory and experiment), high-energy physics, and optics/lasers. Our flexible, project-based BTech (Engineering Physics), MSc, MTech, and PhD programs emphasize interdisciplinary learning and hands-on work in state-of-the-art facilities—ranging from a 14-inch observatory telescope to India's first Brillouin Light Scattering microscopy setup for nanomagnetism.

The year saw impactful research across pillars. In high-energy theory and cosmology, Dr Narendra Sahu and collaborators unified neutrino masses, baryogenesis, dark matter, and gravitational-wave signatures through type-I/III seesaw frameworks; Dr Priyotosh Bandyopadhyay's group advanced searches for extended scalar sectors, long-lived particles, and leptoquarks; Dr Divya Sachdeva contributed to SND@LHC (neutrino NSI); and Dr Saranya Ghosh's work with the CMS Collaboration featured in the 2025 Breakthrough Prize in Fundamental Physics. In astrophysics, Dr Mayukh Pahari reported new results on X-ray binaries and black-hole accretion, while Dr Shantanu Desai and the Indian Pulsar Timing Array released a precise uGMRT data set enabling nano-Hz gravitational-wave searches. In gravity & holography, Dr Shubho Roy proposed a novel extension of gauge–gravity duality to asymptotically Minkowski space.

In condensed matter, Dr Arabinda Haldar's group leveraged the new BLS microscopy facility to reveal nonlinear magnonics, low-damping ferrimagnet dynamics, and skyrmion-logic (with a granted Indian patent); Dr Jyoti Ranjan Mohanty advanced perpendicular magnetic anisotropy and temperature-tunable MoS_2 optoelectronics; Dr Suryanarayana Jammalamadaka demonstrated multi-bit memristive storage and neuromorphic synapses; Dr Archak Purkayastha established deep links between dissipative non-reciprocal systems and solid-state band structures; Dr. Bhuvanesh Ramakrishna co-pioneered micronozzle laser-plasma acceleration of GeV protons; and Dr Yogesh Kumar Srivastava reported a YBCO metasurface high-Tc device and perovskite memory physics, while securing a DRDO/DIA-COE project (~₹1.8925 crores) on ferroelectric tunable filters. Together, these advances—spanning quantum nonlocality (Dr Alok Kumar Pan), dark matter phenomenology, gravitational waves, spintronics, neuromorphic electronics, and plasma acceleration—underscore Physics@IITH's growing national and international footprint, strong placements, and vibrant ecosystem of workshops, conferences, and mission-mode collaborations with DRDO, ISRO, and global partners.

For more information, please visit: https://physics.iith.ac.in/

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Patents:

Filed:

1. Suryanarayana Jammalamadaka; A Spintronic Memory Device and a Method of Manufacturing the Same; 202441102812.
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Funded Research Projects:

1. Alok Kumar Pan; Information Theoretic Advantage from Indefinite Causal Order of Channels; 1.60 L. [G588].
2. Alok Kumar Pan; Device-independent randomness certification using nonprojective measurements; 2.20 L. [G548].
3. Alok Kumar Pan; Probing multipartite non-local correlations in network and randomness certification; 9.00 L. [G551].
4. Anupam Gupta; Matrix inhomogeneity and degradation regulate tissue organization and morphogenesis; 34.60 L. [G720].
5. Atanu Rajak; Floquet Engineering and Simulating quantum many body systems out-of-equilibrium; 67.00 L. [SERB-ANRF/PHY/F337/2025-26/G811].
6. Arabinda Haldar; Spin wave dispersions and nanoscale imaging of magnons using Brillouin light scattering spectro-microscopy; 4.50 L. [G540].
7. Arabinda Haldar; Development of self-biased magnetic materials for low-loss bias-filed-free passive microwave devices; 8.05 L. [G397].
8. Bhuvanesh Ramakrishna; Laser Driven Bright X-ray Sources for Imaging; 84.06 L. [G715].
9. Kanchana V; Exploring quantum materials from first principles for spintronic applications; 79.02 L. [G704].
10. Kiritkumar Makwana; Waves, Instabilities & Turbulence of the Heliosphere; 13.15 L. [G775].
11. Mahesh Peddigari; A feasible route towards designing high breakdown strength and high polarization dielectric ceramic thick films for energy storage applications; 2.00 L. [G631].
12. Nithyanandan Kanagaraj; KeraEyeFATE: Tensor-based Machine Learning For Early Detection of Keratoconus; 51.30 L. [G682].
13. Nithyanandan Kanagaraj; Towards Multifunctional Two-micron Ultrafast Fiber Lasers for High-Precision Biomedical Application (TUFL); 84.30 L. [G699].
14. Nithyanandan Kanagaraj; Development of a Compact Handheld AI-driven Intelligent IR imaging system for the Early Detection of Keratoconus (CARE); 25.00 L. [TDG-01].
15. Nithyanandan Kanagaraj; A-proof-of concept study on

Laser additive manufacturing of single crystal superalloys through spatio-temporally tailored laser beam; 18.20 L. [G730].
16. Nithyanandan Kanagaraj; Development of Proof-of-Concept Target-in-the-Loop Coherent Beam Combining System for Directed Energy Applications (DECODE); 84.47 L. [G800].
17. Nithyanandan Kanagaraj; Harnessing optical nonlinearity and Spatiotemporal dynamics to carve the higher-dimensional light bullets in multimode optical fiber systems; 36.96 L. [G757].
18. Nithyanandan Kanagaraj; Development of Dynamic Beam Engineering Technology for Laser-Assisted Advanced Manufacturing System (BEAM); 626.54 L. [G773].
19. Nithyanandan Kanagaraj; Development of Next Generation of Spatio-Temporal Multimode Broadband Amplifiers for Fiber Optic Communication; 44.28 L. [G751].
20. Priyotosh Bandyopadhyay; Phoenix 2025; 0.50 L. [IMSc:06/05/2025].
21. Priyotosh Bandyopadhyay; Phoenix 2025; 3.50 L. [SSY/2025/000420].
22. Saket Asthana; Investigation of the structure-property relationship in lead-free relaxor ferroelectric to optimize recoverable energy storage density; 0.45 L. [G465].
23. Saurabh Sandilya; Measurements related to Rare B-decays (and to set-up a High Energy Physics photo-detector laboratory); 3.50 L. [G517].
24. Shubho Ranjan Roy; MANY FACETS OF COMPLEXITY: FROM CHAOS TO THERMALIZATION; 10.16 L. [G750].
25. Shantanu Desai; Search for neutrinos from pulsars; 0.00 L. [G664].
26. Shantanu Desai; Precise observation and statistical analysis of pulsars for pulsar timing array; 11.22 L. [G728].
27. Shinde Satish Laxman; Development of solar-driven plasmonic nanoheaters for on-board generation of clean water and hydrogen; 47.64 L. [G805].
28. Srabani Kar; Photoexcited carrier dynamics of low-dimensional materials followed by their applications in cellular therapy and analysis; 7.00 L. [DST/INSPIRE/04/2021/001032; IFA21-PH 274].
29. Vandana Sharma; Molecular Photoionization Dynamics with Ultrashort Orbital Angular Momentum Pulses; 12.88 L. [G803].
30. Yogesh Kumar Srivastava; Ultrafast Terahertz Super-Spintronics; 99.87 L. [G717].

Awards & Recognitions:

1. Daideep Kumar Balusu, PhD Student, won the Best Poster Prize at the AAPPS-DPP conference (8th Asia-Pacific Conference on Plasma Physics) held in Malaysia.
2. Mr. Daideep has been working on his PhD thesis under the guidance of Dr Bhuvanesh Ramakrishna.
   Daideep Kumar, PhD Scholar, Department of Physics, received the Best Poster Prize at two International Conferences: (a) AAPPS-DPP 2024 plasma physics conference held in Malaysia in November and (b) The ASILS-13 conference held in Udaipur, Rajasthan in December. Mr Daideep Kumar is working under the guidance of Prof Bhuvanesh Ramakrishna, in the field of particle acceleration with Intense lasers."
3. Nithyanandan Kanagaraj was awarded Senior Membership by the International Society for Optics and Photonics (SPIE).
4. Ranjan Kumar Sahu, PhD Scholar, received the Best Poster Award during the 68th DAE-Solid State Physics Symposium held at BARC, Mumbai.
5. Ranjan Kumar Sahu, a PhD student, received the Best Poster Award at the 68th DAE Solid State Physics Symposium held at BARC, Mumbai, December 2024 IIT Hyderabad
6. Sai Santosh Raavi was elected as a Fellow of the Telangana Academy of Sciences (FTAS) for the year 2023 under the category of Physical Sciences.
7. Sai Santosh Kumar Raavi was selected for the prestigious JSPS Invitational Fellowship for FY 2025 to conduct research and collaborative work with Kyushu University, Japan.
8. Sandal Kotawala, MTech Ophthalmic Engineering student's Start-up 'Alfaleus', has been selected for the 2024 MedTech Innovator APAC accelerator.
9. Suryanarayana Jammalamadaka & his Team received an IOP Publishing Top Cited Paper Award for India, in the Nanosciences category.

Research Highlights

The Department of Physics at IIT Hyderabad has made significant advances across diverse research domains this year, reflecting both fundamental discoveries and applied innovations.

Quantum Foundations & Information

Research from Dr. Alok Kumar Pan's group made major contributions to quantum nonlocality and quantum networks. Two high-impact papers were published in Physical Review Letters: one demonstrating device-independent full network nonlocality for arbitrary parties, and another on the unbounded sharing of nonlocality using qubit projective measurements. These results advance the theoretical framework for quantum communication and quantum networks.

Particle Physics & Cosmology

The High Energy Physics group led by Dr. Priyotosh Bandyopadhyay, Dr. Snehashis Parashar, and colleagues explored extended scalar sectors beyond the Standard Model. Their work proposed new strategies for probing inert triplet models, leptoquarks, and long-lived particles at the LHC, FCC, and future muon colliders. Multiple publications appeared in Physical Review D, JHEP, and international conference proceedings.

Dr. Narendra Sahu's group developed comprehensive models within the type-I and type-III seesaw frameworks, unifying neutrino masses, baryogenesis, dark matter, and gravitational wave signatures. Their publications in Physical Review D and JCAP demonstrated constraints on dark matter properties and linked cosmological observations with particle physics. One notable highlight was their interpretation of the KM3-230213A ultrahigh energy neutrino event as a possible signal from the decay of super-heavy dark matter.

Dr. Saranya Ghosh contributed to the CMS Collaboration, which was awarded the 2025 Breakthrough Prize in Fundamental Physics. She was officially listed as one of the laureates, recognizing Higgs boson studies and new particle searches.

Dr. Divya Sachdeva collaborated in the SND@LHC experiment, reporting on neutrino nonstandard interactions with charm quarks (JHEP 2024). Dr. Shantanu Desai, with the Indian Pulsar Timing Array Consortium, released Data Release 2: the most precise pulsar timing dataset with 27 pulsars over 7 years, enabling sensitive searches for nano-Hz gravitational waves.

Dr. Shubho Roy and collaborators developed a novel extension of holography to asymptotically Minkowski space, published in Physical Review D, providing new insights into gauge–gravity duality.

Astrophysics & X-ray Astronomy:

Dr. Mayukh Pahari and collaborators published several significant studies using AstroSat, NuSTAR, and other observatories. These included investigations of Z-type X-ray binaries (MNRAS, 2024), radiatively inefficient accretion flows around black holes (Physical Review D, 2025), and a NuSTAR view of Galactic X-ray transients (Journal of High Energy Astrophysics, 2025). Dr. Pahari also joined the Editorial Board of Springer Nature's Discover Space and the Board of Studies of Osmania University's Astronomy Department.

Dr. Kirit Makwana demonstrated through first-principles simulations that kinetic Alfvén waves dominate solar wind turbulence at sub-ion scales, published in Frontiers in Astronomy and Space Sciences (2024).

Experimental Condensed Matter Physics:

Dr. Arabinda Haldar's group established India's first Brillouin Light Scattering microscopy facility. Their research produced multiple breakthroughs in spintronics and nanomagnetism, including:

- Control of nonlinear dynamics via tailored magnonic bands (Physical Review Applied, 2025).
- Propagating spin waves in permalloy microstripes (Journal of Applied Physics, 2024).
- Spin textures in nanodisk arrays (ACS Applied Nano Materials, 2024).
- Ultra-low Gilbert damping and inverse spin Hall effect in GdFeCo thin films (Journal of Applied Physics, 2024).

Additionally, Dr. Haldar co-authored a patent on a skyrmion-based logic device (Granted Feb 2025).

Dr. Jyoti Ranjan Mohanty advanced research on perpendicular magnetic anisotropy in ferrimagnetic films (JAP, 2024; JMSE, 2025) and studied temperature-dependent band gap modulation in MoS_2 flakes (Physica E, 2025).

Dr. Suryanarayana Jammalamadaka's group reported key advances in memristors and neuromorphic devices, including:

- Resistive switching and data storage in Fe_2O_3/Fe and NiO/Fe bilayers.
- Pavlovian conditioning via Ag/Fe_2O_3 memristors (Physica Status Solidi A, 2025).
- High-density storage in Ta_2O_5-based devices (ACS Applied Electronic Materials, 2025).
- Remote biosensing using cantilever magnetometers (Journal of Magnetism and Magnetic Materials, 2024).
- Theoretical Condensed Matter Physics

Dr. Archak Purkayastha and collaborators discovered a deep connection between dissipative non-reciprocal systems and band structures of solids, published in Physical Review B (2025), advancing fundamental understanding of non-Hermitian physics.

Dr. Yogesh Kumar Srivastava's group reported groundbreaking findings in functional materials:

- A high-Tc superconductor metasurface made of YBCO (Nature Materials, 2025).
- Lattice distortion–driven resistive switching in halide perovskites, with implications for neuromorphic computing (Nano Energy, 2025).

His group also secured a major DRDO-funded project worth ₹189.25 lakhs (≈ ₹1.89 crores) for developing S, C, and X Band ferroelectric tunable filters.

Dr. Satish Shinde contributed to catalysis research with work on ball-milled MoS_2–graphene hybrids for hydrogen evolution reactions (STAM, 2024) and filed a patent on biodegradable WS_2-based nanogenerators (2025).

Optics, Spectroscopy & Plasma Physics

Dr. Bhuvanesh Ramakrishna, in collaboration with Osaka University, proposed a micronozzle acceleration scheme for generating GeV-scale proton beams, published in Scientific Reports (2025). This novel approach holds promise for laser–plasma acceleration.

Dr. Nithyanandan Kanagaraj's lab demonstrated the broadest thulium-doped fibre amplifier to date (Optics Communications), with a patent filed on a novel power-management scheme by Amala Jose. Through IFCPAR/CEFIPRA collaboration with ICB, we further realised a highly-dispersive soliton laser (Optics Letters), achieving a record 17 nJ soliton pulse energy at 2 μm — a milestone for high-power ultrafast fibre lasers in communications, medicine, and spectroscopy."

In ultrafast research, led by Subrata Manna, we reported the first experimental observation of unique dark soliton patterns and dark–bright soliton complex pairs in a passively mode-locked fibre laser operating in the anomalous dispersion regime. Presented at CLEO 2025 (France), this work provides new insights into coupled soliton dynamics with potential applications in advanced ultrafast photonic systems.

In high-power lasers, our group reported the first demonstration of on-demand beam engineering using coherent beam combining (CBC) for advanced laser manufacturing. Led by Khushboo, this patented approach enhances beam quality, minimises defects, and improves efficiency in next-generation laser systems.

In coherent beam combination (CBC) work led by Mukesh, we designed and demonstrated a compact table-top setup using 3D-printed models and stepper-motor control to validate SPGD algorithms. The in-house system also successfully demonstrated beam steering capabilities.

Bharathy's work on Diffractive Neural Networks (DNN) for image classification has been granted an Indian patent. Building on this, our lab demonstrated the first use of DNN for on-demand beam engineering in manufacturing, with a patent filed on this pioneering application. Our lab introduced a transformer-based encoder–decoder framework to model nonlinear pulse evolution in optical systems, with a focus on supercontinuum generation. This work was led by Dinesh, and it is the first-of-its-kind approach that effectively captures complex dynamics, offering accurate predictions at a fraction of the computational cost of traditional simulations, and holds promise for broader applications in nonlinear photonics."

Inventing & Innovating in Technology for Humanity

VIRTUAL DEPARTMENTS

Department of Climate Change

The Department of Climate Change at the IIT Hyderabad attempts to explore climate change, integrating academic knowledge with practical knowledge, bringing scientists, engineers, practitioners, and students together. The key is to foster an interdisciplinary space of inquiry that incorporates climate sciences, technology, engineering-based design approaches, and social and policy research. We, at IITH, plan to be a leading institute in the synergy among these three key areas. Recognizing the urgent need for interdisciplinary solutions, the department brings scientists, engineers, practitioners, and students together. The department offers a comprehensive curriculum that integrates climate sciences, technology, engineering, social policy research, and sustainable practices, supported by IITH's innovative fractal academics program. The department fosters a collaborative environment, enhanced knowledge, technological innovations, sustainable practices, and business opportunities.

For more information, please visit: **https://cc.iith.ac.in/**

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Research highlights:

1. Wind-AI @GOKUL (Global Optimization and Knowledge Unearthing Lab)

Wind energy has emerged as the second fastest-growing energy source globally. Efficiently capturing it requires strategic placement of turbines- forming a wind farm. However, optimizing wind farm layouts is a complex challenge: a multi-objective mixed-integer nonlinear programming (MINLP) problem that is NP-hard due to nonlinear objectives and constraints, along with both integral (number of turbines) and real-valued (location) decision variables. Wind-AI - a next-generation AI-powered solution, developed @ GOKUL, built to break past the outdated assumption of constant wind speeds. Instead, it embraces variability by learning the probabilistic distribution of wind speeds using advanced machine learning models. This platform tackles layout optimization under uncertainty using robust Bayesian Optimization.

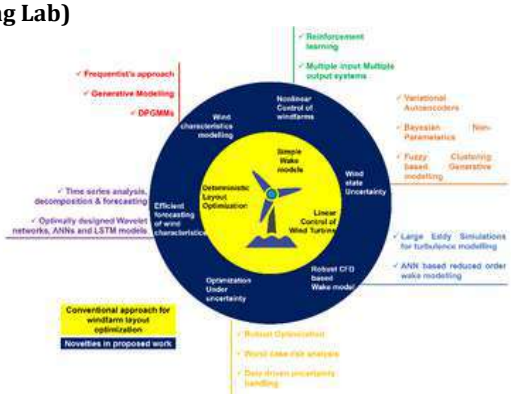


Figure. Wind-AI developed by researchers @ GOKUL (Prof. Kishalay Mitra's research lab)

Its cutting-edge components include:

- Auto-tuned LSTM networks for dynamic wind forecasting.
- Hybrid wake modeling that blends physical wake dynamics with data-driven insights.
- AI-driven reformulation of robust wind farm layout optimization under uncertainty.
- Reinforcement learning-based intelligent control for wind farm performance enhancement.

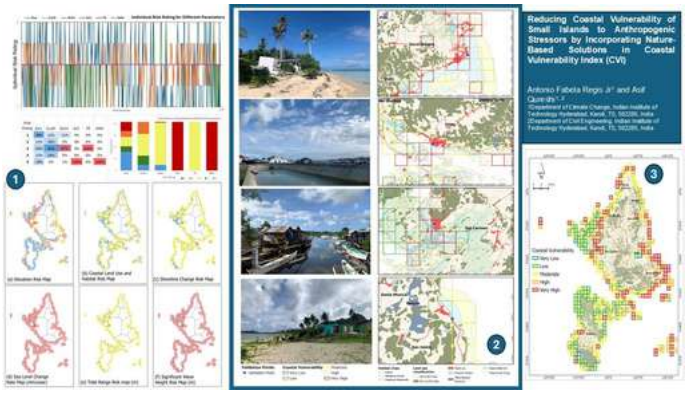
Wind-AI isn't just an optimization tool—it's a leap forward in intelligent, adaptive, and uncertainty-resilient wind energy planning.

2. Reducing Coastal Vulnerability of Small Islands to Anthropogenic Stressors by Incorporating Nature-Based Solutions in Coastal Vulnerability Index (CVI)

Antonio Fabela Regis Jr[1] and Asif Qureshi [1,2]

1. Department of Climate Change, Indian Institute of Technology Hyderabad, Kandi, TS, 502285, India
2. Department of Civil Engineering, Indian Institute of Technology Hyderabad, Kandi, TS, 502285, India

The research work delved into developing an assessment framework using open-access data and GIS and integrating dynamic parameters for rapid coastal vulnerability assessment. It described the coastal vulnerability for Siargao Island Protected Landscape and Seascape (SIPLAS), Philippines and recommended the incorporation of managed Nature-based Solutions for sustainable urban development and disaster risk management planning to reduce vulnerability.



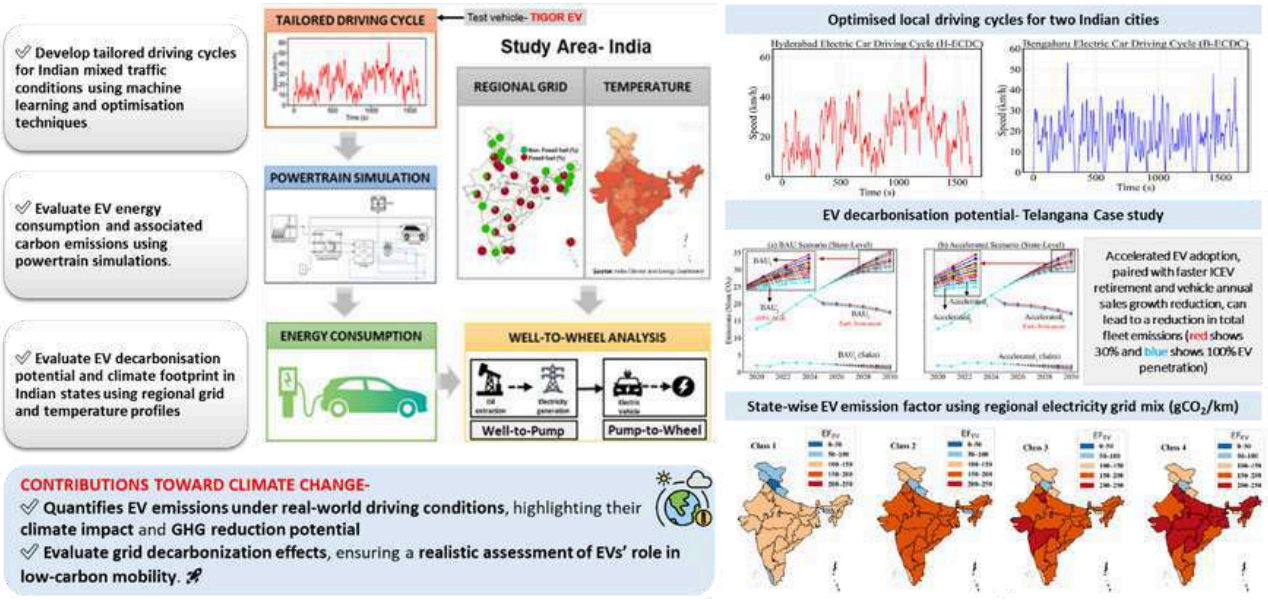
Key findings include: (1) Individual risk rating of the different parameters across the 418 grids assessed with a resolution of 1km by 1km. Very high risks of sea level change and significant wave height were observed for all gridded coastal areas, whereas the tidal range risk was moderate. While some parameters (Elev, CLUH) showed significant variation across different grid points, others (ShCh, SLC, TR, SWH) remained constant or showed minimal variation. (2) Selected validation points for the CVI rating projects increased built-up areas from development and urban expansion. CVI and individual vulnerability maps with risk classifications of the different parameters, (3) 38.76% of the coastal areas were at very high and high risk, while 24.64% were at moderate and 36.61% at low and very low risk. Combined interaction between the evaluated parameters must consider multiple environmental factors in coastal risk assessments and adaptation strategies. This research supports evidence-based decision-making for climate adaptation strategies in small island environments.

3. Electric Vehicles as Low-Carbon Mobility in India: Representative Driving Cycle-Based Regional Climate Footprint Assessment

Aishree Boruah[1] and Pritha Chatterjee[1,2]

1. Department of Climate Change, Indian Institute of Technology Hyderabad, Kandi, TS, 502285, India
2. Department of Civil Engineering, Indian Institute of Technology Hyderabad, Kandi, TS, 502285, India

This research work addresses a critical gap in electric vehicle (EV) energy assessment by focusing on real-world driving behaviour, which is often overlooked in conventional testing methods. Standardised driving cycles currently used for evaluating EV performance fail to capture the variability in traffic patterns and passenger demands, leading to inaccurate estimates of energy consumption and emissions. To bridge this gap, the study presents an AI-driven framework for the development of region-specific driving cycles that better represent actual urban driving conditions. Using a case study from Telangana, India, the methodology employs a combination of Hybrid K-means clustering and Support Vector Machine (SVM) techniques to analyze real driving data and generate a set of candidate driving cycles. These candidates are then refined using a Genetic Algorithm (GA) to derive an optimized driving profile, termed the Hyderabad Electric Car Driving Cycle (H-ECDC). The H-ECDC spans 1589 seconds and represents an average vehicle speed of 19.04 km/h, resulting in an estimated energy consumption of 0.144 kWh/km, a 42.6% deviation from manufacturer-stated data.



A comprehensive well-to-wheel emissions analysis combines this consumption data with Telangana's electricity grid mix to estimate an EV emission factor of 136 g CO_2/km in the baseline scenario. Furthermore, the study evaluates the environmental implications of increased EV penetration. Under a projected 2030 scenario with 30% EV adoption and a 64.26% non-fossil electricity share, overall fleet emissions may still increase by 22.72%, highlighting the need for synchronized efforts in both vehicle electrification and electricity grid decarbonization. By capturing true driving conditions and integrating them with grid emissions data, this research provides valuable insights for designing energy-efficient EV technologies, formulating targeted emission reduction policies, and supporting sustainable transportation strategies.

Activities in the period 2024-25

- In financial year 2024-25, the department hosted many notable experts and visitors such as Dr. Nidhi Nagabhatla (United Nations University), Dr. Prasanth Prabhakaran (NOAA), Prof. Balaji Rajagopalan (University of Colorado at Boulder), Dr. Praveen Kumar Pothapakula (ETH Zurich), Dr. Ram Avtar (Hokkaido University), and Dr. Krishnan (ex-director, IITM, Pune). Notable industrial lectures included those by Dr. Kedar Otta (Moody's), Mr. Indrajit Shaw (CBRE), Mr. Vatsal Dusad (Avaana Capital), Mr Sudhakar Sagi (Thryve Earth), and Swastik Harish (Swastik Harish Associates).
- Department students visited the India Meteorological Department (IMD) and the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, to understand technologies for operational weather and ocean monitoring.
- The department also celebrated its annual department day event on March 24, 2025, hosting industry experts and entrepreneurs working in sustainability and technology solutions in climate resilience from Microsoft, Gait Global, and Vaayu Mitra Biogas firm. The guest speakers delivered expert talks followed by a panel discussion. The event was accompanied by cultural performances and sports day celebrations by students from the department.
- The department organized a national conclave on "Climate Manifesto for 2047", jointly organized by Environment Protection Training & Research Institute (EPTRI) and IIT Hyderabad, in collaboration with the Department of Science & Technology, Government of India. The conclave brought together experts, policymakers, and practitioners to envision an inclusive, technology-driven, and equitable pathway to India's Net-Zero by 2070 goal. The conclave included discussions across three working groups: inclusive approach in climate action, technology & innovation in climate action, and policy & research in climate action.
- Departmental students presented their research work at international conferences such as the American Geophysical Union (AGU) 2024, the European Geophysical Union (EGU) 2025, the International Workshop on Monsoon, and national gatherings such as Inventiv, IEEE India Geoscience and Remote Sensing Symposium.
- Students of the department have secured multiple awards, such as the best poster presentation award at the International Conference on Agrovoltaics and Sustainability in Farming held in Coimbatore to Mr. Rahul Sakshat, and the Best Poster Award at the Electric Vehicle Conference 2025 held in Germany to Ms Aishree Boruah. Ms Antara Roy secured 2nd place at the Climate Change Hackathon, organized by Gujarat National Law University (GNLU) Centre for Environment, Sustainability and Climate Justice (GCESCJ). Ms Sree Anusha Ganapathiraju was awarded a prestigious research grant for a binationally supervised PhD through DAAD (German Academic Exchange Service), Germany. Two of our students, Mrs. Shweta Gupta and Ms. B Sri Charitha, recently participated in the Sakura Science Research Exchange Program hosted by Shizuoka University, Hamamatsu City, Japan, completing the program and becoming alumni of the Sakura Science Club. Ms. Shrutee Jain attended the Blue Carbon Summer School 2025 at the University of St Andrews in Scotland, securing the World Wildlife Fund (WWF) Scholarship.

Department of Engineering Science

BTech in Engineering Science at IIT Hyderabad is a unique program being offered for the first time in India. It opens the doors to different specializations and provides a holistic engineering education. The basic structure is as follows: for the first 2 years (4 semesters) the student does basic courses in Mathematics, Physics, Chemistry, and different fields of engineering. In the last 2 years (4 semesters) the student then specializes in any field of his / her choice -- specialization is completely open: It could be any branch of engineering -- The final degree will read: B.Tech. in Engineering Science and Specialisation in the “Concerned Field”.

"This program is in tune with what the industry is demanding today. They would like students to be educated with what they call as a 'T' education.."

Curriculum Development and Enhancement

We revised the curriculum with the help of faculty from each Department. Since this approach is interdisciplinary it requires regular updates corresponding to the changes by the regular Department. We have revised curriculums of ES-AI, ES-CS, ES-ES, ES-EP, ES-EE during the years 2021 and 2023. We are also planning to revise in 2024 as well. We worked closely with all faculty members to introduce new courses, update syllabi, and integrate interdisciplinary approaches, which enrich learning outcomes and equip students with modern, in-demand skills. We also took initiatives so that this ensures that the content remains relevant and aligns with current industry standards or academic advancements. We also now ensure that only 10% of the students are allowed for the branch change to each Department. This ensures the idea of the interdisciplinary approach of the ES Department.

Research and innovation support

IIT Hyderabad-born startup CRIOT™ strikes a collaboration with Technocorpus Inc., Japan the fully sponsored research collaboration is going to set the stage for the manufacturing of IoT-based smart home products. ES Department helped the students to build these startups.

Founders

Varun Perumalla - CEO & Co-founder - ES2021 Batch

Sai Mahidhar - CEO & Co-founder - ES2021 Batch

Student Engagement and Support

We organize regular mentorship programs that the student can take advantage of for research internships. Many of our students have used the 6-month internship opportunity provided at IITH. The HoD ensures that students have access to the resources they need for academic and professional success, including scholarships, tutoring, and mental health support services. In my tenure, I have also made sure that we get an interaction space for students.

Collaborations and Partnerships

Building partnerships with industry, government bodies, and other academic institutions is an important initiative I have fostered during my tenure. These collaborations can lead to student internships, joint research projects, guest lectures, and curriculum input from industry professionals, all of which enrich the educational experience and make the department a hub for innovation and real-world relevance. We are in a plan to start a new MTech program in Systems Engineering under the aegis of DRDO labs.

In summary, the initiatives undertaken are crucial for fostering a dynamic and forward-thinking environment. Through curriculum updates, faculty and student support, research facilitation, and broader collaborations, I ensured in shaping the department's success. This is reflected in the opening JEE rank of the department.

For more information, please visit: https://es.iith.ac.in/

Affiliated Faculty

Head of the Department

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Professor

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Associate Professor

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Department of Heritage Science and Technology

Department of HST is dedicated to the application of Science and Technology for conservation and development of tangible and intangible Heritage assets, with a specific focus on the Indian context. Heritage includes tangible heritage like monuments, archaeological sites, and intangible ones like knowledge systems, cuisine, medicine, dress, art, language, symbols, stories, and much more.

Our activities are centred around the use of Science and Technology for the development of Heritage assets, associated industries, technologists, scientists, entrepreneurs, and professionals.

Our goals include

- Research to define the state of the art in Heritage activities using science and technology
- Training of human resources engaged in Heritage areas
- Product development to help Heritage industries, entrepreneurs scale up and serve customers better

For more information, please visit: **https://www.hst.iith.ac.in/**

Affiliated Faculty

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Amba Kulkarni
Professor, Dept. of Sanskrit Studies, University of Hyderabad.

Research Highlights

- Indic search engine - Information retrieval and Data mining on Heritage Text corpus
- Handson Heritage Experience and Visualization - gamification of Heritage Structures and associated knowledge, 3Dfy Maps, Digital Heritage Documentation and Reconstruction, Structural Health Monitoring, AI for Sculpture, Heritage Clay Structures
- NeuroBiomechanics of Yoga and Performing Arts
- Computationalsocial sciences - Mathematical analysis of Indic society, life and culture
- Chemistry for Archaeology, Heritage Biomaterials Integrated Medicinal systems, Mechanical and Acoustic analysis of musical instruments
- Exploration of Panchadhatu/Ashtadhatu making,Foundational concepts in IKS

Workshops and Conferences:

Indic Heritage Champions Meet - 28,29th March 2025

A fantastic opportunity for studentsacross the countrywith a passion for preservation of Indic cultural heritage to showcase the rich heritage from their local areas and get exposed to the state of the art in IKS & Heritage Technology at the IITH's HST. In addition The young Champions will receive mentorship from IIT faculty on becoming Techno ambassadors for their local Heritage.

AI applications on Indian MusicWorkshop - 5th,6th April 2025

Organized on the heelsof ICASSP 2025 conference in Hyderabad, the workshop included talks by the invited experts, hands-on tutorials and a hackathon.

ITH CSU SummerSchool in IKS for SanskritStudents - 3rd to 21st June 2025 Central Sanskrit University, Delhiin collaboration with IIT Hyderabad launched a 21-Day Summer School Programto enhance the Composite & Exhaustive Pedagogy.

Major Facilities

- 3D clay printer and its shaker; classical musical instruments, Heritage compute clusters
- Digital Yoga Studios

Thrust Areas

- Neuro-biomechanics of Yoga and performing arts
- Indic languageprocessing
- Heritage conservation and reconstruction
- Integrated traditional medicinal systems
- Acoustics and mechanics of Indian musicalinstruments
- Archaeometry

CAMPUS CHRONICLES

BUILD Project

The BUILD (Bold and Unique Ideas Leading to Development) program provides a platform to all UG and PG students at IIT Hyderabad with financial support of up to Rs. 1 Lakh to enable their ideas into tangible prototypes. Various ideas that involved hardware, software, apps, etc, were supported. An internal faculty committee has thoroughly scrutinised all the applications received from students who have shown interest in the BUILD program, FY 2024-25. Depending on the title of the project, students are encouraged to either work solo or in groups with a mentor. Multiple review sessions were conducted to monitor the progress of projects. A budget of Rs. 18,76,150/-has been approved for the Shortlisted Projects.

BUILD Projects for the Financial Year 2024-2025:

S. No.	Title of Project	Team Leader
1	Breast Self-Examination Device	Atharva Patil
2	Revolutionising Maternal Care	Pradhyumn Bhardwaj
3	The Live Mandi	Pushpendra
4	System for monitoring in ambulance using healthcare-based multimodal flexible wearable band	Sruthy Krishna
5	Hotel Automation using AI/ML, techhotel.in	Ashish Kumar
6	OFFICE PODS	Abhijeet Dewangan
7	Vibe Learn	Utkarsh Kumar Verma
8	Replacing the Human Examiner: Vision-Based Automated Retinoscopy Solution	Mirza Sarfaraj
9	Smart bin for segregation of plastic waste	Sarang Kukade
10	RespiTrack - Real-Time Respiratory Monitoring	Anushka Agrawal
11	Smart Checkout using Computer Vision	Saran Konala
12	Comply	Narasimha Murthy
13	Differential Diagnosis	Abhishek Pravin Nahire
14	NEPTUNE:	Naresh D
15	Digital Mnemonic Device	Kochath Dayanandan Anusree
16	Divi set	Vijaivasudev M J
17	Swarm Robotics	Prajwal M
18	Building Bipropellants pressure fed rocket engine	Vivek Yadav
19	VISN- Visually Impaired Smart Navigator	Soham Bhar
20	Calibrated & Comprehensive Problem Set Generator	Pranjal Prajapati
21	Centralized Taxation Platform	SAFDER SHAKIL
22	AI-Based Emergency Response System	Dharmendra Singh Yadav
23	D-Delivery	Jaideep Nirmal A J
24	Horizon AR	Abhishek Kumar
25	Number Plate Detecting Boom Barrier	Abhijit Kashyap
26	Roof cleaning drone	Aryan Gandhi
27	FoldCubeBot	Kaushal Morankar
28	VR-VISIT	Adamya verma
29	ECG Smart Patch	Parth Dawar
30	Veduify Self Study Platform	Kanna Ruthwik
31	Coconut extractor	Viswajit
32	Portable Tea Dispenser	Shraavani
33	Flourescence Sensor for detection of PFOA in Aqueous Solution	Chitransh Borile
34	Real time tracking of improvement initiatives for driving ops excellence	Anadi Gautam
35	Smart gloves	Pratyusha Gudadoor
36	IgnIITe	Garvit Mehra
37	Gold recovery from E-waste using advanced hybrid process	Sri Nandhini S
38	Hemo Watch (wearable for cardiac assessment)	Sonit Nitin Patil
39	Tejas: Dermal drug delivery patch	Jyothir Vishnu Bharadwaja Perugu

Tinkerer's Lab

Neha Agarwal and Arsh Goyal

Interactive QnA

Orientation

As part of the orientation week for the incoming batch of 2024 at IIT Hyderabad, Tinkerers' Lab organized an inspiring session featuring Neha Agrawal, founder of Mathematically Inclined, and Arsh Goyal, a renowned software engineer and content creator. The event aimed to equip freshers with the right mindset, resources, and direction for their college journey. The speakers shared personal stories and offered practical advice on managing time, maintaining consistency in learning, and building a strong community. The session saw a turnout of over 400 freshers and encouraged active participation through Q&A. Neha Ma'am emphasized conceptual clarity and curiosity, while Arsh gave actionable tips on projects, placements, and networking. The orientation session set a positive tone for the year ahead.

TinkerFresh

TinkerFresh 2024 acted as a dynamic launchpad for freshers eager to explore hands-on learning and technology. Covering Python for Machine Learning, LaTeX, Arduino, Linux basics, 3D Modelling, data analysis, and Git/GitHub, the workshops provided beginner-friendly yet insightful introductions to multiple domains.

The program saw enthusiastic participation and cultivated a spirit of collaboration and curiosity. TinkerFresh successfully built a community of learners ready to experiment and innovate, reaffirming the lab's mission to make tech both accessible and empowering.

WTF Summit 2025

WTF – What's The Future, was a flagship visionary event aimed at exploring the next decade of technology and innovation. The summit brought together diverse voices—engineers, thought leaders, and academicians—to challenge conventional thinking and envision the future. A major highlight was the panel discussion on AI vs Developer, featuring Krish Naik and Hitesh Choudhary. They examined how AI is reshaping the developer role, emphasizing adaptability and the use of AI as an enabler. Another engaging session, Redefining the Digital Landscape, tackled issues of digital governance, autonomy, and interaction. Decentralising the Future featured Web3 experts Kamlesh Nagware, Punit Agarwal, and Prasanna Lohar, who discussed blockchain, DeFi, and open internet ecosystems.

The summit also included a session on ML research careers led by Sonu Mehta and Prof. Surendra Nadh.

Thrust 2025

Thrust 2025, the second edition of Tinkerers' Lab's flagship tech fest, built on the momentum of its previous success. The fest welcomed popular content creator Love Babbar, whose session inspired numerous attendees.

Key events included:

- Rubik's Cube Competition showcasing problem-solving and speed.
- Qawwali Night by the legendary Warsi Brothers, celebrating cultural roots.
- Robo Expo which highlighted groundbreaking technologies, demonstrations and solutions for various industries
- Auto Expo featuring Lamborghini, BMW, and Royal Enfield bikes, drawing huge crowds and automotive enthusiasts.

Projects

Beyond events, 2024–25marked a year of significant student-led innovation at Tinkerers' Lab. These projects showcased practical applications and interdisciplinary approaches.

Software and ML Projects:

Real Estate ML Application: A deployed web platform for housing price prediction, trend visualization, and recommendations.

Traffic Optimizer and DDR Prototype: Integrated real-time systems with user-centric design.

Flappy Bird RL Agent and Conditional GAN Digit Generator: Fun and exploratory uses of machine learning.

AutoPack Robot, AINexus, and BidBull: Large-scale, startup-potential systems in automation and AI.

Mechatronics and Hardware Projects

Autonomous Campus Delivery Robot and Voice-Controlled Robot: Real-world navigation and control systems.

Gait Analysis System using ESP32.

Pressure Sensing Gloves, Automated Vacuum Cleaner, and Environmental Monitoring Drone: Addressing health-tech, convenience, and sustainability.

Tinkerers' Lab continues to be a thriving hub where ideas are not only encouraged but also built, tested, and implemented. With growing student involvement and increasingly diverse outcomes, the lab is shaping the next generation of innovators.

Ek Bharat Shrestha Bharat

Onam Celebrations

Students at IITH celebrated Onam with great enthusiasm through a variety of traditional and fun-filled activities.

Highlights included Vadamvali (tug-of-war), Athapookalam floral displays, Sundarikku Pottuthodal, Origami boat making, Thiruvathirakali dance by the Shuffle group, and a lively Mini Uriyadi.

Each event brought a mix of excitement, nostalgia, and cultural richness, uniting everyone in the festive spirit. A themed photobooth added to the joy, giving participants a chance to capture memorable moments of the celebration.

- Students of IITH celebrated Diwali with creativity, joy, and cultural vibrance through a series of engaging activities.
- The festivities featured Night Diya Painting, Clay Modelling, Mehandi, and Lantern Making, with the sky lanterns lighting up the night sky beautifully.
- Garba Night, along with Shuffle's energetic performance, added rhythm and color to the celebrations.
- Fun games like Sweets on String, Musical Chairs, and Diwali Bingo filled the evening with laughter and togetherness.

Diwali Celebrations & Garba Night

Makar Sankranthi

- Students of IITH celebrated Makar Sankranthi with enthusiasm, blending tradition and fun.
- The festivities included kite flying, rangoli making, and traditional games that filled the campus with vibrant colors and cheer.
- Cultural performances and music added to the festive spirit, showcasing the joy of togetherness. The celebrations truly reflected the essence of Sankranthi, bringing students closer in a spirit of unity and festivity.

Holi Celebrations

- The festival of colors was celebrated on March 8th with immense enthusiasm, creating a vibrant and joyful atmosphere across the campus.
- Skin-friendly colors in eight shades encouraged safe participation, while the lively rain dance added to the excitement as students danced through sprays of water.
- A high-energy DJ performance kept the spirit alive for hours, with everyone enjoying upbeat tracks and nonstop dancing.
- The blend of colors, music, dance, and water made the Holi celebration truly unforgettable.

Ethnix

- Ethnix was celebrated with vibrant cultural performances, where participants from different states showcased their traditions through dance, music, poetry, and storytelling in traditional attire.
- The evening was filled with fun activities like saree/dhoti draping, hopscotch, and paper boat races, while the OAT's festive decorations added to the cultural vibe.
- Free Polaroid prints, a Harley Davidson photo-op, gaming stalls, and anime/art corners brought an interactive touch, making the event even more lively. The day concluded with the screening of Wake Up Sid, offering a relaxing and cheerful end to the celebrations.

Swachhata Hi Seva & Jan Jatiya Gaurav Diwas

- Students of IITH marked Seva and Jan Jatiya Gaurav Diwas with a series of impactful activities promoting social responsibility, sustainability, and cultural respect.
- Highlights included the Swachhata Pledge, tree plantation, cleanliness drives, health camps, donation drives, and creative initiatives like Waste to Art and poster competitions.
- A lamp-lighting ceremony, awareness campaigns, and a special ragi halwa paid tribute to Birsa Munda and tribal traditions, while quizzes and essay contests on the Constitution encouraged reflection on citizenship and diversity. Together, the events fostered awareness, community spirit, and respect for heritage.

NSS Activities

Orphanage Visit

The NSS Team at IITH conducted visit to Mahima Ministers NGO, engaging children through games, creative activities, and a clothes drive while also supporting the elderly. These visits fostered joy, comfort, and meaningful connections, making the experience impactful for all.

The NSS Team, in collaboration with the Green Office, organized plantation drives across the IITH campus, enhancing greenery and air quality. With active student participation, the initiative promoted sustainability for present and future generations.

Plantation Drive

Swachh Bharat

The NSS Team at IIT Hyderabad leads the Swachh Bharat initiative, a bi-monthly campus-wide cleanliness drive. Volunteers clean high-footfall areas, focusing on non-biodegradable waste to promote a cleaner and healthier campus.

Walkathon

The NSS Team at IIT Hyderabad organized five walkathons during the academic year, encouraging a healthy lifestyle. Covering 3–6 km between hostels and the main gate, these events saw enthusiastic student participation, making fitness both fun and engaging.

Vidyadaan, an outreach initiative by the NSS Team at IIT Hyderabad, supports nearby government school students through interactive sessions in subjects like Math, Science, Social Studies, English, and Career Guidance. Using videos, PPTs, and visuals, volunteers make learning engaging while enjoying a meaningful experience.

Vidyadaan

Blood Donation Camp

The NSS Team at IIT Hyderabad organized two blood donation camps during the academic year at the IITH Hospital, partnering with Niloufer Government Blood Bank and the Thalassemia and Sickle Cell Society.

Donation Campaigns

The books and clothes that students, faculty & other staff were willing to donate were collected from their doorstep with the help of NSS volunteers.

The Weed Removal Program was conducted to support environmental sustainability and enhance campus greenery, where students, staff, and faculty volunteered to remove invasive weeds that hinder native plant growth. Volunteers worked, contributing to both the aesthetic and ecological well-being of the campus.

Weed Removal Drive

Vriksha Bandhan

The NSS Team at IITH organized Vriksha Bandhan, inspired by Raksha Bandhan to pledge protection for nature. Volunteers tied sacred threads around trees, symbolizing care and respect, and promoting environmental conservation and sustainable living.

National Youth Day Celebration

National Youth Day to honor the energy and potential of youth in shaping a better future. The event featured an inspiring address by Mrs. Uma Harathi, IAS officer and IIT alumna, and marked the launch of the first NSS IITH magazine, with enthusiastic participation making it a memorable occasion.

As part of the Margdarshan initiative, government school children visited IIT Hyderabad to explore campus landmarks like the Sports Complex and Lecture Hall Complex. The visit inspired them to dream big and motivated them to pursue higher education by experiencing the IIT environment firsthand.

Margdarshan

Lake Cleaning Drive

Lake Cleaning Drive at Barla Kunta Lake, Indira Nagar. The team collected waste and removed unwanted materials, promoting environmental awareness and the importance of preserving natural spaces.

Gram Sabha

A Grama Sabha in Kandi Thanda as part of the 'Swachhata Hi Seva' campaign. The event educated villagers on cleanliness, waste management, and segregation, featuring awareness sessions, demonstrations on disposal and composting, and active community discussions on improving sanitation.

A Safai Mitra Suraksha Shivir under the 'Swachhata Hi Seva' campaign, providing health check-ups and connecting Safai Mitras with government welfare schemes. Over 80 Safai Mitras received screenings for blood pressure, sugar levels, and general health, with NSS volunteers ensuring smooth execution and planning follow-up support.

Safai Mitra Health Camp

World Environment Day

IITH celebrated World Environment Day with the theme "Ecosystem Restoration." The event featured a hand-drawn poster competition, tree planting photo/video submissions, and a pledge-taking initiative, inspiring participants to adopt sustainable practices.

EML

"EML IIT Hyderabad: Pioneering the Future of Intellectual Discourse"

This year, Extra Mural Lectures (EML) at IIT Hyderabad has undergone a significant transformation, solidifying its presence as a premier platform for thought leadership, storytelling, and intellectual engagement. Through a carefully curated speaker lineup, an expanded digital footprint, and innovative initiatives, EML redefined its institutional footprint. Anchored by our new thematic vision—VENTURO: The Eternal Voyage—EML has elevated its discourse among the IITH community and set a new bar for the following year's team.

Key Initiatives and Milestones

- **Brochure Launch (check here):** For the first time, we unveiled a professionally designed brochure that not only encapsulated our new theme and strategic direction but also chronicled our past speaker milestones. The brochure served as a tangible testament to EML's journey toward cementing its professional presence.
- **Inaugural Orientation:** Marking a significant milestone, our first-ever orientation session for new members introduced a new era for the club. This initiative, where we screened the first-ever official video of EML, fostered a strong sense of belonging and enthusiasm with our operational temper.
- **Thematic Evolution – VENTURO:** Under the banner of VENTURO: Navigating the Uncharted, we embraced the notion that "life is like a storm, bound in a chrysalis, and very few dare to explore it."
- **Team Revitalization;** Building a Cohesive and Inclusive EML The introduction of a new team structure, along with the issuance of updated ID cards, has instilled a heightened sense of professionalism and unity. More importantly, EML has fostered an inclusive culture where voices across demographics, genders, and experience levels are not only heard but valued.
- **Distinguished Speaker Series:** This year, EML had the privilege of hosting a lineup of eminent speakers, each a national awardee and a trailblazer in their respective fields. Our roster included Lt. Gen. KJS Dhillon, the strategist who played a pivotal role in maintaining stability during the abrogation of Article 370; Prof. HC Verma, the educator who revolutionized physics learning in India; and Dr. Kiran Seth, the founder of SPIC MACAY, whose efforts have preserved and promoted India's cultural heritage.
- **Institutional Recognition and Engagement:** EML's efforts have culminated in significant institutional recognition. By redefining our operational dynamics, we have transcended traditional engagement methods—transitioning from dependency on NSS hours to attracting an organically vibrant crowd, as evidenced by a near-capacity turnout at LHC5.
- **Innovative Initiatives:** We have laid the groundwork for multiple forward-thinking projects (will be in action next tenure) designed to extend our narrative beyond conventional confines:

1. Humans of IIT Hyderabad: Documenting the rich tapestry of untold stories within our IITH community.
2. Beyond 64 Squares: Capturing the remarkable journeys of India's chess prodigies.
3. Echos of Grit: Illuminating powerful, transformative stories from across the nation.
4. Ripple Effect: (Working title): A platform to celebrate impactful narratives that drive societal change.

- **Strategic Partnerships and Collaborations**: We piloted an inter-club collaboration with Sunshine during our second lecture by Dr. EV Swaminathan, a promising initiative that signals potential long-term partnerships. Concurrently, we cultivated promising dialogues with high-profile figures such as Vishwanathan Anand, setting the stage for future engagements.
- **Digital Footprint Expansion:** Our Instagram presence now boasts 1,115 followers, marking a significant and sustained growth over the past year—a clear indicator of our expanding influence.
- Website Overhaul (check here): The complete revamp of our website—with a coherent color scheme and streamlined presentation of our speaker series—now stands as an attractive and professional digital portal for all EML activities.
- To see all event visuals, please check EML Instagram: https://www.instagram.com/eml_iith/eml_iith

News & Future Initiatives: Expanding Horizons

Building on our momentum, EML is now poised to take even greater strides in the coming year:

- Media & Outreach Team
- Sponsorship Team
- Opening EML to External Audiences

A New Vertical for Unheard Stories: Creating a platform to collect, curate, and share powerful stories from individuals **who may never set foot on our campus. This initiative serves three key purposes:**

- Ensuring our social media remains active and engaging year-round, even in the absence of live speaker sessions.
- Bringing forward impactful narratives that might otherwise be overlooked.
- Building anticipation and sustained engagement leading up to a grand annual event—drawing inspiration from IIT Madras, home to the country's most influential EML series.

In Essence: A Year of Transformative Growth

This year, EML has redefined what it means to be a student-run initiative at IIT Hyderabad. We have:

- Hosted a stellar lineup of nationally acclaimed, Padma Shri-winning speakers.
- Strengthened our identity through a compelling new theme, a professional brochure, and an expanded digital footprint.
- Successfully shifted from inorganic audience-building tactics to organically packed lecture halls.
- Initiated a roadmap for groundbreaking projects that will shape the club's future and widen its reach.

With these foundational advancements, EML is not just evolving—it is leading the way, setting a benchmark for student-led intellectual engagement across IIT Hyderabad.

ELAN & ηVision

The 2024–25 academic year blended tradition with innovation, significantly enriching campus life at IIT Hyderabad. We began with the Freshers' Fiesta in July, engaging newcomers through interactive games and an orientation introducing the institute's structure and teams. A unique highlight followed in September with our first-ever movie promotion event, hosting the cast of Mathu Vadalara 2, strengthening IIT Hyderabad's visibility.

Our outreach continued with specialized technical workshops for non-IITH students and the launch of the School Olympiad in October, engaging grades 8–10 while creating additional revenue streams. In November, NEXUS' second edition brought four days of spirited competition with 55 teams, culminating in exciting prizes. The School Workshops initiative welcomed senior school students for hands-on engineering projects and campus tours, inspiring future aspirants.

Post-winter break, we introduced Orion's Theatre, the first open-to-all movie screening and stargazing event. Collaborating with Stardust, we hosted six stargazing sessions, with more planned, creating both engagement and revenue opportunities.

Our year culminated in Elan & nVision 2025 – "A Space Odyssey" (Feb 21–23), a landmark three-day fest attracting over 10,000 registrations and 4,500+ external visitors.

- Day 1 – Fusion Nite: Inauguration by Mr. Srinivas Taluka (T-HUB), classical music and dance competitions, and an open-air screening of Rockstar with vibrant games and stalls.
- Day 2 – Indie Nite: Art workshops, tech competitions (Robosoccer, hackathons, e-sports), cultural events (Breakfree, Campus Idol), quizzes, social initiatives, drone exhibition, and live performances by Fluteboxers, Shreya Jain, and The Leading Drops.
- Day 3 – Pop Nite: Sporting and robotics competitions, fashion shows, Battle of Bands, Cosplay events, Under 25 Summit, and a grand finale with Papon's concert and DJ Swattrex. Throughout, stalls, games, and informal activities created a carnival atmosphere.

Post-fest, we focused on documentation, fulfilling sponsorship commitments, and extended partnerships. Events like Cryptex, a 36-hour online puzzle, and a final movie promotion with Anupama Parmeswaran in March sustained engagement until year-end.

Closing Reflections:

This year's initiatives fostered vibrant campus life, expanded outreach, and strengthened institutional connections. Through strategic planning and collaboration, we created memorable experiences, setting a strong foundation for future events and enhancing IIT Hyderabad's cultural and social landscape.

MILAN 2023

Opening Ceremony

The 5th edition of Milan, IIT Hyderabad's General Championship, was held from 20–29 September, featuring 65 events (29 cultural, 17 sports, 14 sci-tech, and 5 collaborative), including 15 new additions. Five trophies were contested: Overall Championship, Men's & Women's Sports, Sci-Tech, and Cultural. Participation rose to 21 hostels from 18 previously.

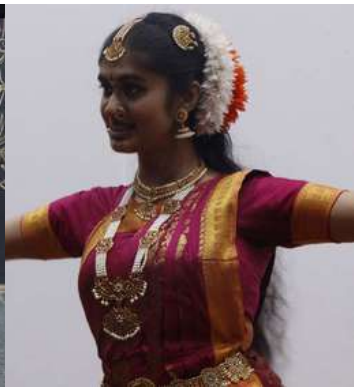
The grand opening at the Open Air Theatre featured a historic hostel march-past and torch rally, with the esteemed presence of Director Prof. B.S. Murthy, Dean of Students Prof K Venkatasubbaiah, and other dignitaries. The ceremony began with an inspiring speech and traditional lamp-lighting, followed by a vibrant display of hostel spirit.

Sports Events

Milan'24 hosted 17 sports events, including the debut of 8-ball pool, alongside cricket, football, basketball, volleyball, hockey, chess, athletics, and more. Several events were mixed-gender, while some were exclusive to boys or girls. Hostel RAMAN clinched the Men's Overall Sports trophy, while ANANDI dominated Women's Sports. The championship witnessed fierce competition, camaraderie, and record enthusiasm.

Cultural Events

With 29 cultural events—the largest in Milan's history—cultural clubs showcased extraordinary talent. Highlights included dance (solo, duo/trio, group, street battle), singing, art competitions, cosplay, and quizzes. New additions like graffiti painting, clay modelling, and antakshari added fresh vibrancy. Cosplay and anime quizzes, organized by the Otaku Club, stood out for creativity and energy. Visvesvaraya Hostel emerged as Cultural Champions through spirited participation. Key cultural events included: Street Battle, Stage Play, Battle of the Bands, Solo Singing/Dance, Graffiti Painting, Cosplay Showdown, Quizzes, and more.



SCI-TECH EVENTS:

Sci-tech clubs hosted 14 challenging events plus 3 collaborative competitions covering robotics, coding, e-sports, and more. Notable events included: Astro Photography Challenge, Build the Circuit, E-sports tournaments (BGMI, COD Mobile, Valorant, Clash Royale), Hackathons, and Water Rocketry. Hostel RAMAN emerged victorious in Sci-Tech with exceptional performances across categories.

Pronites & Prom

The pronites brought unmatched entertainment:

- Stand-up comedy by Vivek Samtani
- Aarohi Band live performance
- DJ Young and Broke electrified the audience with a DJ Night
- The Prom Night, held at unprecedented scale, was a dazzling celebration of style, music, and camaraderie.

Award Ceremony & Closing Note

The closing ceremony on 29 September celebrated outstanding performances. Visvesvaraya Hostel won the Overall Championship. Milan 2024 broke records in participation and social media engagement, growing followers from 1.7k to 2.5k—the highest ever. This year also saw the restyling of the mascot to "Pablo," adding flair to the celebrations.

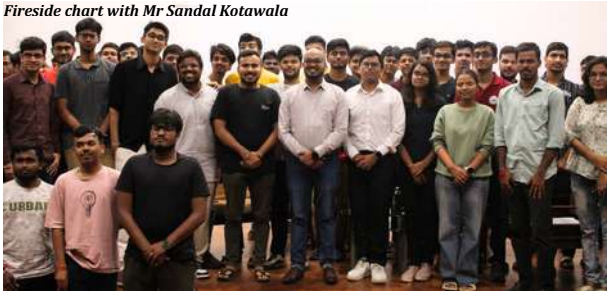
E-Cell

Entrepreneurship Cell (E-Cell) at IITH is a student-driven body committed to fostering innovation, entrepreneurial spirit, and startup culture on campus. Through flagship events, mentorship sessions, and industry collaborations, it empowers students to transform ideas into impactful ventures. In 2024–25, E-Cell organized a series of high-impact events that brought together visionary leaders, aspiring entrepreneurs, and the student community to strengthen the entrepreneurial ecosystem

Fireside Chats

- **Dr Nachiket Bhatia:** Shared his journey from medical graduate to healthcare entrepreneur, discussing innovations in medical coaching and motivating students to adopt entrepreneurial thinking.
- **Mr Sandal Kotawala:** Discussed bridging research and market needs, sharing his story of founding Alphaleus and inspiring students to transform technical knowledge into impactful ventures.

Fireside chart with Mr Sandal Kotawala



Startup Fair 2025

One of the largest entrepreneurial showcases on campus, featuring 30+ startups in technology, sustainability, healthcare, and social innovation.

- **Virtual Investment Simulation:** Attendees invested virtual money in startups via a custom web app, gaining hands-on learning in investment strategies.
- **Participation:** 3,000–4,000 students & faculty.
- **Prize:** ₹30,000 for BUILD initiative winner.
- **Expenditure:** ₹80,000.

Startup Fair 2025

Founders Hive / Café Catchup:

Mentorship and networking sessions led by Akhil Gabbeta and Ojas Ulhas Dighe, focusing on idea validation, MVP development, and venture-building strategies.

Founders Hive / Café Catchup

Fetching Fortunes

A competitive startup pitch event integrated with the live investment simulation.

- Entrepreneurs delivered concise, impactful pitches to a panel of judges and virtual investors.
- Winners awarded ₹30,000.
- Enabled startups to gain visibility, mentorship, and investor interest.

NPCI Hackathon

A fintech innovation challenge aligned with NPCI's vision.

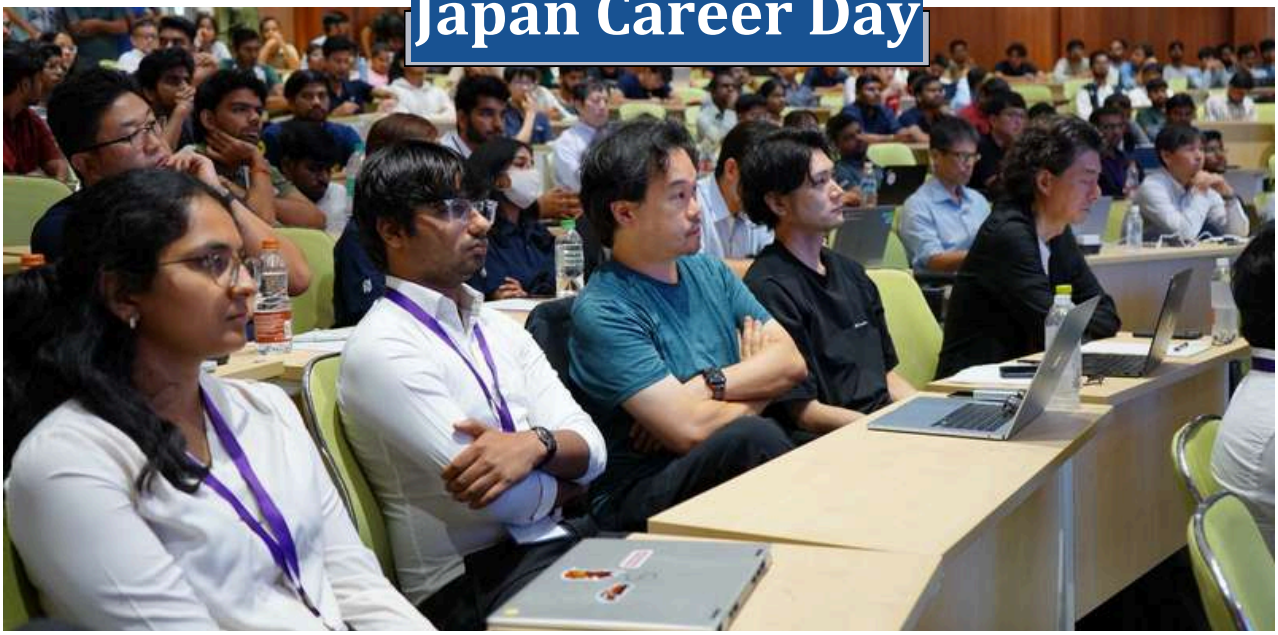
- Participants created solutions for real-world problems.
- Prize pool: ₹1.5 lakh.
- Provided industry exposure and networking opportunities.

Expert Talk & Panel Discussion

- **Dr Nishanth Dongari:** Insights on scaling deep-tech startups and commercializing research.
- **Shark Tank Panel:** Manoj Sanker, Saad Tramboo, Ravi Kaushik shared pitching strategies, growth tips, and lessons from their entrepreneurial journeys.

Shark Tank Panel

Japan Career Day



IIT Hyderabad, in collaboration with the Japan External Trade Organization (JETRO), successfully organized Japan Career Day 2025 on 30th & 31st August 2025, marking the 8th consecutive year of this flagship event. This year, around 17 leading Japanese companies from diverse sectors such as Manufacturing, Automotive, Sustainability, Energy Plants, and Transportation participated in the event.

The two-day program included an inaugural session and company presentations on Day 1, followed by one-on-one student–company interactions on Day 2, enabling students to explore career pathways and build connections with prospective employers. In addition to the Career Day, JETRO organized a Co-Research Day on 29th August 2025, where four Japanese companies participated.

JETRO facilitated matching sessions and meetings with several IITH laboratories based on the companies' research areas, strengthening industry–academia collaboration. Japan Career Day at IIT Hyderabad continues to serve as a vital platform for fostering Indo-Japanese academic, research, and industry partnerships, while opening global career opportunities for students.

Companies Participated:

- **AWL Inc.:** A market leader in AI and Deep Learning-based video analytics working to revolutionize the retail industry.
- **Green Carbon Inc.:** A sustainability-driven company that supports primary industries by
- generating carbon credits mainly through methane reduction in rice paddies and streamlining the process with its integrated Agreen platform.
- **AGC Group:** A Japanese manufacturer specializing in glass, chemicals, and electronics for industries such as construction, automotive, displays, and life sciences. The company is now embracing a digital transformation.
- **Order Busters.Co:** Order Busters.Co streamlines operations with smart order management solutions, helping businesses cut inefficiencies and deliver orders with speed and precision.
- **Ishihara Sangyo Kaisha, Ltd.**: As a pioneer in specialty chemicals, Ishihara Sangyo Kaisha, Ltd. creates products that enhance everyday life and industrial performance. Their focus on quality and responsible innovation defines their global presence.

gbl inc.: Game Based Learning, Inc., headquartered in Tokyo, uses interactive, game-based pedagogy to drive

- mastery of the Four Cs: communication, collaboration, creativity, and critical thinking.
- **Sprix Inc.:** A leading educational services provider from Japan that is set to launch a new company in India to deliver high-quality online personal coaching for secondary school students.
- **MUFG Global Service Private Limited:** MUFG Global Service Private Limited, part of MUFG, provides financial
- and technology solutions, supporting global operations with expertise in banking, digital transformation, and shared services.
- **HIRAOKA HYPER TOOLS INC.:** HIRAOKA HYPER TOOLS INC is a leader in industrial tool manufacturing,
- delivering precision solutions that optimize machining performance and support global manufacturing excellence.
- **DENSO:** A global Fortune 500 company with a broad product portfolio and focused
- on advanced mobility that positively changes how the world moves and contributes to greater well-being.
- **Mitsubishi Electric Corporation:** Mitsubishi Electric Corporation is a global leader in electrical and electronic equipment, driving innovation and sustainability with advanced solutions for energy, manufacturing, and infrastructure.
- **Hitachi High-Tech India Pvt Ltd.:** Hitachi High-Tech India Pvt. Ltd. provides advanced analytical instruments
- and technologies, combining global expertise with local insights to support healthcare, research, and manufacturing.
- **Macromill, Inc.:** Macromill, Inc. is a leading global market research firm, providing data driven
- insights and digital solutions that help businesses make smarter decisions and stay competitive.
- **NIHON NOHYAKU CO.,LTD.:** Nihon Nohyaku Co., Ltd. leverages decades of agrochemical expertise to deliver sustainable crop protection products that help farmers boost productivity and ensure healthier harvests.
- **Nikko Co., Ltd.:** A 100 year old leading plant manufacturer with core technologies that encompasses combustion, mixing, information technology, and belt conveyors.

Through this initiative, IIT Hyderabad reaffirms its commitment to global engagement and to creating meaningful career opportunities for its students in international markets.

Finance and Consulting Club

The Finance & Consulting Club at IIT Hyderabad is a student-led community for those who wish to explore the world beyond engineering — into finance, consulting, and management. We learn by doing — solving real problems, exploring strategy, and acquiring real-world skills along the way. FCC helps shape some of IIT Hyderabad's brightest minds into future leaders in the space.

Orientation

The year began with a high-energy orientation session featuring Mr Aakash Daswani, an IIT Hyderabad alumnus and an Investment Banker at Houlihan Lokey (Ex-Kotak Mahindra Bank IB, Microsoft PPO, Ex-President, Student Gymkhana IIT Hyderabad, Ex-Overall Coordinator, OCS, IIT Hyderabad). He engaged in a fireside chat, sharing valuable insights about careers in investment banking and finance. The event saw a footfall of 500+ students, marking a significant increase in engagement and outreach.

Skill Building Initiatives

- Case Nights & Consulting Summer School Weekly sessions and a structured summer program introduced students to consulting frameworks, case-solving, and structured thinking.
- Finance 101 Hands-on sessions covered topics like trading, stock markets, and financial analysis. These sessions were open to all years and branches.
- Resume Building Workshop Focused training on crafting industry-ready resumes tailored for consulting and product roles.

Hackathon – HACK4SDG

Conducted a 24-hour hackathon in collaboration with AIESEC on 26th-27th October 2024. Around 500 Participants form Colleges across Hyderabad took part in the hackathon. The hackathon aimed at tackling Sustainable Development Goals (SDGs) and brought together innovative minds to develop impactful solutions.

Pre-Horizon – Special Talk by Pranjal Kamra

Ahead of Horizon 2025, FCC hosted Pranjal Kamra, India's top influencer and CEO of Finology, for an engaging talk on personal finance and financial independence.

The evening featured:

- A themed treasure hunt
- Interactive finance games
- A keynote session on investment basics

Horizon 2025

FCC's flagship annual fest, Horizon, attracting participants from across India, is a journey through the evolving world of business, finance, and innovation.

With high-impact events, visionary speakers, and hundreds of engaged participants, HORIZON is designed to guide students through the diverse world of strategy, leadership, and market dynamics.

Key Highlights:

- Fireside Chat with Ankur Warikoo (1000+ attendees)
- Talk by Dr. A. Velumani (800+ attendees)

Competitions:

- ProdX – National-level product case challenge
- MnA – Strategic merger and acquisition simulation
- EquityX – Stock analysis challenge

Flagship Sessions:

- All About MBAs Featuring alumni from IIMs, ISB, and global B-schools: Sumit Singh Gandhi, Randhir Raj Singh, Roshni Pande, Tony Xavier
- Breaking Brands (Powered by The Product Folks) Branding deep dive with: Vaishnavi Devi (Swiggy), Yash Agrawal (BrowserStack, IITH alumnus)
- Million Dollar Deals Corporate finance insights from: Rohit Chawla, Virendra Kumar, Animesh Pandey
- National Competitions

ProdX

FCC's flagship product management competition, scaled nationally:

- 30,000+ impressions on Unstop
- 650+ registrations from IITs, IIMs, BITS, ISB, and corporates
- Offline finals judged by product managers from Microsoft and Ola

EquityX

A premier stock analysis challenge:

- 12,000+ impressions
- 250+ participants analyzing small-cap investment opportunities

M&A

A hybrid competition blending finance and consulting:
Participants evaluated real-world M&A deals for strategic fit and financial synergy
Judged on clarity, depth, and data-backed conclusions

TEDxIITHyderabad

The 2024–25 tenure of TEDxIITHyderabad was marked by innovation, community engagement, and a bold reimagining of what student-led initiatives can achieve. From being recognized by TEDx official, creative orientation events and impactful outreach programs, each effort was rooted in the TEDx philosophy: "Ideas Worth Spreading." This report documents the year's major events, initiatives, and outcomes.

Freshers' Orientation 2024

The orientation for the incoming batch was reimagined as a TEDx-style immersive session. Freshers were introduced to the values of curiosity, courage, and collaboration through engaging activities, trivia, and showcases of past editions. The launch of Tedpool, a witty and humorous mascot, instantly became a highlight. With giveaways, energy activations, and enthusiasm, the event sparked early volunteer signups and strong social media traction.

X-Masterclass Initiative

Launched as a blend of learning and outreach, X-Masterclass connected IIT Hyderabad with schools and communities across the city. Students engaged in donation drives, welfare activities, and collaborative programs at Devnar School for the Blind. Networking sessions with mentors, alumni, and faculty enriched the experience further. The initiative empowered students to express confidently, setting a model that inspired six new TEDx chapters.

EthniX – Theme Reveal Night

EthniX was a vibrant cultural evening that celebrated India's ethnic richness while building anticipation for the year's theme. Attendees enjoyed traditional games, food, and performances, creating a lively community atmosphere. The highlight was the unveiling of the theme Tatv – Unfurling the Essence of Life, symbolizing the five elements as metaphors for human existence. This theme later became a guiding philosophy across all events of the tenure.

X-MUN 2025 – Diplomacy in Action

This two-day UN-style conference brought together 100+ delegates to simulate global diplomacy across committees like UNSC, UNHRC, and Historic UNSC. Participants debated pressing issues from Ukraine to indigenous rights, practicing negotiation and consensus-building. A dedicated Press Team added depth with newsletters, photography, and creative journalism. The event seamlessly combined intellectual rigor with storytelling, leaving behind strong institutional memory and digital presence.

TEDxIITHyderabad 9th Edition – Main Event

The flagship annual event carried forward the essence of Tatv through powerful stories and performances. Seven diverse speakers—including leaders, entrepreneurs, artists, and changemakers—shared journeys of resilience, identity, and purpose. With a packed audience, vibrant cultural performances, and emotional resonance, the event created an unforgettable atmosphere. The edition stood as a culmination of the year's journey and raised the benchmark for future TEDx chapters at IITH.

Conclusion

The 2024–25 tenure was a landmark cycle that combined creativity, culture, diplomacy, and community outreach under the spirit of Tatv. Each event went beyond being just an activity, serving as a platform for dialogue, growth, and shared experiences. From engaging freshers to hosting thought leaders, the team built bridges between ideas and action. TEDxIITHyderabad reaffirmed its role as a catalyst for change on campus and beyond.

Sunshine

Sunshine: The Counselling Cell

Since its inception on January 12, 2012, Sunshine- the counselling cell at IITH, has been committed to helping the student community. The dedicated team of Sunshine comprises a Faculty in Charge, three Psychological Counsellors, 19 faculty representatives, 18 student heads, 23 PG mentors, 28 PG buddies, 8 PhD dept representatives, 48 UG mentors, 41 UG buddies and 21 management team members.

For the year 2024-25, Sunshine has conducted:

- Heal out loud
- Stone Painting Competition
- Workshops by Counsellors
- Clay Therapy
- Art Therapy
- National Well-Being Conclave
- Sunshine Foundation day
- Funshine (Puzzle pals) event
- Happiness Workshop
- Sunshine Breathe and Bond
- Talk by Nida ma'am
- Happiness Carnival
- Games stalls

Student Arena

General Council

The General Council is an umbrella term for various bodies which not only perform representation tasks, but also cater to student welfare, societies, entertainments etc. The General council strives towards the general welfare of the students.
For more details, visit: http://gymkhana.iith.ac.in/

Cultural Council

The Cultural Council are a motivated group of individuals who believe that a college should have its equal share of fun & frolic along with the case studies. Clubs under Cultural Council are Infocus, Behind the lens, Vibes, Rang de manch, Gesture Shuffle, LitSoc.

Sports Council

IITH's sports is one of the more brilliant facets of this campus life. IITH offers plenty of sports facilities, which include a common football & cricket ground, a hockey ground, a well-equipped swimming pool, floodlit courts for basketball, badminton, tennis, and multiple courts for volleyball. Facilities for indoor games like table tennis, caroms, and chess are also available.

Media Council

The media council of IITH was formed in May 2014 & is a student council that helps take IITH to every individual in & outside IITH. They are involved in publicizing our institute through social media, social events, etc. The Media Council is currently engaged in various newsletters of IITH like the academic newsletter, placement newsletter with the guidance of different faculties, and PR Office of IITH.

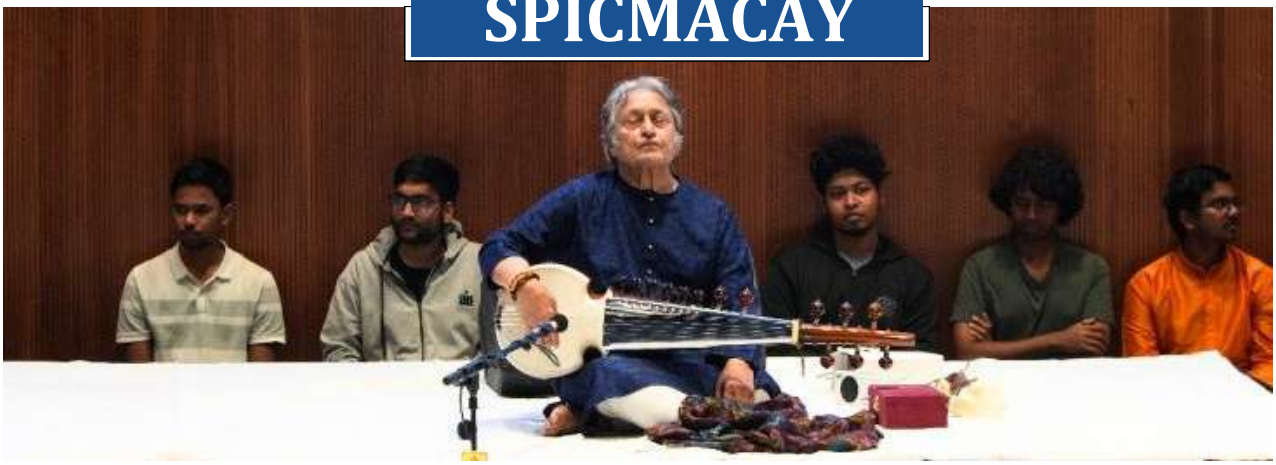
Scitech Council

The Sci-Tech council is headed by Science and Technology Secretary. It encompasses nine societies : AeroClub, Cepheid, Elektronica, Kludge, Infero, Lambda, Prakriti, Robotix and Torque which covers the diverse nature of science and technology. Various events are organised from time to time, starting from orientation of all these clubs.

Mess Council

Mess monitoring council, also known as MMC, assists in the robust functioning of mess in coordination with mess wardens & HCU. Headed by the mess secretary, it represents the students' voice. It also regularly inspects the operations to look for various faults & ensure that food quality is maintained at IITH. It strives to ensure that all the students have enjoyable and healthy meals at their second home.

SPICMACAY



The SPICMACAY (Society for the Promotion of Indian Classical Music and Culture Amongst Youth) Club at IIT Hyderabad has had impactful and dynamic 2024-2025 tenure thus far, successfully organizing several events that have captivated and engaged the campus community. Below is a detailed summary of the events organized in the first half of the tenure:

Film Screenings

The year began with screenings of The Great Dictator and The Making of Mahatma, in collaboration with NSS. Both films drew strong participation of 150–200 attendees, with Gandhi's journey especially resonating with students. The screenings established SPICMACAY's presence on campus and set the tone for a culture-driven year.

Clay Modelling during Diwali

In partnership with the EBSB Club, a clay modelling activity was held during the Diwali celebrations. Students enthusiastically engaged in this traditional craft, enjoying a hands-on cultural experience. The event was praised for its creativity and became a highlight of the festive celebrations, reinforcing SPICMACAY's role in cultural promotion.

Leather Puppetry Show

A traditional puppetry show from Telangana and Andhra Pradesh brought local heritage to life in November 2024. Attended by nearly 300 people, the performance received appreciation from faculty, staff, and students alike. It highlighted SPICMACAY's mission of preserving and celebrating India's diverse cultural art forms.

Meeting with Hon. Governor of Telangana

On 4th January 2025, SPICMACAY IIT Hyderabad representatives attended a prestigious meeting chaired by the Hon. Governor, Shri Jishnu Dev Verma. The event also marked the banner release of the 10th International Convention, with dignitaries including SPICMACAY Founder Dr. Kiran Seth and IIT Hyderabad leadership. This milestone showcased the Sub-Chapter's growing influence at the national level.

Ustad Amjad Ali Khan's Sarod Concert

On 6th January 2025, legendary maestro Ustad Amjad Ali Khan Ji, accompanied by tabla virtuosos, enthralled an audience of nearly 1,000. The LHC hall was filled beyond capacity, with listeners moved to tears by the soulful performance. This remains one of the most memorable cultural evenings in IIT Hyderabad's history.

Classical Evening

Held on 3rd February 2025, this event featured 15 performances ranging from tabla and flute to classical dance recitals. It served as a platform for students to showcase their talents while promoting traditional art. Certificates of appreciation were given to participants, reinforcing the spirit of cultural pride and recognition.

Ottanthullal – Kerala Folk Dance

On 15th February 2025, students experienced the humor, energy, and storytelling of Ottanthullal, performed by Kalamandalam Mohankrishnan and team. The event drew nearly 500 attendees and brought a vibrant taste of Kerala's folk traditions to campus. Its lively and interactive format made it especially enjoyable for the audience.

Pandvani – Folk Narrative of Chhattisgarh

On 20th March 2025, artist Ritu Verma presented a mesmerizing rendition of Draupadi Cheer Haran through Pandvani, a traditional storytelling art form. Attended by about 600, the performance left audiences deeply moved with its emotional power and cultural depth. It also served as a curtain-raiser for the upcoming 10th International Convention.

Conclusion

Through its diverse range of activities—films, crafts, music, dance, and traditional storytelling—SPICMACAY IIT Hyderabad has fostered a vibrant cultural spirit on campus. The events not only entertained but also educated, building awareness of India's heritage. With the International Convention ahead, the club is poised to further strengthen its cultural impact.

Collaborations

Strategic Collaborations Driving Innovation

IIT Hyderabad continues to strengthen its global footprint through impactful collaborations with leading academic institutions, research organizations, and industry partners. These alliances enable the exchange of knowledge, joint research initiatives, and opportunities for innovation that align with the institute's vision of fostering technology for humanity.

Academic Collaborations

IITH has signed Memoranda of Understanding with prestigious universities across the globe, including Shibaura Institute of Technology, Ritsumeikan University, Nara Women's University, and Kyoto University in Japan, as well as Purdue University (USA) and Visvesvaraya National Institute of Technology, Nagpur and NIT Agartala in India. These partnerships promote student and faculty exchange, dual degree programs, and collaborative research across disciplines.

Research & Institutional Partnerships

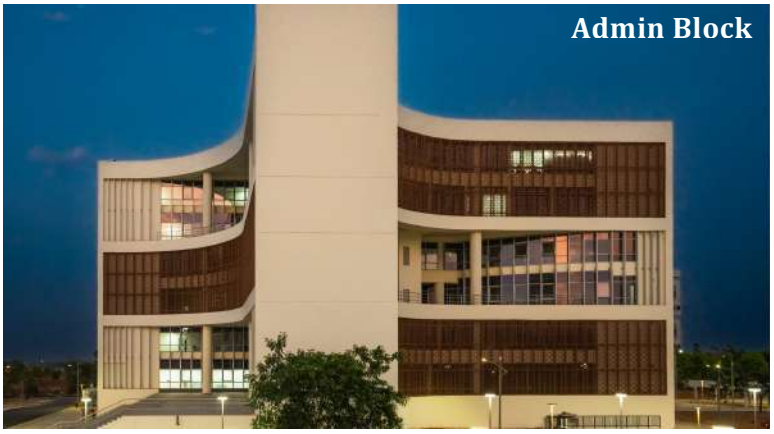
In pursuit of cutting-edge research and technological advancement, IITH collaborates with prominent organizations such as RIKEN Center for Advanced Intelligence Project RIKEN Center for Advanced Intelligence Project (Japan), AIIMS Bibinagar, C-DAC, AICPMU at IIT Jammu, and the Department of Higher Education, Ministry of Education, Government of India. These linkages drive interdisciplinary research, healthcare innovation, and national capacity-building in emerging domains.

Industry Collaborations

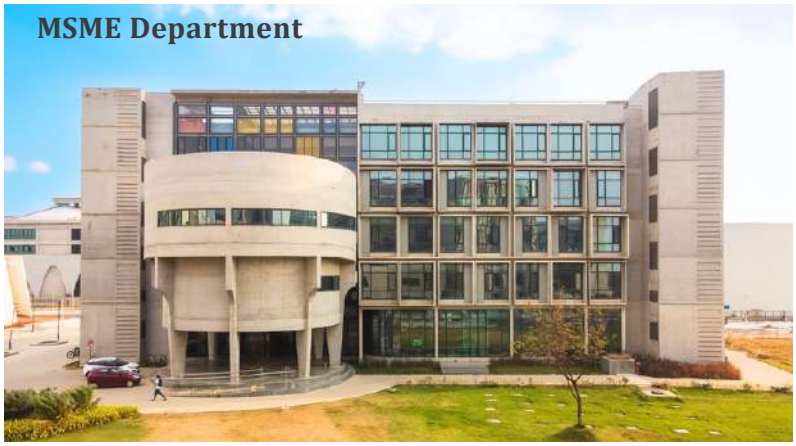
IITH's industry partnerships bridge academia with real-world applications through engagements with organizations such as Renesas Electronics India Pvt. Ltd., Nikon India, Indian Explosives Pvt. Ltd. (Orica), Aarvee Associates Architects Engineers and Consultants Pvt. Ltd., Spanda.ai, Devic Earth, Coal India Limited, and Energy Efficiency Services Limited (EESL). These collaborations facilitate technology development, industry-relevant projects, internships, and skill enhancement for students and researchers.

Through these diverse collaborations, IITH continues to nurture a vibrant ecosystem that integrates academic excellence, pioneering research, and industry innovation for a sustainable future.

Architectural Landmarks of IITH



MSME Department



Core Labs Building

DAV School

Health Care Center

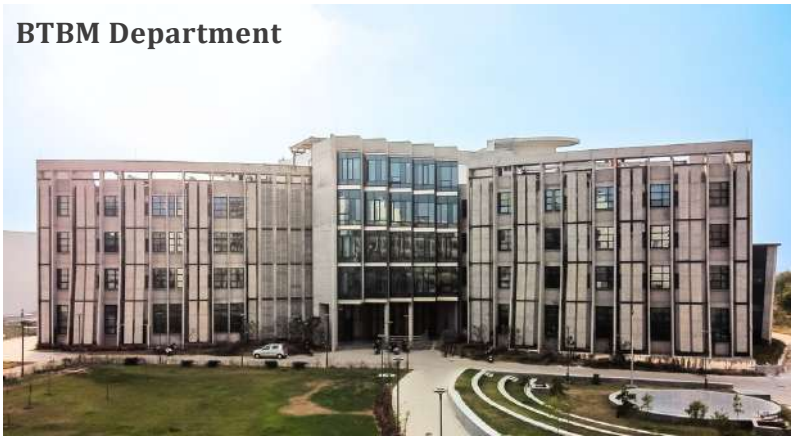
Married Students Housing

Students Hostel & Mess

Research Centre Complex

Lecture Hall Complex

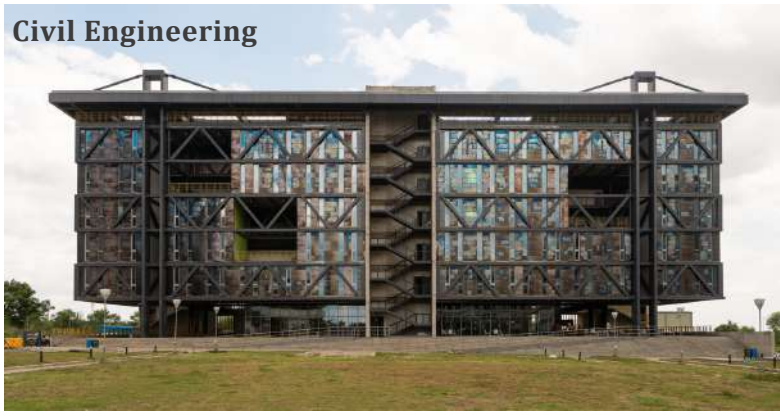

Chemistry Department


BTBM Department


Mathematics, Physics, & Liberal Arts Departments


Electrical Eng & Computer Science Engg. Department


Chemical Engineering


Civil Engineering


Mechanical and Aerospace Engineering


IITH Iconic Tower
I ♥ IITH

Non-Teaching Staff (FY 2024-2025)

S. No.	Name	Designation	Pay Level
Academic Section			
1	V S Sastry	Senior Assistant Registrar	11
2	Suresh Narayanan Nair	Senior Assistant Registrar	11
3	Archana Singh	Assistant Registrar	10
4	S V Sree Devi	Senior Section Officer	9
5	Rongala Lakshmi Prasanna	Senior Section Officer	9
6	S Hemalatha	Assistant Section Officer	7
7	Naveed MA	Assistant Section Officer	7
8	Mudavath Bahusingh	Executive Assistant	6
9	T Lavanya	Executive Assistant	6
10	Janardhankumar Tolana	Executive Assistant	6
11	K Sreenivasa Reddy	Senior Assistant	5
12	J Rebekah	Assistant	4
13	S Samuel	Junior Assistant	3
14	Bhimaraju Hemalatha	Junior Assistant	3
15	Anapa Krishna Prasad	Section Officer	8
Academics/ Students			
1	Pawar Chandra Prakash	Junior Technician	3
Administration			
1	V Venkat Rao	Registrar	14
Alumni and Corporate Relations			
1	Reddi Meena Kumari	Senior Section Officer	9
2	Vetrivel M	Assistant Section Officer	7
3	L Neeraja	Executive Assistant	6
4	Akarapu Chittaranjan	Multi Skill Assistant 1	1
Artificial Intelligence			
1	D Ravi Kumar	Technical Superintendent	8
2	Parimisetty Harinadha	Junior Technical Superintendent	6
Artificial Intelligence & Mathematics			
1	B Vinod Kumar Raju	Assistant	4
Biomedical Engineering			
1	Chavan Sagar Babanrao	Veterinary Doctor	10
2	Anbumani D	Technical Officer	10
3	Saransh Khandelwal	Senior Technical Superintendent	9
4	Krushna Chandra Hembram	Senior Technical Superintendent	9
5	Sairam M	Senior Technical Superintendent	9
6	Khandagale Sudarshan Baburao	Senior Technical Superintendent	9
7	B Jayalakshmi	Senior Technician	5
8	Pulla Prashanth	Junior Technician	3
9	J Manikyam	Junior Technician	3
10	Bandari Pooja	Junior Technician	3
11	Rebba Vinod Kumar	Multi Skill Assistant 1	1
Biotechnology			
1	Pulala Raghuveer Yadav	Senior Technical Officer	11
2	N Ashwini	Senior Technician	5
3	K Velmurugan	Senior Assistant	5
4	M Jayavardhana Reddy	Technician	4
5	Venkatakrishnaprasad SM	Technician	4
Central Workshop			
1	Malla Seetarami Naidu	Senior Technical Officer	11
2	Ajith Kanakambaran	Junior Technical Superintendent	6
3	Jeebanbandhu Mahanta	Junior Technical Superintendent	6
4	Vadla Brahma Chary	Senior Technician	5
5	A Praveen Kumar	Senior Technician	5
6	M Srinivas	Technician	4
7	Lohakare Pramod Maroti	Technician	4
8	Lingamaiah B	Technician	4
9	Dhananjay Sahoo	Technician	4
10	G Prashanth	Junior Technician	3
11	Ajay Kumar Kar	Junior Technician	3

Centre for Continuing Education			
1	Priyanka Patheparapu	Section Officer	8
2	D Sri Hari	Assistant	4
Chemical Enginering			
1	Nama Someshwar Rao	Senior Technical Superintendent	9
2	P Gayathri	Senior Technical Superintendent	9
3	V Bhadra Rao Koruprolu	Senior Technical Superintendent	9
4	Ramireddi Hari Krishna	Senior Technical Superintendent	9
5	P Nagarjuna	Senior Technician	5
6	Ch Venkata Krishnaiah	Junior Technician	3
7	Kavvampalli Srinivas	Junior Technician	3
8	Parla Somasekhar	Junior Assistant	3
9	Dasari Kirankumar	Junior Technician	3
Chemical Engineering & Materials Science and Metallurgical Engineering			
1	Cheemakurthi M Subhani	Multi Skill Assistant 1	1
Chemistry			
1	MD Samiuddin	Senior Technical Officer	11
2	Kota Venkata Satya Girish	Senior Technical Officer	11
3	Ashok Yeligeti	Senior Technical Superintendent	9
4	Gottapu Naga Satish	Executive Assistant	6
5	Pentakota Sree Ramana Babu	Technician	4
6	Poondla Vijaya kumar	Technician	4
7	Patange Rooby Clarest Melody	Technician	4
8	Surender B	Technician	4
9	Srinivas Pulimamidi	Technician	4
10	Singam Sampath	Junior Technician	3
11	Papiya Sadhu	Junior Technician	3
12	Chintha Anjali	Multi Skill Assistant 1	1
Civil Engineering			
1	Yaseen Sherief Mohammed	Senior Technical Superintendent	9
2	Jitendriya Raul	Senior Technical Superintendent	9
3	Bhukya Ramakrishna	Senior Technical Superintendent	9
4	Srikanth K	Senior Technical Superintendent	9
5	Gourav	Senior Technical Superintendent	9
6	Kaleeswaran P	Senior Technical Superintendent	9
7	Moganraj M	Technical Superintendent	8
8	S Mani Kumar	Executive Assistant	6
9	Kandhukuri Sandeep Kumar	Technician	4
10	Vishwanath B J	Technician	4
11	Rajesh Kumar	Technician	4
12	Muthyalu Kumar	Junior Assistant	3
13	Raviteja Gajawelly	Junior Technician	3
14	Kallepelli Pranaya	Junior Technician	3
Computer Center			
1	Imtiaz Ahmed	Technical Officer	10
2	Manivel R	Technical Officer	10
3	K Raguraman	Senior Technical Superintendent	9
4	Bondla Jessy	Senior Technical Superintendent	9
5	Sanju Kumar Chavan S	Senior Technical Superintendent	9
6	Mandlipalli Anil Kumar Reddy	Senior Technical Superintendent	9
7	Karn Choudhary	Senior Technical Superintendent	9
8	Manukonda Rahulteja	Junior Technical Superintendent	6
9	Gandepalli Surya Prakash	Assistant	4
10	Bandam Ganesh	Junior Technician	3
11	Ramavath Ashok	Junior Technician	3
Computer Science and Engineering			
1	T Vijaya Chakravarthi	Senior Technical Superintendent	9
2	Nakka Syamala Rao	Senior Technical Superintendent	9
3	Nikith Reddy Peddasheri	Technician	4
4	Maloth Sunitha	Technician	4
5	Praveenkumar Gaddam	Junior Technician	3
6	Marepally Shivakumar Reddy	Junior Technician	3
7	Kavali Kirankumar	Junior Technician	3
8	P P Hannah Daisy	Junior Assistant	3

Computer Science and Engineering & Computer Centre			
1	Bollavaram Harshavardan Reddy	Multi Skill Assistant 1	1
Construction and Maintenance Division			
1	K S Ravindra Babu	Superintending Engineer	13A
2	Mahankali Sateesh	Executive Engineer (Civil)	12
3	Sushant Vatsa	Executive Engineer (Electrical)	11
4	P Srinivasulu Yadav	Assistant Executive Engineer(Electrical)	10
5	S Pramod Kumar	Assistant Executive Engineer(Civil)	10
6	Menda Chiranjeevi	Assistant Executive Engineer (Civil)	10
7	Datla Praveen Kumar	Assistant Executive Engineer(Civil)	10
8	Patibandla Srikanth	Senior Assistant Engineer (Civil)	9
9	Vinay Kumar Beesa	Senior Assistant Engineer (Civil)	9
10	Altaf Hussain	Senior Assistant Engineer (Electrical)	9
11	Nadiminti Nagaraju	Senior Assistant Engineer (Electrical)	9
12	Vanam Aneesh	Senior Assistant Engineer (Electrical)	9
13	Sivakrishna Reddy	Senior Assistant Engineer (Electrical)	9
14	Surender Banoth	Senior Assistant Engineer (Civil)	9
15	Ponna Satyanarayana	Section Officer	8
16	Viyyuri Raja Babu	Assistant Engineer(Civil)	8
17	T Srinivas	Assistant Section Officer	7
18	Narla Kalyan Kumar	Executive Assistant	6
19	M Yedukondalu	Executive Assistant	6
20	Chityala Anand	Junior Engineer(Civil)	6
21	Gummadi Anil Kumar	Junior Engineer(Civil)	6
22	Amaraneni Sai Teja	Junior Engineer(Civil)	6
23	Saheli Saha	Junior Engineer(Civil)	6
24	Divakar Kumar	Junior Engineer(Electrical)	6
25	Rajana Sravanakumar	Junior Engineer(Electrical)	6
26	Tata Bapuji	Junior Engineer(Electrical)	6
27	Marmala Ranadeep Kumar	Junior Engineer(Civil)	6
28	Himanshu Tyagi	Junior Engineer(Electrical)	6
29	K Arun Kumar	Technician	4
30	Gosu Sreenivasu	Accountant	4
31	P Srinivas	Junior Assistant	3
32	Jakka Jagadish Kumar	Junior Technician(Civil Supervisor)	3
33	Muthyala Satheesh	Junior Technician(Civil Supervisor)	3
34	Chakali Papaiah	Multi Skill Assistant Gr.II	2
35	Bhoopal K	Multi Skill Assistant Gr.II (Plumber)	2
36	Nenavath Shiva Shankar	Multi Skill Assistant Gr.II	2
37	Begari Vinod	Multi Skill Assistant Gr.II (Carpenter)	2
38	Chinthala Satheesh	Multi Skill Assistant 1 (Electrical)	1
Design			
1	Kumawat Vijay Prakashchand	Senior Technical Superintendent	9
2	Rajkumar B	Senior Technical Superintendent	9
3	Satyendra Rajendraprasad Nishad	Junior Technical Superintendent	6
4	B Vivekananda chary	Technician	4
5	Raj Priyadarshan Jee B	Technician	4
5	Gopal Manthuri	Junior Assistant	3
Director Office			
1	M Eswar Reddy	Assistant Registrar	10
2	A Srinivas Rao	Section Officer	8
3	N Pradeep Kumar	Assistant Section Officer	7
Electrical Engineering			
1	R Thirumurugan	Senior Technical Officer	11
2	Chinmaya Panda	Technical Officer Gr I	10
3	Satheesh K Telagamsetti	Technical Officer	10
4	Aldhandi Suresh	Senior Technical Superintendent	9
5	Rajasekhar Jala	Senior Technical Superintendent	9
6	Simhadri Hari Prasad	Senior Technical Superintendent	9
7	Santhoshkumar S	Technical Superintendent	8
8	Suchismita Banerjee	Executive Assistant	6
9	Manne Prahaseeth	Junior Technical Superintendent	6
10	S Velmurugan	Senior Technician	5
11	Kodavandlapalle N Rasool	Senior Technician	5
12	Nagaraju Naddi	Technician	4
13	Manikanta PLG	Technician	4
14	Anup Kumar Shahi	Junior Technician	3
15	Y Prem Kumar	JuniorTechnician	3
16	Kalinga Chandra Mohan	Multi Skill Assistant 1	1

Engineering Science & Climate Change			
1	Palpanuri Madhu	Junior Assistant	3
Entrepreneurship and Management & Heritage Science and Technology			
1	Senivarapu A Archith Chandra	Junior Assistant	3
Finance and Accounts			
1	Jagadeswara Rao B	Deputy Registrar	12
2	Manchambhotla Phanindra Kumar	Senior Assistant Registrar	11
3	V S P Hanumantha Krishna	Senior Assistant Registrar	11
4	Potharlanka Sree Ramakrishna	Senior Section Officer	9
5	Bala Prakash T	Senior Section Officer	9
6	Rajashekhar Soudhari	Section Officer	8
7	Budeti Pradeep Babu	Assistant Section Officer	7
8	Sandolla Dasharath	Executive Assistant	6
9	Racha Praveen	Executive Assistant	6
10	Ramreddy Bharath Reddy	Assistant	4
11	Attaluri Jeevani	Accountant	4
12	Chetty Nikhil Kumar	Accountant	4
13	Chandrika Sai Teja	Accountant	4
14	Jithesh A	Accountant	4
15	Bolla Ramesh	Accountant	4
16	Lankalapalli Naga V Lakshmi Manikanta	Accountant	4
17	Chidhruppa Thimothi	Junior Assistant	3
GATE & JEE Office			
1	Ankamwar Satish	Assistant Section Officer	7
Green Office			
1	Mashetti Vamshi	Junior Horticulturist	3
2	Golla Vamsi Krishna	Multi Skill Assistant I	1
Greenko School of Sustainability			
1	Attela Jagannatha	Junior Assistant	3
Guest House			
1	Dhananjay K	Hospitality Management Assistant	6
2	Kotamla Srikanth	Multi Skill Assistant Gr.II	2
Hindi Cell			
1	Naveen Srivastava	Junior Hindi Translator	6
Hospital			
1	Kanaparthi Anilkumar	Principal Medical Officer	12
2	T Raja Adharnath	Senior Medical Officer	11
3	Baishakhi Chandra	Senior Medical Officer	11
4	Sonia Madhav Naik	Medical Officer	10
5	Avvari Vedavani	Physiotherapist	6
6	Buddala Venkata Satya Ramanamma	Staff Nurse	6
7	Lakkoji Manikanta	Multi Skill Assistant Gr.II	2
8	Takkoli Sivakrishnareddy	Multi Skill Assistant I	1
Hostel Office			
1	Palle Mohan Kumar	Assistant Registrar	10
2	Nandyala Bheemeswara Reddy	Executive Assistant	6
3	Razia Begum	Executive Assistant	6
4	George K T	Hospitality Management Assistant	6
5	K Satheesh	Senior Assistant	5
6	G Shyamala Kumari	Senior Assistant	5
7	G Vasantha Kumari	Senior Assistant	5
8	Banoth Deva	Accountant	4
9	S Swapna	Junior Assistant	3
10	Samiuddin MD	Junior Assistant	3
11	CH Guru Prasad	Multi Skill Assistant Gr.II	2
12	Batti Raja Sekhar	Multi Skill Assistant Gr.II	2
Human Resource Section			
1	Syed Ali Sabeer	Joint Registrar	13
2	Vayuvegula Surya Phani Kumari	Senior Assistant Registrar	11
3	Laxman Srigiri	Senior Assistant Registrar	11
4	Naresh Kandrathi	Section Officer	8
5	Venkanna Bolagani	Section Officer	8

6	MD. Mirza Raza Ali Baig	Executive Assistant	6
7	Nagaraju	Executive Assistant	6
8	Munganda Ramakesava	Assistant	4
9	Debarpita Parira	Assistant	4
10	M Sandeep	Junior Assistant	3
11	G Komala Priya	Junior Assistant	3
12	Velagandhula Karthik Kumar	Junior Assistant	3
13	Venkatesh Betha	Junior Assistant	3
14	Mubarakapuram Vyshnavi	Junior Assistant	3
Internal Audit			
1	G Vijay Kumar	Executive Assistant	6
2	Ramnaresh B	Multi Skill Assistant Gr.II	2
International Relations			
1	A Pranitha	Senior Section Officer	9
2	Azmath Ali SK	Executive Assistant	6
Liberal Arts			
1	Abani Kumar Das	Assistant Section Officer	7
2	Anjaneyulu Botta	Technician	4
3	Maloth Harish Naik	Junior Technician	3
Library			
1	C Mallikarjuna	Deputy Librarian (NFS)	13
2	Bhojaraju Gunjal	Chief Library Officer	13
3	Kimidi Siva Shankar	Assistant Librarian	11
4	Haseena V K K M	Library Information Assistant	6
5	Jayanta Kumar Sahu	Library Information Assistant	6
6	Gajanand Kumar Kaushik	Library Information Assistant	6
7	Sajan C S	Junior Library Information Assistant	3
8	Suchita Sahoo	Junior Library Information Assistant	3
Management Services Section			
1	Muniganti Badrinath	Joint Registrar	13
2	Md Jameel	Senior Assistant Registrar	11
3	T Vijay Anand	Senior Section Officer	9
4	Nalla Srinivas	Assistant Section Officer	7
5	Gogula S L Vanama Raju	Executive Assistant	6
6	Guntur Vimala	Junior Assistant	3
7	A Pushpalatha	Junior Assistant	3
8	B Rajander	Junior Assistant	3
9	Mohammed Faheem Khan	Multi Skill Assistant 1	1
Materials Science and Metallurgical Engineering			
1	B Balavandhi Raju	Senior Technical Officer	11
2	Upender Sunkari	Senior Technical Officer	11
3	Yarajani Sravani	Senior Technical Superintendent	9
4	Muriki Laxminarayana	Senior Technical Superintendent	9
5	Mohammad Abdul Junaid	Senior Technical Superintendent	9
6	Paramita Maiti	Technical Superintendent	8
7	Harish Ramineni	Executive Assistant	6
8	Manche Venkata Srinivas	Senior Technician	5
9	E Rangaiah	Senior Technician	5
10	Nalam Divakar	Technician	4
11	Saimatha Gannabathula	Technician	4
12	Mohammed Salman	Junior Technician	3
Mathematics			
1	Anand V	Senior Technical Superintendent	9
2	Katam Santhosh Reddy	Junior Technical Superintendent	6
3	Dumpala Raju	Junior Assistant	3
Mechanical and Aerospace Engineering			
1	Vootla Srikanth	Senior Technical Officer	11
2	Raju P	Senior Technical Officer	11
3	Ramu G	Senior Technical Officer	11
4	Pandicheri Madhu	Senior Technical Superintendent	9
5	Ajith A	Senior Technical Superintendent	9
6	Rekhala Vikram	Junior Technical Superintendent	6
7	Munugala Dakaiah	Junior Technical Superintendent	6
8	Vallakonda Santhosh kumar	Executive Assistant	6
9	S Jagadeesan	Senior Technician	5
10	Mohd. Abdulla	Senior Technician	5
11	Marepally Praveen Kumar	Technician	4
12	Pillai Madhushankar Subramonia	Technician	4
13	A Dinesh Chakrapani	Junior Technician	3
14	Darelli Pullarao	Junior Technician	3
15	Erry Srikanth	Junior Technician	3
16	Vikram Singh Kanawat	Multi Skill Assistant	1
Office of Career Services			
1	K Malini	Senior Section Officer	9
2	Lalit Kishor Sharma	Multi Skill Assistant 1	1

Office of the Dean (ITS)			
1	Anurag Pandey	Executive Assistant	6
Physics			
1	T Naaraayanan	Senior Technical Officer	11
2	T Chengappa	Senior Technical Superintendent	9
3	Ranjit Kumar	Senior Technical Superintendent	9
4	Kanchugantla Rameshyadav	Senior Technical Superintendent	9
5	Vadla Anjaiah	Technician	4
6	Samaresh Basani	Technician	4
7	Shivaram Lakum	Technician	4
8	Vasudevarao Pavuluri	Junior Technician	3
9	Guhan K	Junior Technician	3
10	Kuntla Reddy Sekhar	Junior Technician	3
11	Sunnam Goutham Raj	Junior Assistant	3
12	Maatla Vishal	Multi Skill Assistant Gr.II	2
Registrar Office			
1	Beera Suresh Kumar	Executive Assistant	6
2	Samala Rajashekar	Junior Assistant	3
Safety Office			
1	Pyaram Purushotham	Security officer	12
Security Office			
1	M Sreejith (Retd)	Chief Security Officer	13
2	Prasad Boppa	Multi Skill Assistant I	1
Sponsored Research Consultancy Section			
1	Gajula Ashok	Deputy Registrar	12
2	N Srisailam	Senior Assistant Registrar	11
3	Saikiran K	Assistant Registrar	10
4	Syed Sadique Ali	Senior Section Officer	9
5	Mahaboob Moonavath	Assistant Section Officer	7
6	K Shiva	Executive Assistant	6
7	Narayana Ramanjaneyulu	Senior Assistant	5
8	Gollapalli Nagesh	Accountant	4
9	Santosh Kumar Sahoo	Accountant	4
10	Thakkar Nihit Deep	Accountant	4
11	Pradeep Kumar Jada	Multi Skill Assistant Gr.II	2
Sports Department			
1	Vikram Pratap Singh Bundela	Sports Officer Gr I	10
2	Md. Akbar	Sports Officer Gr I	10
3	Baba Aditya Varma P	Sports Officer Gr I	10
4	Ruchi Yadav	Sports Officer Gr I	10
5	Hardeep	Sports Officer Gr I	10
6	Kherkar Purva Ganeshrao	Physical Training Instructor	6
7	Anil Kumar Kushwaha	Physical Training Instructor	6
8	Mallikarjun	Physical Training Instructor	6
9	Rohit Pathariya	Physical Training Instructor	6
10	Uppuleti Chandramouli	Accountant	4
Stores and Purchase			
1	Doddi Chanchala Devi	Joint Registrar	13
2	M Venkatesh	Senior Assistant Registrar	11
3	K Ramesh Kumar	Assistant Registrar	10
1	Sady Sarala	Senior Section Officer	9
2	Vijaya Lakshmi A	Assistant Section Officer	7
3	Sonawane Gunavant Narayan	Executive Assistant	6
4	Sankarreddy A	Executive Assistant	6
5	Dinakar Pyla	Executive Assistant	6
6	S Thirunavukkarasu	Assistant	4
7	N Aruna	Assistant	4
8	N Shivakumar	Assistant	4
9	Arun Kumar Chidruppa	Junior Assistant	3
10	M Rajashekar	Junior Assistant	3
Students Office			
1	Mohsin Mohammed	Senior Section Officer	9
2	L Dinesh	Assistant	4
Students Office & Academics Section			
1	Rajnesh MP	Rajnesh MP	12
Sunshine			
1	Maria Josephine Susan Morris	Senior Psychological Counselor	11
2	Yukti Rastogi	Assistant Psychological Counselor	9
3	Devatha Phani Bhushan	Assistant Psychological Counselor	9

13th Convocation

"May you be those heroes of science that a Viksit Bharat demands. May you bend your efforts towards ensuring that technology uplifts the masses, not divides them further", said by the Chief Guest Shri B.V.R. Subrahmanyam, IAS, CEO of NITI Aayog, on the 13th Convocation of IIT Hyderabad.


दीक्षांत समारोह
ई टी हैदराबाद
तेरहवाँ THIRTEENTH
दीक्षांत समारोह CONVOCATION
आई आई टी हैदराबाद IIT HYDERABAD

IIT Hyderabad

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