किरIITH

The crowning glory

A quaterly e-newsletter of IITH| Issue - 9 | Jan 2022

#Integrated Computational Engineering Research @IITH

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

"Take risks in your life if you win, you can Lead! If you lose, you can guide!"

- Swami Vivekananda

A humble tribute to

Swami Vivekananda

on his 159th Birth Anniversary

Editorial Epistle

Dear Readers,

We hope you are doing well!

Inpired by your continuous support , we are pleased to present the 9th issue of किराIITH.

Alike every time, this issue of किराIITH is also being dedicated to one of thrust research areas of IITH. We are glad to release seven theme-based issues of किराIITH, namely, COVID-19, AI, Healthcare, IITHinJapan, 5G & Next-Gen Tech, NanoTech. & Energy. Following this precedence, किराIITH is back with yet another critical thrust area of IITH **"Integrated Computational Engineering"**.

We hope this issue of किराIITH - The Crowning Glory, Issue-9, January 2022 #ICEResearch @IITH will give you a stimulating experience about exceptional research work being carried by the IITH fraternity.

This issue of किराIITH is released to pay a humble tribute to **"Swami Vivekananda, an inspiration to the youth" on his 159th birth anniversary on Jan 12, 2022.**

किराIITH will be back next quarter with another trending research area. So, stay connected.

We wish everyone a safe and healthy stay.

Have a great year ahead...

Enjoy reading!

> **"Excellence is doing ordinay things extraordinarily well"**
>
> **- John William Gardner**

Prof C. Krishna Mohan
(Dean – Public & Corporate Relations)
{Editor-in-Chief}

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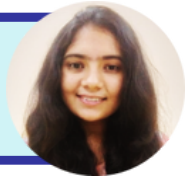
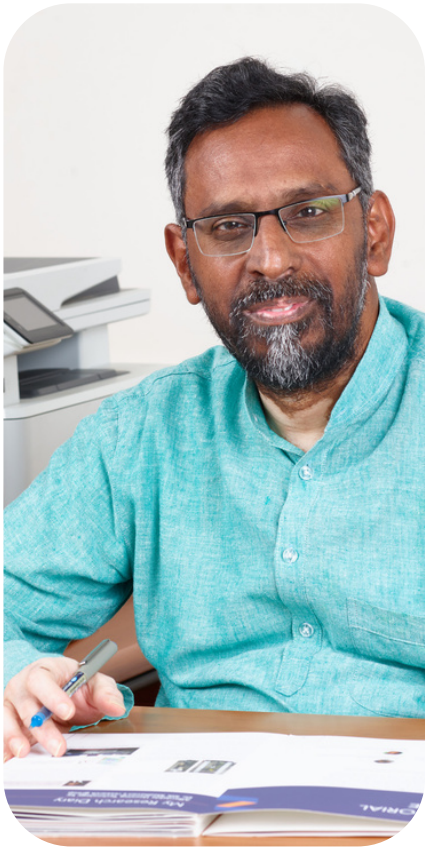


Inside the Issue

Director's Desk

Prof B S Murty



Dear Friends,

We hope you are doing well!

New year greetings to you & your family.

Though we are struck by the third wave (Omicron) when we look at all hurdles we have overcome in the past, I am confident that we will surely pass this phase too very soon. We have moved back to the online class, and safety precautions are followed for the well-being of every resident of the campus. COVID-19 was never a speed breaker in our last two years' journey. We have not only set a new benchmark in academics & research but also elevated the campus's experience.

In the last 3 months, we had Alumni Meet, Inaugrated Biotechnology & Biomedical Department Building, renovated Institute Data Centre to aid the research & development activities on the campus.

Research is ongoing perseverance and many steps have been taken to strengthen the research base at IIT Hyderabad.

In the recently annouced Atal Ranking of Institutions on Innovation Achievements [ARIIA] by Ministry of Education, IITH has been ranked 7th, a significant growth from the last year's 19th. rank.

This reflects our commitment to our motto, "Inventing and Innovating in Technology for Humanity (IITH). IITH, for the first time, performed better in one of the national rankings than 2 of the first Gen IITs.

Another advancement in our research portfolio is the MoU with institutes & organizations of International repute. Namely, **SNU South Korea, I m beside You, Japan, AIST, Japan & ARAI, Japan.**

To prepare our students for future technological needs, we have launched 3 new BTech programs in Computational Engineering, Industrial Chemistry and Biotechnology & Bioinformatics. Our expertise in the field of Computational Engineering can even be gauged with the fact we dedicated the entire issue of KirIITH to bring forward the execellent research being done in the field of Integrated Computational Engineering (ICE).

We are happy to bring to you the **9th issue of किरIITH on ICE Research @IITH.** I hope you will all enjoy going through this informative issue.

Stay Safe, Healthy & Happy...

> **"It is never too late for a new beginning in your life".**
>
> **- Joyce Meyers**

Dean's Diary

Exploring Extremes

Prof Pinaki Prasad Bhattacharjee, Dean (International & Alumni Relations)

Dear Friends,

It is a pleasure and privilege to highlight the activities and achievements of the international and alumni relations (IAR) office in the last year. I am particularly delighted to know that this article will be published on the auspicious birthday of Swami Vivekananda (January 12), a global icon of Indian philosophy and Indianness in the true sense.

Building strong research and academic collaborations with international partners has been at the forefront of our international relations strategy. Towards this end, we now have two ongoing joint doctoral programs with two Australian Universities, namely Swinburne University of Technology (SUT) and Deakin University (DU). While the JDP with SUT was initiated in 2017, the JDP with Deakin U was established in 2021 only. To attract bright students to these two JDPs, the JDPs were advertised separately. We received close to 400 applications for each of these JDPs against the sanctioned strength of 20 positions in each, indicating an acceptance rate of less than 5%. In the coming academic year, we also plan to implement the JDP with National Tsinghua University (NTHU), Taiwan.

Recently we have signed an MoU with the National Institute of Materials Science (NIMS), Japan, one of the most renowned places globally for research in materials science and engineering, for collaboration on cutting-edge research, student, and faculty exchanges. We have also executed an MoU with Seoul National University (SNU), a top-ranking university in South Korea, for academic and research collaboration. An area of utmost importance for us is increasing the number of international students at IITH. We strongly believe that in addition to positively affecting the visibility and ranking, the growing number of international students adds to the ethnic and cultural diversity. Although the number of international students is increasing, supported by various scholarship programs of the Government of India, including ICCR, ASEAN, and EdCIL, the number is still rather small. To provide the much-needed fillip in this direction, we have for the first time introduced a dedicated scholarship program, "Fellowship for International Research Scholars in Technology (FIRST@IITH)," with an attractive fellowship and liberal contingency grants for international students interested in pursuing doctoral studies at IITH. We are hopeful that the FIRST program will be successful in achieving the stated goals in the future.

In parallel to the hard approach of offering attractive fellowships, we also focus on the soft approach to make IITH a destination of choice for international students. We have decided to celebrate a day of the year as International Students Day at IITH to enhance the mutual understanding of our culture, society, food, music, etc. We are committed to making IITH a home away from home for the international students.

Collaboration with Japanese academic/industry/R&D through JICA in the framework of the FRIENDSHIP project has been a cornerstone of our international relations. The successful implementation of the phase-1 project has been instrumental in getting phase-2 of the project sanctioned. The phase-2 will support IITH students to pursue doctoral studies at Japanese universities besides supporting IITH faculty for forging strong collaboration with Japanese academic and R&D institutions. The scholarship program under the FRIENDSHIP Phase-2 project for the academic year 2022-23 has just been announced.

IITH over the last decade had graduated about 4400 alumni across various streams. In any higher educational institution, alumni are one of the key stakeholders and have great interest in seeing their alma mater grow in stature. Engaging alumni with the alma mater has been very well done by many US and European universities. In India, many institutions have started Development offices to engage with alumni. IITH is one of the early institutions among the second generation IITs to start the Development office to work at the interface of the IAR and PCR offices. This office commenced its operations with one executive and a consultant.

Within 7 months, the office has progressed well in multiple areas. Having a detailed database of alumni is important to engage with alumni. We have about 3400 alumni records with contact details out of a total alumni strength of 4400.

The office has implemented salesforce CRM as the back-end database management system and campaign management tool. The office has also built a front-end giving platform –https://giving.iith.ac.in/, wherein alumni can contribute to their philanthropic interests very easily. Corporate Social Responsibility is another area, the development office has started to work on. Corporates spend 2 % of their profits on CSR-related projects that impact society.

> **"Strength doesn't come from physical capacity. It comes from an indomitable will"**
>
> **-Mahatma Gandhi**

IITH is positioning itself as a worthy institution, capable of utilizing the CSR funds for greater social impact. In the years to come, the Development office will play a critical role in the growth of IITH.

I want to convey my sincere thanks to the director, colleagues, and everyone involved for their continuous support and encouragement.

I wish safety to one and all in these trying and difficult pandemic times.

Dean's Diary

Synopsis - Students' Activities

Prof Rajalakshmi P, Dean (Students)

It is my pleasure to share the student activities at IIT Hyderabad in this issue of the Institute's Newsletter किराIITH "ICE (Integrated Computational Engineering) Research @IITH".

Hope all the students are safe and doing good.

Students at IITH excel both in academics and extracurricular activities. During the pandemic, the Gymkhana - student body of IITH conducted many online events through the various clubs, including Quarantine Cooking Challenge, Poster Making Competition, Slogan Writing Competition, Drawing Competition, Mandala Art Challenge, Online Quiz Competition, and Poetry Competition.

IITH has managed to do its best for the students both physically and mental well-being of the students, during this pandemic situation. Regular online yoga sessions are being conducted to help the students maintain good health and be fit. YouTube channel was launched to help students access fitness-related videos from home. Morning and evening fitness sessions are organized for the benefit of the student community.

A hockey tournament was conducted to commemorate Major Dhyanchand's birthday in August 2021. Institute Swimming pool operations have started. One-day internal tournaments of football/Baseball were also conducted.

Sunshine – counseling cell at IITH, has conducted individual, group, and interactive sessions for the students through various online modes. Articles on motivation, power of self-confidence, managing difficult emotions, etc. were periodically shared with the students. The Sunshine Team of IITH has started the Buddy program with the intention of taking care of all the students in the IITH Community. Daily open house sessions are being conducted. Sunshine app and website with improvements is relaunched. The Newsletter ("Sunshine Pulse") is launched twice in an academic year. Events like Vlogathon Competition Treasure/ Scavenger hunt, Slow Cycle Race, Plantation Drive, Mental Health Week events, etc were organized. Plantation Drive on World Suicide Prevention Day (10th September 2021) and World Mental Health Awareness Activities from- 5th October- 10th October 2021 (Mental Health Week) were conducted. Pre-placement talks by the Alumni and Placement sessions by the Psychological Counsellors are also conducted.

"Ek Bharat Shrestha Bharat" (EBSB) Club of IITH observed International Yoga Day with full enthusiasm in online mode which was a huge success with participation from many students, faculty, and staff.

Extra Mural Lectures at IITH intend to bring eminent personalities from eclectic domains on one platform to talk about various subjects like art, social work, economics, psychology, sports, science, etc and inspire the IITH fraternity with insights.

We had speakers from a wide spectrum of areas like A talk on Cognitive thinking and math exercise by Mr. Neelakantha Bhanu Prakash, An interactive session with Dr. Gagandeep Kang India's Vaccine Godmother, Through the journey of Lt Gen Dr. Madhuri Panikkar, How Yoga Benefits Our Mind & Body by Dr. Tejaswini Manogna, Impact of advancing space technology in improving quality of human life by Dr. Yagnaswami Sundara Rajan, Indian Higher Education: The New Education Policy Viewed Through the Lens of Recent History by Prof.P. Balaram, Need for more women scientists by Prof. Rohini Godbole, Cancer, and diabetes as two sides of the same coin- a common approach to both diseases by Dr. Undurti Narasimha Das.

The annual techno-cultural fest of IIT Hyderabad, ELAN & NVision offers a host of exciting competitions to test one's skills, informal events, and pro-shows to the event unforgettable.

Milan - The General Championship is a 10 days long inter-hostel celebration including Sports, Cultural Events, and SciTech activities. The objective is to promote cohesiveness among the students. Many students from IITH actively participated in Inter IIT Tech Meet held in other IIT's and bring laurels to IITH by winning prizes in various competitions held during the meet.

The NSS team at IITH is actively involved in various community development programs like UDAAN - Study centre where the students teach underprivileged children free of cost; Vidhaydhaan - Remedials to clarify concepts/doubts of school kids through traditional, fun way and short videos; Swacchatha he Seva and Plastic waste-free campaigns; Orphanage visit; National Education Day; Clean India Drive; and Fit India Movement. The first Saturday of every month is identified as 'Green Day of Month', where students participate in the mass plantation on the campus along with faculty and staff.

> **"We cross infinity with every step; we meet eternity in every second"**
>
> **-Ranbindranath Tagore**

The NSS team has recently donated an old mattress 61 No. to an orphanage.

To promote creativity and innovation among students, IITH has started the BUILD program – Bold and Unique Ideas Leading to Development. Under this program, student projects with a novel idea are supported for 6 months up to a funding of 1 Lakhs for prototype development. A total of 9 projects were selected for implementation in July 2021.

Hostels at IITH have top-class facilities like rooms with Radiant Cooling Technology, Recreation Centre, Highspeed Internet Connectivity, Mess, Gym, Indoor Games, TV Room, Dance Room, Banking Services, 24X7 Medical Service, Canteen facility and Security. Due to the pandemic, considering the safety of students, IITH advised them to return home in mid of March 2020. Recently, IITH has started bringing students back to campus in stages, starting from 10 August 2020, adopting all necessary safety measures.

Hoping to see all students back to campus and resuming all activities in full swing on campus.



Executive Diary

Integrated Computational Engineering @IIT Hyderabad

Dr Saswata Bhattacharya, Dr Niranjan Ghaisas & Prof Raja Banerjee (L-R)
IIT Hyderabad

With the advent of digital manufacturing and Industry 4.0, India foresees a rapid surge in the use of digital technologies such as Artificial Intelligence, High Performance, and Cloud Computing, Internet of Things, etc. spanning across industrial sectors ranging from aerospace, automobile all the way to biotechnology and healthcare. An important aspect of Industry 4.0 is a strongly networked and integrated Cyber-Physical System and automation of the workplace with a high dependency on Artificial Intelligence. In the past few decades, India has developed strong bachelor's and master's programs in Computer Science and Information Technology that have spawned globally competitive IT and ITES industries. Although India is known for its robust programs in core engineering disciplines, modern industries rely on computational tools to design and analyze products and processes to create a digital twin. To address this need from the Industry, new curricula should be developed to produce highly trained, skilled human resources that can develop and implement computer models and simulation tools. Such manpower will complement the already existing skilled workforce trained in traditional core engineering disciplines.

Modern education needs to be more interdisciplinary in nature and prepare graduates who can rapidly conform to the ever-changing job market. This has also been emphasized in the National Education Policy, 2020, according to which all modern curricula should be cognizant to the requirement of the rapidly evolving industry needs. IIT Hyderabad has always been at the forefront in developing new and flagship programs e.g., undergraduate and postgraduate programs in AI and Mathematics and Computing. It has recently introduced one new undergraduate and two new postgraduate programs with the intent to create such a skilled workforce that will develop and apply engineering software to solve cutting-edge problems in engineering.

BTech in Computational Engineering

Computational Engineering is envisaged to be an interdisciplinary program. Fig. 1 shows the four major components in the curriculum layout of Computational Engineering. These include (a) Applied Mathematics, (b) Core Engineering, (c) Data Structures & Analytics, and (d) Computational Applications **(Fig. 1).** Through these four pillars of the program, the student will gain proficiency not only to develop and apply various computational methodologies but also to get trained in important topics of core engineering so that the bridge between computational solutions and physical principles is established.

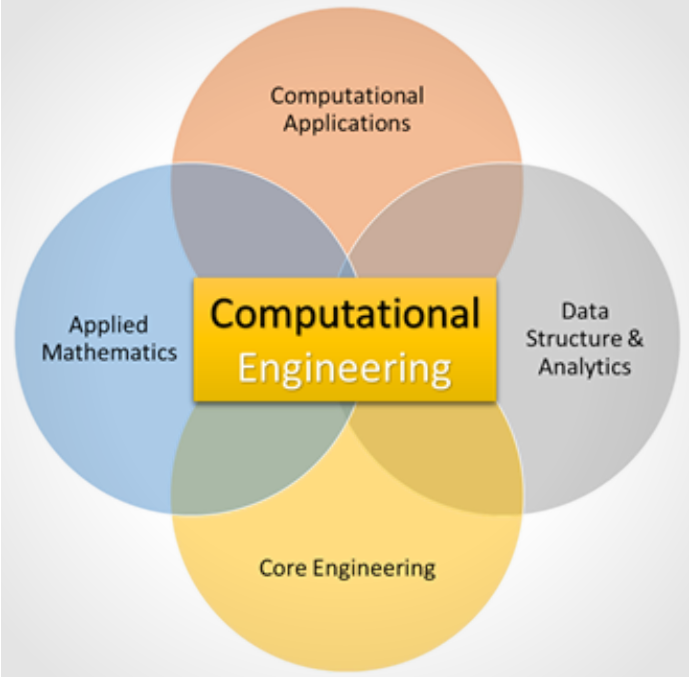


Fig. 1: Program Layout

This curriculum is designed keeping in mind the T **shape**. The breadth of the curriculum is achieved from courses in Core Engineering and Applied Mathematics that will help the students learn fundamental concepts of core engineering subjects and the associated mathematics. The **Depth** of the curriculum is achieved by introducing the students to various computational methods that include fundamentals in scientific computing, data structures, and analytics, and the design and application of computational tools. The **breadth** courses are expected to give insight into the fairness of the solutions obtained using the methodologies taught in the depth courses. Hence, the depth courses need to be supplemented by the breadth courses. **Fig. 2** illustrates this unique design of the curriculum.

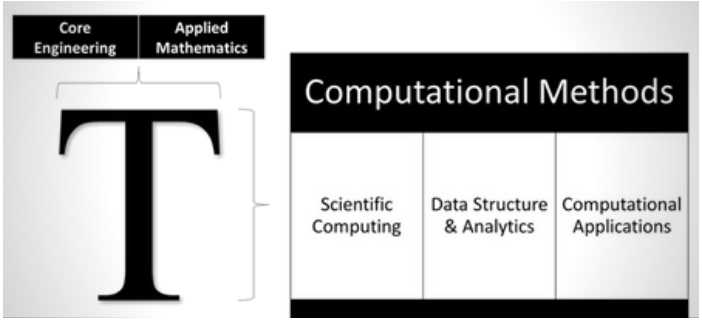


Fig. 2: The T design

MTech program in ICME

The Master's program in Integrated Computational Materials Engineering (ICME) is a unique interdisciplinary program designed exclusively for professionals working in industries and research organizations. The purpose of this program is to teach professionals from various industries an accelerated approach to design materials and products concurrently and synergistically. This course aims to teach the principles of materials design, modeling tools at multiple length scales and timescales **(Fig.3)**, and their applications in linking processing-structure-property-performance relations in materials to address issues related to product design and application.

MTech program in Computational Mechanics

The online MTech in Computational Mechanics is a unique program offered by the Department of Mechanical and Aerospace Engineering @IITH which will train students to solve multidisciplinary problems related to mechanical systems using computational techniques. The program combines elements of numerical methods and scientific computing with fundamental principles in solid mechanics, fluid mechanics, design, and vibrations **(Fig. 4)**. Graduates of this online MTech program will be well equipped to address technological challenges in industries in the automotive, oil and natural gas, renewable energy, defence, and manufacturing sectors.

Research in Integrated Computational Engineering

In IIT Hyderabad, faculty are actively engaged in research and development in various aspects of Integrated Computational Engineering. More than fifty faculty are actively engaged in research related to various disciplines of computational engineering including computational biology, process modeling, optimization and control, high-performance computing, FEA, CFD, materials modeling, etc. This has resulted in over 1400 journal and conference publications and close to 180 PhD. students (inclusive of graduated and ongoing). Recently the institute Data Centre has been substantially revamped to cater to the growing needs of faculty's computational research. Additionally, an 800 TFlop state-of-the-art HPC cluster, Param Seva, has been commissioned under the aegis of the National Supercomputing Mission. This will substantially boost high-fidelity computational modeling and simulations and will help in cutting-edge research in this field.

Vision for the future

IIT Hyderabad has made a concentrated effort in teaching and research in the field of Integrated Computational Engineering. Several groups in IITH are engaged in developing sophisticated computational tools that will immensely help in the advancement of the digital capital of the country. Through this effort at IITH with Industry as stakeholders, we envision a sustainable and innovative ecosystem that will generate human and knowledge capital for the country.

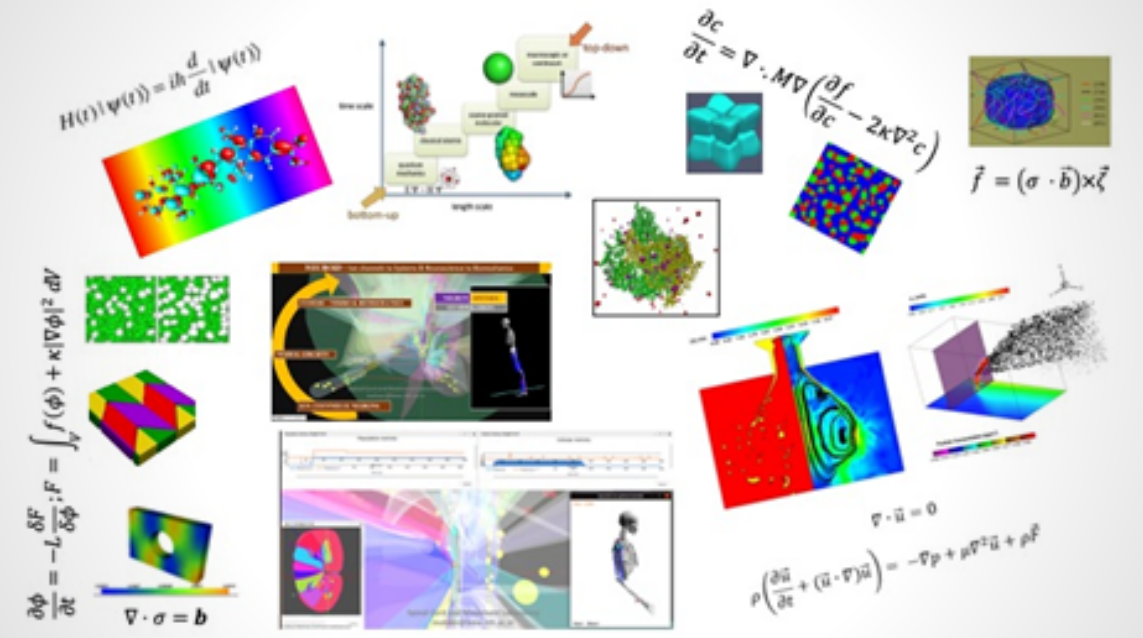


Fig. 3: Multiscale Materials Design

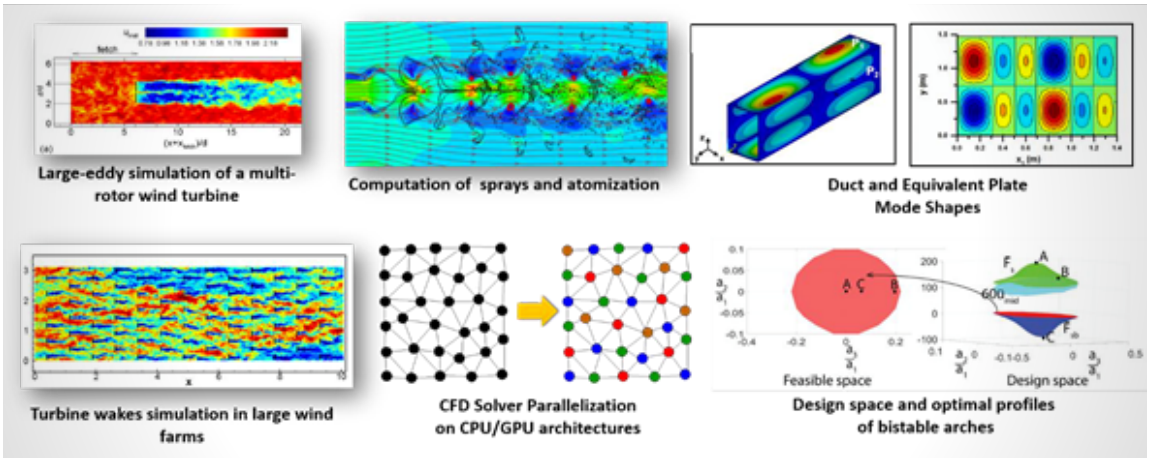


Fig. 4: Elements of Computational Mechanics

Hindi Diary/हिन्दी डायरी

एकीकृत अभिकलनात्मक अभियांत्रिकी

डॉ प्रखर गुप्ता, सहायक प्रोफेसर
सूक्ष्म प्रयोगशाला, यांत्रिक एवं वांतरिक्ष अभियांत्रिकी
विभाग, आईआईटी हैदराबाद

विज्ञान एवं अभियांत्रिकी के आधुनिक युग में, नए पदार्थो एवं उत्पाद की खोज में मनुष्य एक नए आयाम की ओर अग्रसर हो रहा है| यद्यपि कुछ प्रयोगों के तहत हम अनूठे गुणधर्म वाले पदार्थ उत्पन कर सकते है, परन्तु इसके उत्पात एवं परीक्षण के लिए अति धनराशि का प्रयोग होगा | क्या मनुष्य के पास इसका कोई समाधान है? प्रौद्योगिकी के इस युग में, संगणक (कंप्यूटर) मानव के लिए वरदान के रूप में प्रमाणित हुआ है| संगणक अनुकार के माध्यम से आज हम नए उत्पात तथा उनका परीक्षण सर्वप्रथम संगणक पर करने के पश्चात वास्तव रूप में उत्पन कर सकते है | इस सन्दर्भ में , आईआईटी हैदराबाद ने आधुनिक अंतर्विषयी शिक्षा के तहत अभिकलनात्मक अभियांत्रिकी में प्रौद्योगिकी में स्नातक पाठ्यक्रम का आरंभ किया है | यह पाठ्यक्रम भारत सरकार की एन ई पी २०२० नीति के अनुरूप है |

एकीकृत अभिकलनात्मक अभियांत्रिकी (इंटीग्रेटेड कम्प्यूटेशनल इंजीनियरिंग) उपागम के माध्यम से भावी अभियंता नवीन पदार्थ एवं प्रक्रियाएं विकसित कर सकेंगे | इसके अलावा, वह अभिकलनात्मक तथा भौतिक सिद्धांत में समजस्य स्थापित करेंगे |

भारतीय प्रौद्योगिकी संस्थान हैदराबाद में राजभाषा कार्यान्वयन समिति का गठन एवं उसका उद्देश्य

श्री नवीन श्रीवास्तव
हिंदी प्रकोष्ठ

भारत सरकार की राजभाषा नीति का अनुपालन करते हुए हमारे संस्थान में इस वर्ष जनवरी में राजभाषा कार्यान्वयन समिति का पुनर्गठन किया गया है | इस समिति की हर तिमाही में एक बैठक आयोजित होती है | जिसमे संस्थान में राजभाषा हिन्दी के कार्यान्वयन को बढ़ावा देने के लिए महत्वपूर्ण निर्णय लिए जाते हैं | संस्थान के निदेशक इन बैठकों की अध्यक्षता करते हैं | यह समिति सदैव भारत सरकार के शिक्षा मंत्रालय एवं राजभाषा विभाग, गृह मंत्रालय द्वारा जारी आदेशों/दिशा-निर्देशों के संवैधानिक उपबंधों का संस्थान की परिस्थितियों एवं सीमाओं के अन्तर्गत पालन करने के लिए कटिबद्ध है |

सरकारी कामकाज में राजभाषा हिन्दी का प्रयोग करना हमारा संवैधानिक दायित्व है |

आईए, हम यहाँ से प्रारंभ करें:-

- लिफाफों पर पते हिन्दी में लिख सकते हैं|
- फाइलों, रजिस्टरों, फोल्डरों आदि पर विषय हिन्दी में लिख सकते हैं|
- फाइलों पर टिप्पणियाँ (Remarks) हिन्दी में लिख सकते हैं|
- हिन्दी में प्राप्त तथा हिन्दी में हस्ताक्षरित किसी भी पत्र का उत्तर हिन्दी में ही दें|
- कार्यशालाओं, संगोष्ठियों, व्याख्यानों आदि के बोर्ड एवं बैनर, निमंत्रण पत्र, पोस्टर आदि सामग्री द्विभाषी रूप में तैयार करवाएं|
- डाक रजिस्टर में प्रविष्टि हिन्दी में कर सकते हैं |

आप क्या कर सकते हैं:-

“बातचीत हिन्दी में,
अपने हस्ताक्षर हिन्दी में,
जो हिन्दी सीख रहे हैं उनकी सराहना,
अपने दैनिक सरकारी कामकाज में हिन्दी का प्रयोग|”

संस्थान के सभी सदस्यों का यह संवैधानिक दायित्व है कि वे अपना दैनिक कार्यालयीन कार्य हिन्दी में करें और अन्य लोगों को भी करने हेतु प्रोत्साहित करें|

मेरी माँ

नमन विक्रम
बीटेक प्रथम वर्ष, आईआईआईटी रायचूर

मेरी माँ जिसने मुझे है जन्म दीया ,
जिसने अपने हर लम्हे को मेरे नाम किया,
उस माँ का कैसे करूँ गुणगान,
तेरे आगे तो फीका लगे भगवान|
जिन आँखों में आंसू थे,
उन आँखों में ख्वाब तूने भरे,
बस यह तो बता दे माँ,
कि तेरा शुक्रिया कसे अदा करें?
उन लड़कडाते कदमों को मंजिल तूने दिखाया,
जिसने मेरा हाथ थाम कर मुझे चलना सिखाया|
देकर मुझे अपने आँचल की छाया,
माँ की ममता को तूने दिखाया|

चलते-चलते जब जीवन के सागर में,
लहरों ने मुझे थका दिया|
तब तूने मेरा हाथ थाम कर,
मुझे किनारा दिखा दिया|
लेकर तेरे सपने माँ, चलता रहा मैं जीवन के सागर में ,
लहरों को मैने थका दिय|
माँ ,जब मैंने तेरी ममता को ज्ञान लिया,
तब जीवन ने मुझे काबिल बना दिया|
जब माँ, मैंने तुम्हे ही अपना ईश्वर लिया मान,
तो किस्मत भी हो गई मुझपे मेहरबान|
हे माँ, तेरा मैं कैसे करूँ गुणगान,
तेरे आगे तो फीका लगे भगवान|

Hindi Diary/हिन्दी डायरी

एक छोटीसी कण है करोना

श्रीमती एस वी श्री देवी
अनुभाग अधिकारी, मानव संसाधन अनुभाग

एक छोटा सा वायरस है कोरोना ।
बड़ी आफत की पुड़िया है कोरोना ।
हर एक को डर में डुबोया है कोरोना ।
इंसान को झकझोर रहा है कोरोना ।।

भेदभाव नहीं कोई कर रहा है कोरोना ।
हर एक को छूकर निकल रहा है कोरोना ।
ज़िन्दगी और मौत के बीच खड़ा है कोरोना ।
चाहे जिसकी जान ले रहा है कोरोना ।।

ठहर-ठहर कर आना लगता इसका षड्यंत्र है ।
जहान को शमशान बनाना लगता इसका कुतंत्र है ।
इस कारण सबका मन अशांत है ।
न जाने कब होगा इसका अंत है ।।

क्यों डरें कब तक डरें ।
बेवक्त कोई क्यों मरें ।
चलो अब तो दिल में ठान लें ।
इसके फैलने की वजह जान लें ।।

संयम से काम लेंगे ।
दो गज की दूरी ना भूलेंगे ।
मास्क, वैक्सीन ना छोड़ेंगे ।
कोरोना को मार भगायेंगे ।।

हिंदी मेरी मातृ भाषा, मेरी माँ की परिभाषा

श्रीमती मिताली अग्रवाल
जनसंपर्क अधिकारी

एक जन्म देती हैं और एक सनम देती हैं,
बिना जन्म दिए जो मा सा प्यार दे
वह सासुमाँ होती हे।
वो संग संग फेरे तो नहीं लेती,
परंतु साथ जन्मो का रिश्ता बांध देती हैं|

मेरी सासुमाँ श्रीमती वी शारदा को समर्पित

लोग कहते है, जन्नत पर स्वर्ग होता हैं,
माँ खुदा की सबसे खूबसुरत तोफा होता हैं।
माँ से शुरू जिंदगी होती है,
मां की दुआओं से ये जीवन सफल होता हैं|

मेरी माँ डॉ लता अग्रवाल को समर्पित

Research Diary

Computational Engineering at the Cardiovascular Mechanics Laboratory

Dr Anand Mohan,
Associate Professor,
Department of Chemical Engineering

Cardiovascular diseases (CVDs) are the leading cause of death in India and accounted for 24.8% of mortality in the year 2010 [1]. Pathologies of the cardiovascular system are greatly influenced in their progression by the flow behavior of blood in blood vessels, by the biochemistry of the reactions involved in clot formation (or coagulation) and dissolution (fibrinolysis), and by the mechanics of vascular tissue [2]. The thrust of our research is to generate an understanding of these pathologies by characterizing the mechanical and biochemical variables in flow situations that present in the human vasculature, and by identifying conditions that precipitate potentially life-threatening events (like thrombo-embolisms and strokes). Towards this end, we integrate various tools like mathematical modeling of coagulation and fibrinolysis, constitutive modeling of blood, and computational fluid dynamics (CFD) simulation of blood flow in rigid and flexible-walled vessels.

Computational tests using mathematical models of coagulation have been accepted for the generation of hypotheses by an influential section of the hemostasis community [3]. They have been used to detect novel reaction mechanisms as well as to determine the efficacy and dosage of novel antithrombotic drugs. This has triggered the development of models that are increasingly comprehensive and incorporate the latest understanding of coagulation pathways and active constituents. One such model was developed by our lab in collaboration with senior researchers from a constituent center of the Russian Academy of Sciences (see [4]). The schematic of the model pathway is shown in Fig. 1 and its predictions are shown in Fig. 2.

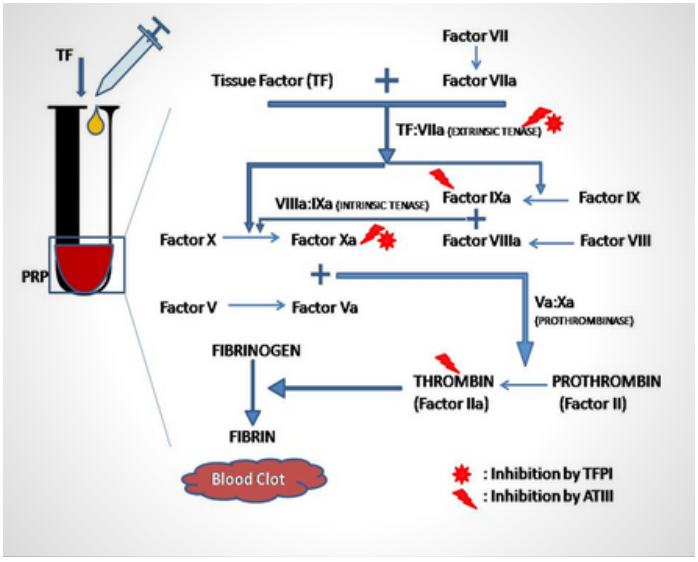


Fig. 1: Schematic of reactions used in a mathematical model of coagulation

The predictions for thrombin concentration (the precursor enzyme to clot formation) show clearly that incorporating the latest experimental hypothesis of thrombin dose-dependent procoagulant platelets as a fraction, as well as competitive binding of enzymes to those platelets, is essential to get accurate results for clot formation time; clot formation time is a key diagnostic parameter for blood diseases.

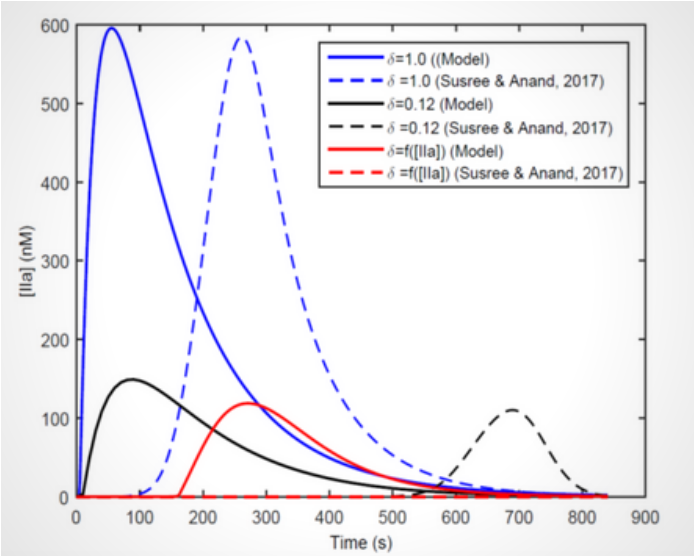


Fig. 2: Predictions of model with latest experimental hypotheses [4] versus an older model

Atherosclerosis is a major sub-class of CVDs characterized by the formation of fatty deposits in the artery wall which reduces and, sometimes, blocks flow. The phenomenon underlying atherosclerosis is blood flow in complex-shaped, flexible-walled tubes with soft blockages. CFD simulation of blood flow is a useful non-invasive tool for doctors to predict the locations of atherosclerosis in geometries of the human vasculature [5]. CFD simulations based on images derived from patients yield variables like wall shear stress (WSS) which cannot be measured in vivo, but which play a crucial role in the growth of atherosclerotic plaque. Our group developed a new two-phase mixture theory model of plasma and cell matter for blood. We then used CFD in locally available software to predict the locations of atherosclerosis using WSS-based indicators and low-density lipoprotein (LDL) in a 3D patient-derived geometry of the abdominal aorta (see [6]). Results in Fig. 3 show that the inclusion of LDL transport enhances the accuracy of predictions.

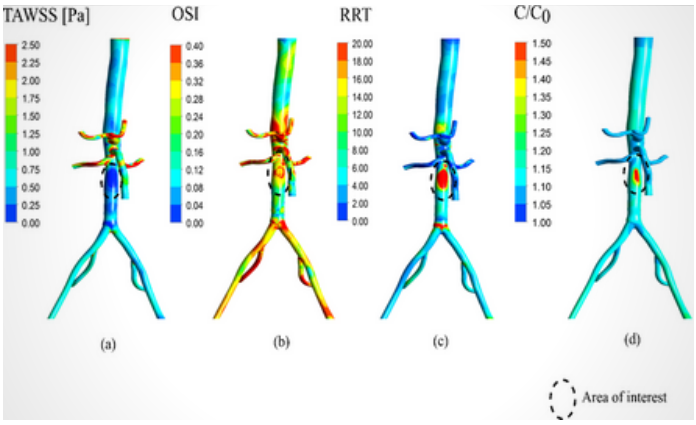


Fig. 3: CFD predictions of locations of atherosclerosis using WSS-based indicators and LDL concentration. Refer (d) vs (c) for the improvement in accuracy due to LDL transport

References:

1) Prabhakaran D., Jeemon P., and Roy A., 2016, "Cardiovascular diseases in India. Current epidemiology and future directions," Circulation, 133(16):1605–1620.

2) Anand M., Rajagopal K., and Rajagopal K. R., 2003, "A model incorporating some of the mechanical and biochemical factors underlying clot formation and dissolution in flowing blood," J. Theor. Med. 5(3–4): 183–218.

3)Mann K. G., 2012, "Is there value in kinetic modeling of thrombin generation? Yes," J. Thromb. Haemost. 10(8): 1463–1469.

4)Susree M., Panteleev M. A., and Anand M., 2018, "Coated platelets introduce a significant delay in onset of peak thrombin production: Theoretical predictions," J. Theor. Biol. 453: 108-116.

5)Morris P. D., Narracott A., von Tengg-Kobligk H., Silva Soto D. A., Hsiao S., Lungu A., Evans P., Bresslof N.W., Lawford P.V., Hose D.R., and Gunn J.P., 2016, "Computational fluid dynamics modeling in cardiovascular medicine," Heart, 102(1):18-28.

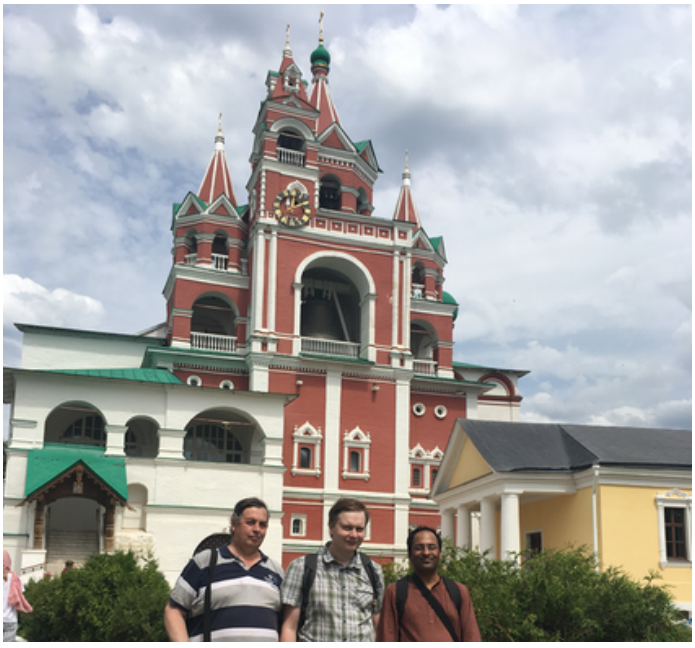
6) Ameenuddin M., and Anand M., 2020, "A mixture theory model for blood combined with low-density lipoprotein transport to predict early atherosclerosis regions in the idealized and patient-derived abdominal aorta," J. Biomech. Eng. 142(10):101008.r the 2022 year!

Experience with Dr Mohan & Group

Mikhail A Panteleev
Director, Center for Theoretical Problems of Physicochemical Pharmacology,
Russian Academy of Sciences

We have been collaborating with Professor Dr Anand Mohan from the Department of Chemical Engineering, IIT Hyderabad for many years on a number of subjects, ranging from joint research on blood coagulation to the establishment of new systems biology journal. I am particularly fond of the study that was pioneered by Dr Modepalli under Anand's guidance and published in J Theor Biol. It was focused on the mystery of the interaction between procoagulant platelets (which has been fascinating to me for more than a decade) and blood coagulation cascade.

It was great fun to be a part of this study, and I am very happy that this opportunity not only deepened our collaboration but also allowed Anand to travel to Russia so that we could meet even beyond the scope of just collaboration. My best wishes to the Anand lab and IITH for the 2022 year!



(L-R) Prof Alexey Lobanov, Mikhail A Panteleev & Dr Anand Mohan During Dr Anand Mohan visit to Moscow, Russia in June 2018

Integrated Computational Engineering

Dr Harikrishnan Narayanan Unni,,
Associate Professor,
Department of Biomedical Engineering

The need for multiscale understanding of materials and phenomena is well established recently and has applications ranging from aerospace design to DNA biology. Integrated computational engineering refers to the design of materials and understanding of scientific, engineering phenomena through multiscale computational techniques. This means virtual materials design, including virtual testing and virtual processing. Integration of modelling tools (coarse-grained/atomistic, computational thermodynamics, and phase-field) are normally employed to simulate the microstructural development of materials during processes. The relevant applications of such multiscale models are present in various fields and include evaluation of carbon nanotubes, the composition of superalloys, cancer metastasis, etc.

The computational biomechanics lab in the department of biomedical engineering is focused on the development of multiscale computational techniques for a detailed understanding of soft tissue mechanics in the human body. The evolution of tissue microstructure during physiological processes can be determined by computational models that integrate the features of macro and micro-nano scales. An effort on modeling neurodegeneration resulting from traumatic brain injury is underway, where brain strain data computed from a continuum-based finite element model is coupled to a neurobiological computational model in order to assess protein aggregation and death rate of neurons post-traumatic brain injury (TBI) **(Fig.1)**.

This way, the neuronal dynamics resulting from an impact on the head could be studied in detail. Also, such models can be utilized to calculate the growth dynamics of tumors, where molecular mechanisms corresponding to tumor growth are correlated with the macroscale mechanics of tumor tissues.

Another important area of research is computational drug design, where mathematical models are developed to mimic the transport and internalization of nanoparticles in cancer cells. Many clinical trials indicate high specificity, however, only 5% of particles typically reach the tumor sites. Transport barriers in the tumor vasculature such as flow barriers, migration of circulating tumor cells, endothelial gaps, etc. add to the complexity of nanoparticle migration, affecting the delivery and particle internalization in tumor cells.

Recent advances in computational power, allow for multiscale simulations that can investigate the influence of a range of parameters in biologically realistic scenarios. High throughput and integrated nanoparticle-design pipelines are possible using the simulation data. Eventually, general design principles can evolve, which when combined with patient-specific data, may provide personalized treatment guidelines for tumors.

Additionally, machine learning techniques can be integrated into in-silico, nanoparticle simulation models such that 'active design learning' is possible. A recent project in our lab focuses on the development of a computational model to mimic the transport and internalization of nanoparticles in lung cancer cells.

We design the molecular models of the surface of A549 cells and functionalized nanoparticles and use coarse-grained and full-scale molecular dynamics simulations to determine the particle internalization pathways in the cells. A variety of drug configurations can be synthesized and tested using such models, meaning a virtual, cost-effective platform for tumor drug design.

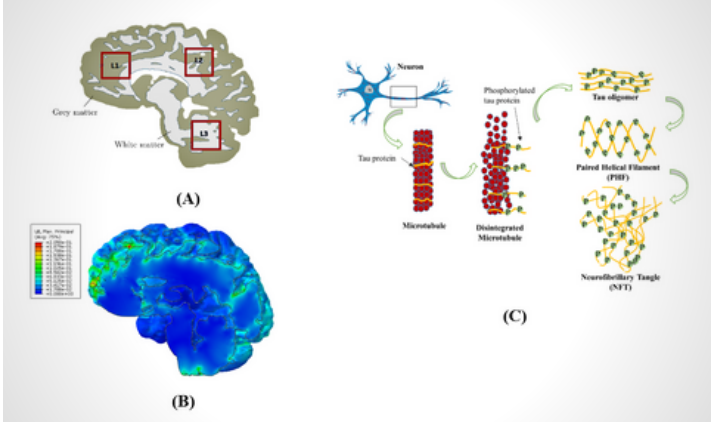


Fig. 1: (A) Segmented white-grey matter and identification of critical strain locations (B) Localized strain in brain sulci (C) Brain strain-induced tau protein aggregation and formation of neurofibrillary tangles (NFT), resulting in neurodegeneration post-TBI

Integrated Computational Engineering

Prof Kishalay Mitra,
Head of the Department,
Department of Chemical Engineering

Integrated Computational Engineering seeks the optimal solution of a system under design or operation considering the detailed analysis of several mathematical models of multiple length scales. This approach has dominated the era of scientific discoveries in the last two decades providing a wholistic look at the problem at hand. The advancements in algorithms in addition to those in hardware have now resulted in a paradigm shift in science and engineering by bringing Data-intensive scientific discoveries to the forefront. At Global Optimization and Knowledge Unearthing Laboratory (GOKUL) in the Department of Chemical Engineering at IIT Hyderabad, we integrate Data Science with Computational Engineering, a much desired and timely need, to solve the problems in Process Systems Engineering using Artificial Intelligence and Machine Learning (AI/ML). Ranging from Surrogate assisted optimization and control to Data-driven uncertainty quantification and sensitivity analysis, the applications are profound.

Computationally expensive optimization of unit processes in polymerization, crystallization, and steel-making, nonlinear closed-loop control of integrated grinding circuits through deep system identification, convolutional generative modeling for wind characteristics emulation, uncertainty quantification in the design of tactical missile systems & large scale expensive optimal control of bioreactors through tailor-made solutions from AI/ML are some instances.

A representation of the ease with which Data Science can be integrated into Computational engineering can be witnessed in the National Supercomputing Mission project at GOKUL that takes up challenges at every level of designing a robust wind energy conversion system and attempts to solve it using Deep Learning **(Fig. 1)**. This work involves the problem of wake modeling in a 200 turbine wind farm spread over an area of more than 400 sq.KM through Large Eddy Simulations for building a neural network-based surrogate that can be utilized in wind farm control under wind state uncertainty.

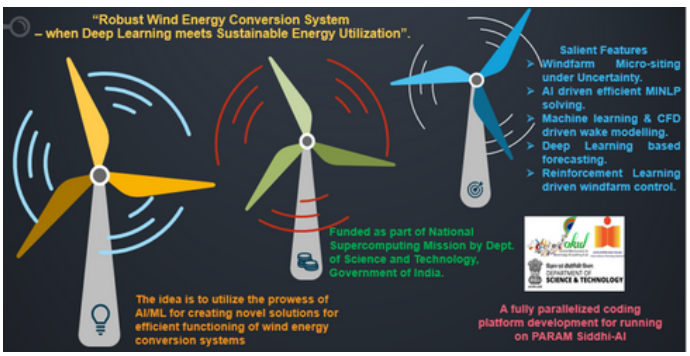


Fig. 1: Representational Image of Robust Wind Energy Conversion System using AI/ ML

The prominence of integrating Data Science with Computational Engineering is such that, it allows for a smooth transition of research in the lab to the product in the industry. In GOKUL, this is evident through some highly ambitious projects with industrial collaborations that include topics such as (i) Steel-Genome: Characterization of Steel through Machine Learning (Fig. 2), (ii) AI-driven solutions for mixed-integer problems mainly for application in a) coal blending in steel plants, b) biofuel supply chains, and c) Climate Change, and (iii) Smart Systems Biology: Screening and Ranking of drug candidates for COVID-19 prognosis through Convolutional Networks and Bio-reactor design and control through Data Science.

While each of these areas is computationally intensive with up to NP-hard complexities, the ideas from Data Science enable a real-time solution that provides a unique perspective offering multiple degrees of freedom to solve the problem intelligently. At GOKUL, we walk the path of a Computational Chemical Engineer empowered with the prowess of Data Science to explore new frontiers in Process Systems Engineering.

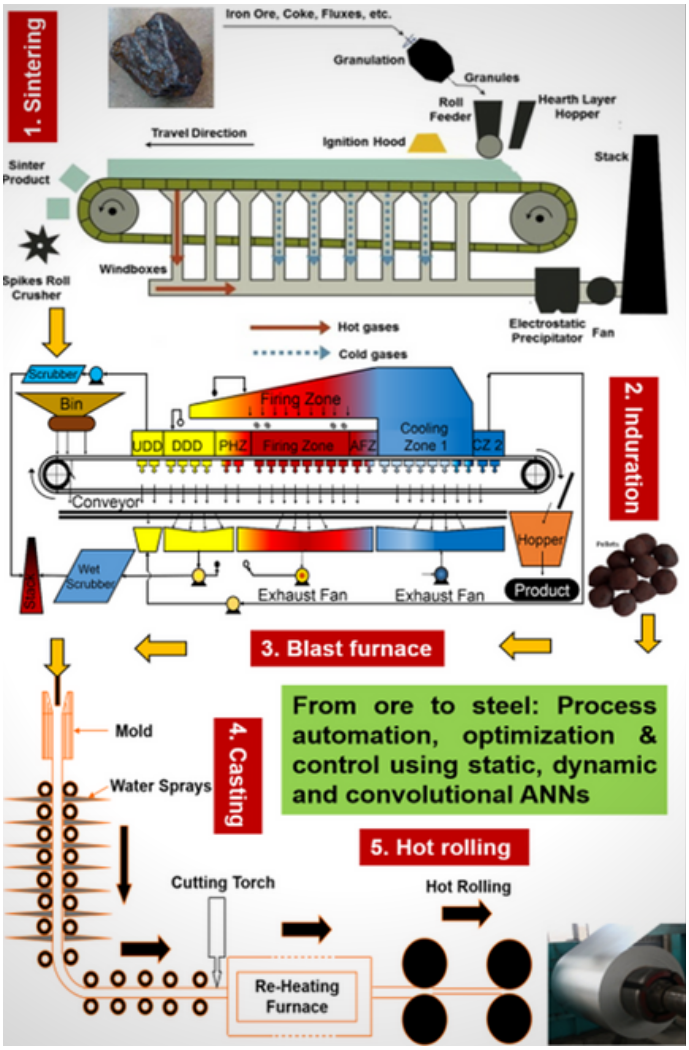


Fig. 2: From ore to steel: Process automation, optimization & control using static, dynamic & convolutional ANNs

Development and application of computational models for modelling particulate flows in Mineral Processing

Dr. Narasimha Mangadoddy,
Associate Professor, Department of Chemical Engineering (L)
Prof. Raja Banerjee,
Department of Mechanical & Aerospace Engineering (R)

Most mineral processing unit operations involve fluid as a medium while separating the particles based on differences in their size, density, shape, and sometimes surface properties in the given slurry feed. Multiphase systems prevalent in minerals processing, usually consist of solid-solid and solid-fluid systems, such as in comminution and classification, flotation, gravity separations, dewatering, and magnetic separation, among several other unit operations. These particulate multiphase flows involve complicated physical processes and complex geometry. The majority of these flows are turbulent in nature. Tumbling mills are the first set of wet-unit operations of comminution circuits, which utilizes large amounts of water while grinding the particles to fine sizes. Dynamics of particles in the presence of water/slurry medium would behave differently than when they are treated in the dry grinding route. Understanding of internal dynamics of the charge and slurry can be of great help in energy-efficient mill design. Grinding efficiency not only depends on the tumbling mill performance but also on the recirculation load that results from the associated classifier with the circuit. Therefore, accurate prediction of classifier flow properties greatly influences the mill efficiency predictions in the given comminution circuit.

Modelling industrial cyclones (Hydrocyclone and DMC) is very challenging due to the existence of a complex flow field that is highly turbulent and varying multi-scale particles. Computational models that solve governing equations in the form of efficient multiphase and turbulence models with appropriate boundary conditions are highly desirable for accurate flow field and particle dynamics thereby affecting performance predictions.

Our group at IITH works on developing a suite of computational models ranging from computational fluid dynamics (CFD), discrete element model (DEM), and coupled CFD-DEM strategies to simulate particulate flows outlined in Fig. 1 & 2. In recent years, our focus research has been to develop and validate the multi-phase CFD models for various mineral and chemical processing units like dense medium cyclones (DMC), hydrocyclones (HC), bubble columns, fluidized beds, and flotation devices. In particular, extensive results have been obtained on the detailed multi-phase flow in DMC/HC devices in terms of air-core resolution, mean and turbulence flow field analysis, turbulent dispersion analysis w.r.to particle classification, and understanding the classification/separation mechanism, see Fig. 3.

Extensive CFD validation is also being made by using data obtained from corresponding experimental methods such as electrical resistance tomography, high-speed video imaging, gamma-ray tomography, and physical particle separation performance tests.

These multi-phase CFD models are now being utilized for design exploration to develop new efficient separation devices. We have developed an improved cyclone separator for treating high ash & high NGM coal using the GPU-based multi-phase ASM model under a sponsored project from NMDC. In an earlier DST-SERB-supported project, a novel hydrocyclone was designed for efficient beneficiation of iron ore slimes. Recently, with help of UAY-TATA Steel support, research activity is being pursued to understand multi-component particle separation under the combined action of gravity and centrifugal field within a spiral concentrator thereby designing an improved spiral concentrator for low-grade chromite ore beneficiation.

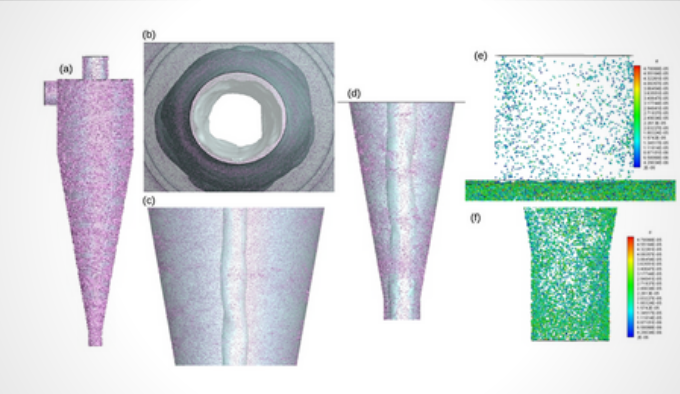
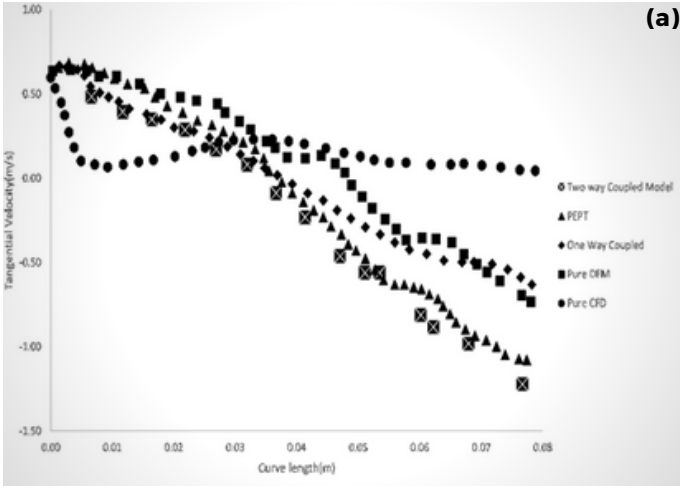


Fig. 1: Predicted particle dynamics using MPPIC-VOF approach for hydrocyclone, (a) Particle motion in the body of 3-inch cyclone, (b) High occupancy near VF, (c) Moderate concentration at a central location, (d) Swirl entrapment near spigot, (e) Smaller size particles near overflow, (f) Larger size particles near the spigot



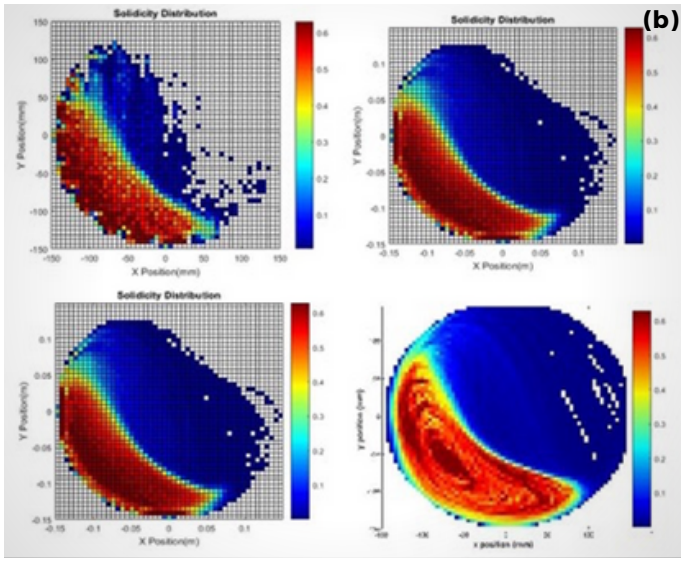


Fig. 2: (a) Comparison of tangential velocity of charge particle (obtained from EDEM) predicted by different models against PEPT data and (b) Predicted solidicity comparison. Top: (Left: DEM, Right: One-way coupling), Bottom: (Left: Two-way coupling, Right: PEPT experimental results) for the total mill volume filling of 31.25% with charge and slurry containing 20% solids.

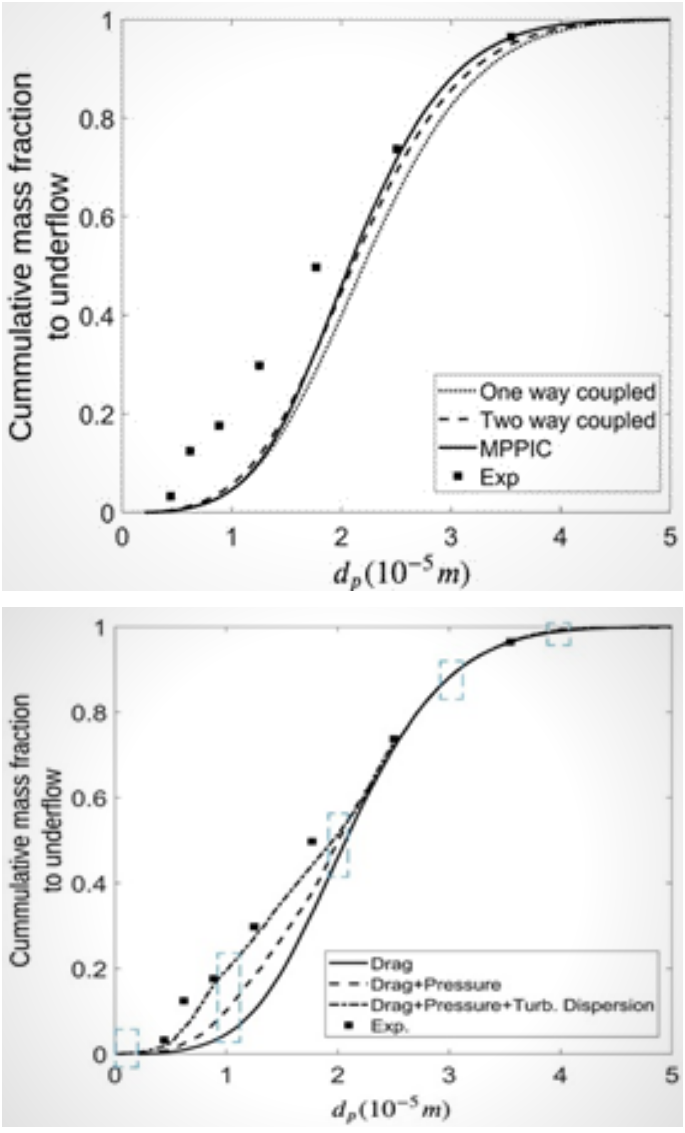


Fig. 3: Cyclone Performance comparison of different interphase forces


High fidelity numerical techniques for the development of supersonic/ hypersonic air-breathing vehicles @ Heat Transfer Lab, IIT Hyderabad

Mr. Veeresh Tekure, Research scholar (L),
Dr. K. Venkatasubbaiah, Associate Professor (R)
Department of Mechanical and Aerospace Engineering,

The quest to travel faster than the speed of sound gave birth to the invention of supersonic and hypersonic vehicles. The demand for agile, high-performance and long-range next-generation supersonic/hypersonic vehicles is ever-growing. Design and development of contemporary supersonic/hypersonic aircraft, air defense systems, and re-entry vehicles rely on the comprehension of ubiquitous compressible turbulent flow over the surfaces of these vehicles. Airframe structures of these supersonic/hypersonic vehicles experience an enormous amount of drag and aerodynamic heating owing to the formation of bow shock ahead of the vehicle and dissipation of kinetic energy into internal energy on the vehicle surfaces. Experimental investigation of full-scale vehicle models is seldom carried out owing to the exorbitant cost of full-scale model testing. The aforementioned limitations of experimental investigations pave the way for computational fluid dynamics (CFD). With the advent of high fidelity numerical schemes viz., compact schemes and a marked increase in the computational resources (viz., high-performance computing facilities, parallelization of CFD codes viz., OpenFOAM) the usage of CFD as a design optimization tool become prominent.

The phenomena of shock train formation in a constant or nearly constant area duct are encountered in scramjet (supersonic combustion ramjet) engine isolator/channel. A Series of multiple shocks are established in the channel if the flow through the channel is subjected to back-pressure (i.e., Poutflow > Pinflow) arising due to combustion in the combustor.

We have carried out numerical investigations (by employing an in-house solver) to find a combination of inflow Mach number and the back-pressure ratio, for which the shock train is fully established in the isolator or, it is fully disgorged from the inlet forming subsonic conditions in the channel/isolator, as depicted in Fig. 1 at different Mach numbers (Ref. 1).

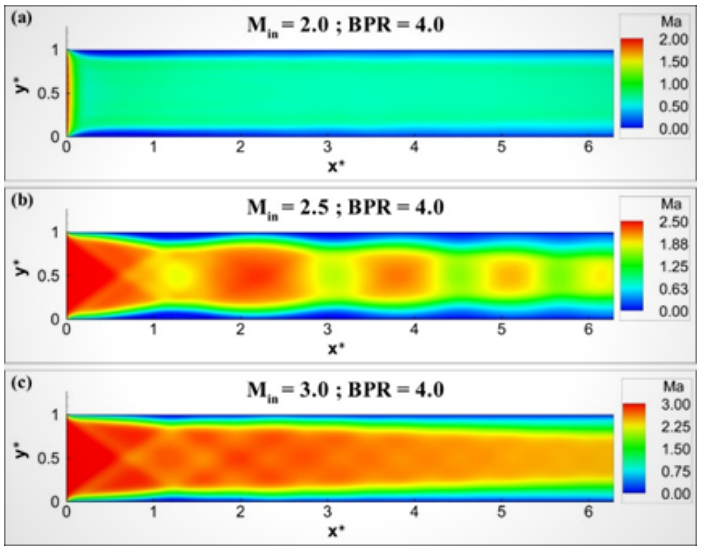


Fig. 1: Mach contours at different Mach numbers at Back Pressure Ratio equal to 4

Cavities in the scramjet engine combustor facilitate in establishing sustained combustion by retarding the supersonic flow, therefore, often referred to as flame holders. We have investigated the strength of the recirculation zones formed in the modified base rectangle and angle cavity-type flame holders. Here, we have modified the base rectangle and angle cavities by introducing intrusive and extrusive types of subcavites in the base cavities. Intrusive type (see Fig. 2) of subcavity can be preferred over an extrusive type of subcavity in the design of a cavity-type flame holder for scramjet engines for air-fuel mixing augmentation and efficient combustion (Ref. 2).

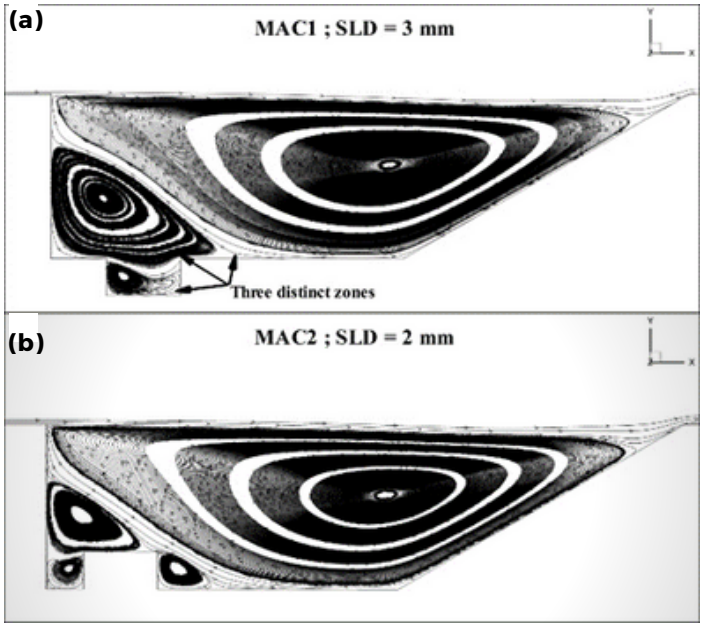


Fig. 2: Streamline contours at Mach 2: (a) Modified Angle Cavity1 (extrusive), and (b) Modified Angle Cavity2 (intrusive)

Shielding the dome-shaped forebody of the supersonic/hypersonic vehicles from severe aerodynamic drag and heating is an essential and challenging task for the designer. Because reducing the drag markedly increases the flight range, economizes the fuel usage, reduces the complexity of the propulsion system, and maximizes the gross takeoff weight [i.e., a 1% reduction in total drag can lead to 5 to 10% increment in payload carrying capacity (Ref. 3)]. We have explored the effectivity of different active [cold fluid injection] and passive [mechanical spike at different spike semi-cone angles (θ_S) and bump on the spike stem] techniques in mitigating the aerodynamic drag and heating. Correlations are proposed to estimate the aerodynamic drag and heating as a function of θ_S at different free-stream Mach numbers. Results also highlight that effectivity of the small bump **(see Fig. 3)** on the spike stem in reducing aerodynamic drag is equivalent to that of the cold fluid injection technique (Ref. 4).

References:
1. Veeresh Tekure, and K. Venkatasubbaiah, "Effect of back-pressure ratio on the shock train structures in the isolator of SCRAMJET inlet at deferent Mach numbers", Proceedings of the 8th International and 47th National Conference on Fluid Mechanics and Fluid Power (FMFP), December 9-11, 2020, IIT Guwahati, Assam, India.
2. Veeresh Tekure, and K. Venkatasubbaiah, "Numerical investigation on the extrusive and intrusive subcavity types and their location on the primary recirculation zone for the supersonic turbulent flow through cavity-type flame holders", Thermal Science and Engineering Progress, vol. 25, pp. 100987:1-22, 2021, Elsevier publisher.
3. D. M. Bushnell, "Shock wave drag reduction," Annual Review of Fluid Mechanics, vol. 36, pp. 81–93, 2004.
4. Veeresh Tekure, Pratik Shrikant Pophali, and K. Venkatasubbaiah, "Numerical investigation of aerospike semi-cone angle and a small bump on the spike stem in reducing the aerodynamic drag and heating of spiked blunt-body: new correlations for drag and surface temperature, Physics of Fluids, vol. 33(11), pp. 116108:1-27, 2021, AIP. (Editor's pick Article)

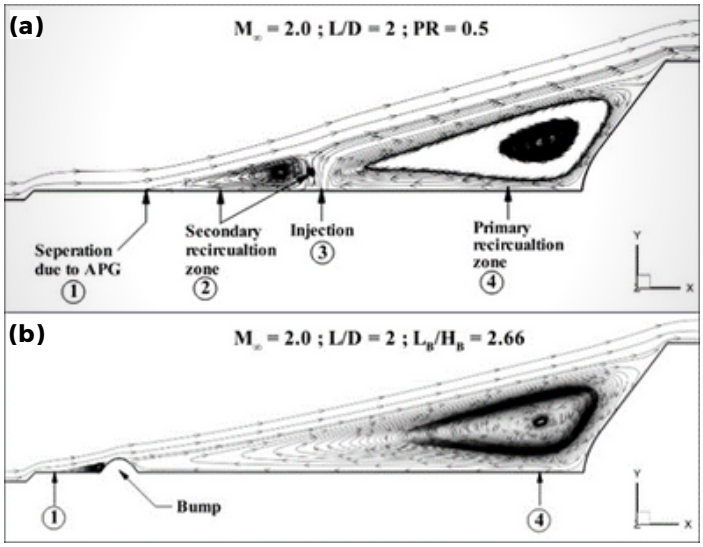


Fig. 3: Streamline contours at Mach 2: (a) spike with lateral injection, and (b) spike with a small bump on the stem

Multi-scale modeling of ductile fracture

Dr Viswanath R R S R Chinthapenta,
Associate Professor, Department of Mechanical and Aerospace Engineering

The genesis of macroscale damage in alloys lies in the microstructural inhomogeneities. The perceivable macro damage is usually initiated at much lower scales. The mechanisms leading to ductile failure are of fundamental interest in nuclear technologies, hypersonic applications, aerospace & defense sectors, sheet metal applications, ceramic matrix composites, additive manufacturing, biomedical implants, etc.

At the micro-mechanics lab, IIT Hyderabad, our group works on ductile failure mechanisms. For example, ductile failure of metal reinforcements embedded in ceramic matrix composites is one of the active areas of research. The ceramic matrix composites (CMC) are brittle in nature, particle strengthening is carried out in these materials to increase the ductility. Over several years, our team has developed and implemented advanced numerical techniques to understand the critical stages in ductile failure. The voids are the starting point for dimples commonly seen in the fractography images of the fractured ductile specimens. Hence, the stages in ductile failure can be broadly classified into void nucleation, growth, and coalescence.

A brief overview of the multi-scale model developed at our lab to understand cavitation instability is presented here. The developed model effectively captures the deformation mechanisms at different scales (macro to meso) and connects the scales using the state variables. From experimental literature, the dominant failure mechanisms observed in CMCs are ductile failure of the metal reinforcement, cracking of brittle matrix, and de-cohesion of the matrix and reinforcement. Out of these failure modes, ductile failure of the metal reinforcements is the dominant failure mechanism.

Ductile failure of the metal reinforcement, its influence on the overall mechanical properties of CMCs is quite challenging due to the complex interplay between anisotropy of the metal reinforcement, configurational defects (such as cracks), and material constraints experienced by the reinforcement. In CMCs, when the crack advances, two possible scenarios are encountered: crack circumventing the reinforcement and crack bridging the reinforcement.

When the interface between the particle and matrix is weaker, de-cohesion of interface and partial matrix cracking is observed. While the interface between the particle and matrix is stronger, crack bridging phenomena are predominantly observed (see Fig. 1). All these failure mechanism results in a significant increase in fracture energy of the CMCs.

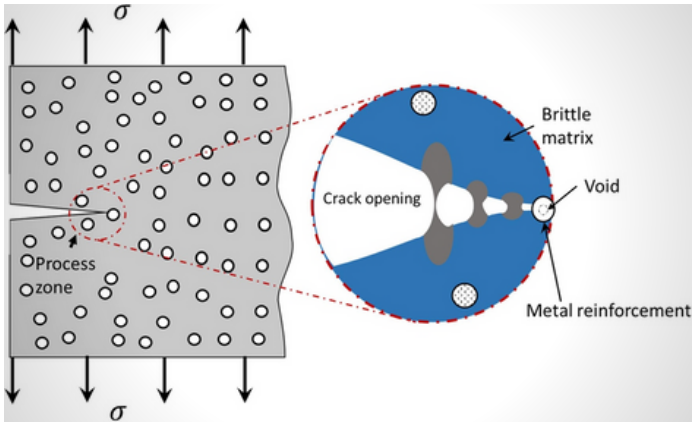


Fig. 1: A schematic of fracture in brittle matrix composite with reinforcement

In the latter scenario, fracture energy is solely due to cavitation. While in the former scenario, the observed fracture energy is partially from the cavitation, interface de-bonding, and matrix cracking. Instabilities such as exponential void expansion at certain constant remote strain are observed during cavitation. The critical stress corresponding to this cavitation instability is of interest in understanding void nucleation. Further, material anisotropy greatly influences critical stress. Earlier estimates of critical stress were based on isotropic phenomenological models. To address this, in our group, we have conducted a systematic approach to arrive at the limits of cavitation instability using mechanistic approaches based on crystal plasticity framework.

In our systematic approach, a representative material volume (RMV) was considered for a ductile reinforcement embedded with a spherical hole. For simplicity and symmetry, one eight models of RMV were considered for the simulations. Copper (Cu) single crystal properties with face cementer cubic (FCC) structure were used as reinforcement properties. The material constraint is captured through stain triaxiality. Strain triaxiality of values ranging from 1 to -0.45 was considered for loading. These loading conditions can replicate most of the loading scenarios on the reinforcement (1 representing high constrain, 0 representing uniaxial loading, -0.45 representing least constraint). The void volume fraction values were used. To understand the effect of crystallographic orientation, several orientations such as [100], [110], and [111] were considered.

Two types of failure mechanisms were observed: first, the material is failed by void growth with an increase in remote strain. In this case, the softening of the material is dominant than the material hardening. Second, the Material is failed by void growth at nearly constant remote strain (cavitation instability). While the void volume fraction is approaching zero, the cavitation instability stress is converging to constant values, called critical stress. Our work provided the procedure to estimate the critical stress values for a given orientation and reported the critical stress values for different orientations, as shown in Fig. 2. We have also reported that fracture energy and energy absorbed by metal reinforcement vary significantly with material anisotropy.

The void shape is observed to have a strong dependence on the initial crystallographic orientation. Both spheroidal and non-spheroidal voids are observed during cavitation (as shown in Fig. 3). The non-spheroidal voids are attributed to material anisotropy and void spin.

In our group, we are extending our investigation on ductile fracture to understand the complex failure mechanism such as void coalescence and void sheeting.

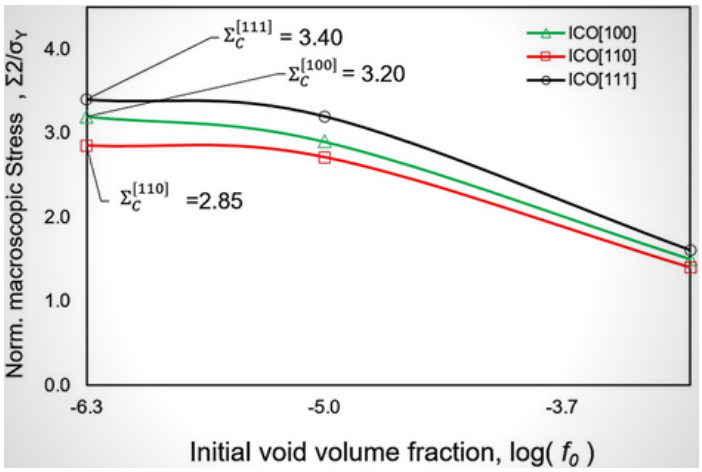


Fig. 2: Effect of material anisotropy on the cavitation limit

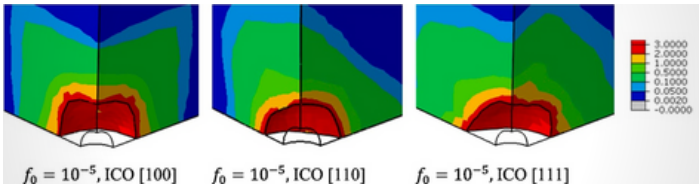


Fig. 3: Deformed void shape for different initial crystallographic orientation (ICO)

References:
1. MK Karanam, G Gulivindala, VR Chinthapenta, Effect of anisotropy on the ductile fracture in metal reinforcements of brittle matrix composites, Theoretical and Applied Fracture Mechanics, 112, 10293, 2021
2. MK Karanam, VR Chinthapenta, Void growth, and morphology evolution during ductile failure in an FCC single crystal, Continuum Mechanics and Thermodynamics, 33(2), 497-513, 2021

A new perspective on the law of the wall

Dr S K Zeeshan Ali,
Assistant Professor, Department of Civil Engineering

Turbulent flows are common in natural and industrial environments. A few examples include atmospheric circulation, a fast-flowing river, flow around an aircraft, and a pipeline. The law of the wall is one of the major accomplishments in turbulence research and is widely used in computational models of fluid dynamics. The law accurately predicts the flow velocity, specifically in the near-wall shear layer that accounts for the substantial fraction of the aerodynamic (or hydrodynamic) drag on the wall, e.g., aircraft surface or inner-wall of a pipe. The mean-velocity profile (MVP) can be obtained by averaging the local mean-velocity u at a wall-normal distance z over a long duration (see Fig. 1). Three distinct layers exist at an infinitely large Reynolds number Re: near-wall layer (viscous sublayer and buffer layer), overlap layer, and the wake layer.

The law of the wall stems from the imagery of turbulent eddies arising from the fluid mixing that gives rise to the turbulent shear stress. German aerodynamicist Prandtl proposed the mixing-length hypothesis, drawing an analogy between the motions of turbulent eddy and random gas molecules, in order to quantify the turbulent shear stress. Despite magnificent advances, Prandtl's classical work and recent theories fall short to find the origin of the law of the wall.

In a recent attempt, Ali and Dey found the origin of the law of the wall with the aid of a new hypothesis, called the mixing-instability hypothesis. It states:

At a large Reynolds number, the turbulent mixing at a location in a wall-bound flow produces disturbances that transmit in the form of waves, causing a continuous stretching and shrinking of turbulent eddies to produce the turbulent stress.

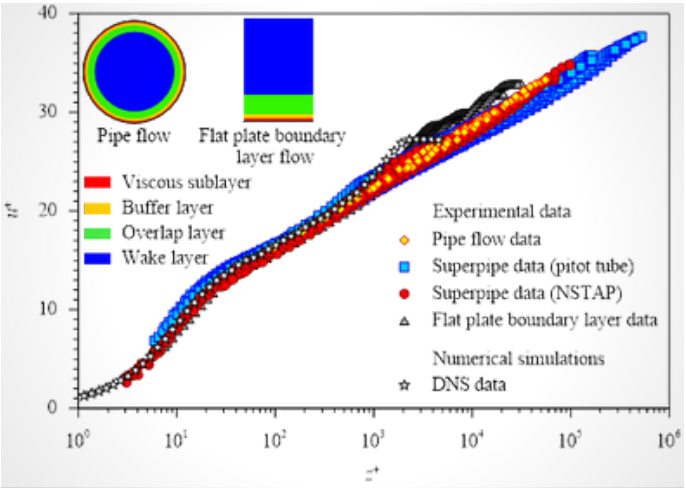


Fig. 1: MVPs comprising data of experimental observations and numerical simulations. Here, u+ = u/u*, u* is the shear velocity, z+ = zu*/n and n is the coefficient of kinematic viscosity of fluid.

The mixing instability hypothesis revealed an unprecedented link between the law of the wall and the mixing instability. The hypothesis recovers the classical logarithmic law within the overlap layer. Particularly, the amplitude of waves within the overlap layer was found to obey a unique law with the wall-normal distance. More broadly, the mixing instability hypothesis explains the law of the wall in near-wall, overlap, and wake layers. Rigorous testing of the computational MVPs with the experimental observations over a broad range of Reynolds numbers supports the mixing-instability hypothesis (see Fig. 2).

In essence, the mixing-instability hypothesis offers a new mechanism of the momentum exchange in a turbulent flow, calling for a revision of the traditional mixing-length hypothesis, which has persisted in standard textbooks of turbulence for about nine decades.

Reference:

Ali SZ, Dey S. The law of the wall: A new perspective. Physics of Fluids, American Institute of Physics, 32, 121401 (2020).

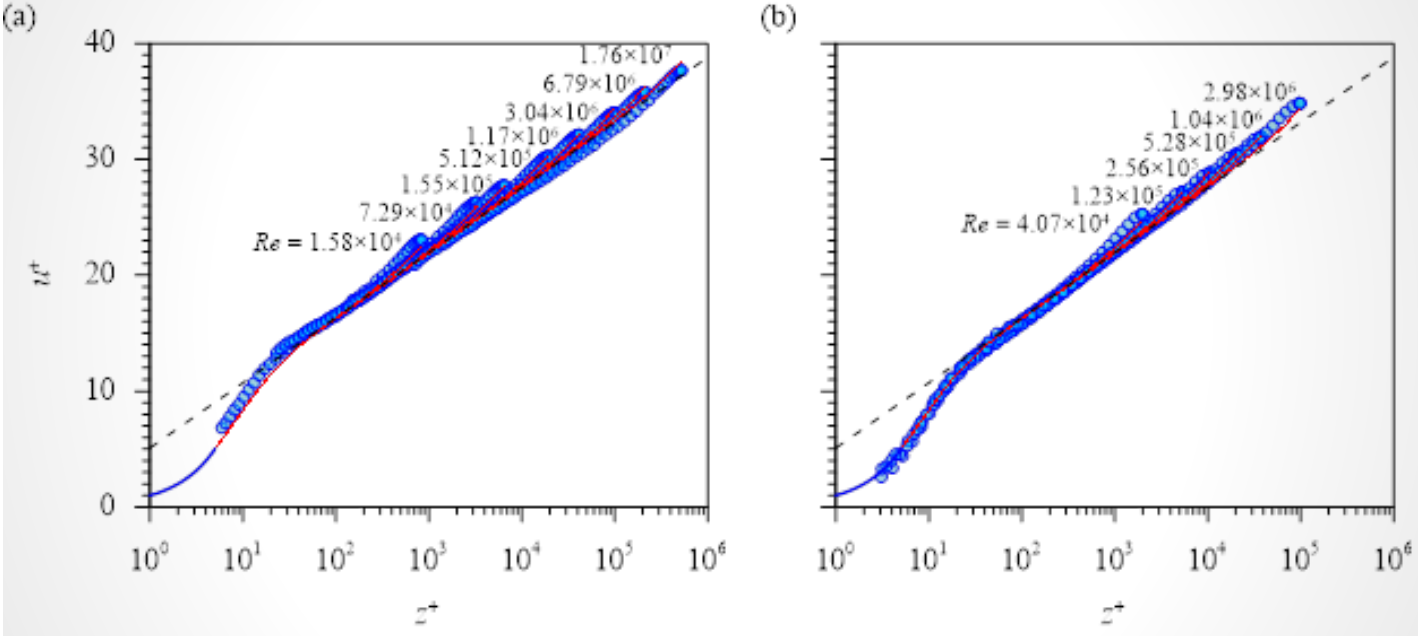


Fig. 2: Comparison of the computational MVPs with the experimental data obtained in a superpipe facility using (a) pitot probe and (b) nano-scale thermal anemometry probe.

Research & Innovations - Q4

Preserving 'Dhokra Craft', an IIT Hyderabad endeavor

Prof Deepak John Mathew & Team
Department of Design

The Design Intervention workshop by the Department of Design, aimed at safeguarding the Dhokra crafts of Ojha Gonds Community in Telangana.

Highlights:

- Community building and peer learning for the Ojha craftsmen.
- Creating Sustainable livelihood opportunities for the Ojha craftsmen.
- Documenting the traditional process of the metallurgy and regional artifacts of the Raj Gonds of Adilabad district.
- Create a digital repository of the traditional artifacts to trace the design evolution in the Ojha Craft.
- Encourage younger generations of the Ojha families to adapt and safeguard their ancestorial crafts practices.
- Generate awareness of the traditional craft practices of the Ojhas' among the common people of the region.

Professor Deepak John Mathew, Department of Design, IIT Hyderabad, along with his team has conducted a design intervention workshop on Dhokra crafts of Ojha Gonds of Adilabad as a part of an ongoing project under his supervision "Tangible and Intangible Cultural Heritage of Telangana" supported by Science and Heritage Research Initiative Programme, Design Innovation Centre, and Institutional Innovation Centre IIT Hyderabad.

Read More: https://tinyurl.com/yc7k6j6x

View Video Abstract:
Part-1 (Workshop Objectives):
https://youtu.be/g19qrmdOTzI
Part-2 (Brief on Dhokra Casting):
https://youtu.be/GEnaazvezf4

The workshop was focusing on training the younger generations of the Ojha community in the traditional Dhokra Crafts under the supervision and training of the Master Craftsman. Traditionally the artifacts were majorly created for the ritualistic purposes of the Raj Gonds, which is a part of the Intangible cultural heritage of the Raj Gonds of Telangana. The workshop aimed at retaining and sustaining the traditional craft practices of the Ojha's and to provide them opportunities to generate livelihood from their ancestorial occupation of Dhokra crafts. The workshop also had an objective of community building, and peer learning, skill development, and training. Thus, the Master Craftsman was chosen from Ojha Community itself.

Snapshot from the workshop

Students' Diary

Computational Methods in Materials Science

Sivakumar S
1st Year MTech, Industrial Metallurgy, MSME
Dy. Manager (Metallurgy), Hindustan Copper Limited

We all know the importance of the computer and the way it has simplified many otherwise complex tasks! Computers were so rapidly evolving in the last century and at a much faster pace, particularly in the last three decades. Today, we have high-performance supercomputers working towards the quantum computing future! With all the robust processing capabilities of modern high-performance computing machines, we can solve such complex problems by building mathematical models and simulations and predicting the result without even physically doing it, which not only cuts cost and development time but helps us study a different set of conditions at a fraction of time. Even vaccine development is accelerated these days with this! The coursework, Introduction to Computational Methods in Materials Science during my last Semester under Dr Saswata Bhattacharya provided me with the necessary training, tools, and motivation to explore and realize the possibilities the computational field can offer to find solutions to complex problems in the industry.

I work in Hindustan Copper Limited, where we mine copper ore, produce copper concentrate, smelt, and refine them, produce anode copper, copper cathode, and continuously cast copper rods at our various production units.

Some of these processes are very complex in nature and optimization of any of that using these computational tools by mathematical modelling and simulation might help us improve our business. Modelling the ore beneficiation process would help us improve the efficiency of the copper ore recovery during the floatation process and would lead to a reduction in the copper loss in the tailings. Modelling the continuous casting process **(as shown in Fig. 1)** could be used to optimize the different stages using these tools and techniques which was also my project work during the coursework.

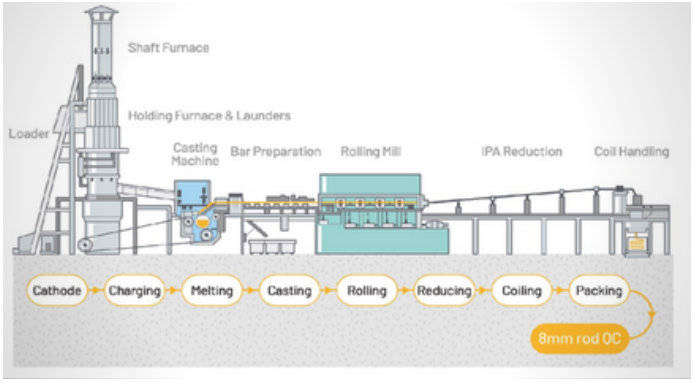


Fig. 25: A Typical Southwire Continuous Cast Copper Rod Production System

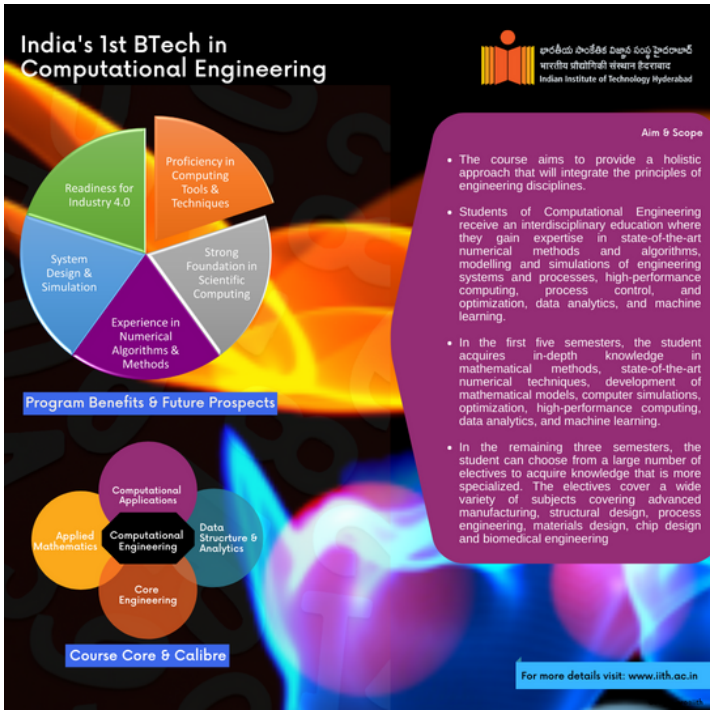
Why Computational Engineering???

Ishaan Jain
1st Year BTech
Computational Engineering

As this branch is new, I was a bit nervous about the opportunities that I could get in the future. But this branch involves all the other branches in its curriculum, which is itself a great thing. So, being in an IIT and studying about all the branches in just one course was kind of a WIN-WIN situation for me. As I read about the curriculum, it involved the usage of computational applications in various industrial processes that were also fascinating. And also, being one of the only ten students in the whole country, that too in one of the premier institutes in India was something that caught my attention. And after all, I'm very happy to be a part of this program at IITH.

My experience @IITH in the recent past

It was good, could have been better if we were at the campus. I interacted with a lot of my batchmates and seniors through social media. However, the clubs did a wonderful job till now. I played the mini-cryptex game and that was a wonderful experience. Also had a debate competition and some comedy shots by RangDeManch which was a great treat to be a part of. Our seniors never made us feel alone and isolated even when they were at the campus and we were at our home. Coming to the online classes, they are not as good as compared to if they were offline, but looking at the current situation, they're good. We had a lot of video calls unofficially and made a lot of friends in just a month which was a great thing. And later on, I was elected as the Class Representative of my branch which was a very big moment for me in just a month @IITH. But deep down, I'm waiting for us to be called at the campus and enjoy our college life which we're missing at our home.



BTech in Computational Engineering Social Media Announcement

Alumni's Diary

Alumni are Brand Ambassadors of the institute, said Dr BVR Mohan Reddy during Alumni Day at IIT Hyderabad

Content Curated by Ms Mitalee Agrawal, Public Relations Officer, IITH

IIT Hyderabad celebrated its Second Alumni Day on November 28, 2021, in hybrid mode. This year, the Institute has announced the 2nd set of Alumni Awards with a special Women Alumni Excellence Award to encourage Women Alumni. While delivering the welcome address, Prof Pinaki Prasad Bhattacharjee, Dean (IAR), said, "Alumni are an integral part of our grand vision. We are happy to share that out of 4000 Alumni approx., we could create a database of 2900 Alumni and provide them a unique ID with the @alumni.iith.ac.in. This will not only facilitate us to remain well connected with our alumni but will be of mutual benefit".

Speaking with the Alumni, Dr BVR Mohan Reddy, Chairman Board of Governor, IITH, and Founder Chairman, Cyient Ltd., said, "We need to improve our Alumni Connect. Alumni are Brand ambassadors of the institute. There is an enormous need for job creation in the country and hence I appeal to all of you to take Startup as a career option". On this occasion, he also graciously donated Rs. 25 lakhs towards converting some of the classrooms of IITH to Hybrid and smart classrooms.

Where there is a will, there is a way, Prof B S Murty, Director, IITH while addressing the gathering said, "Nothing should stop us. Even during the pandemic, IITH stood firm, rather than came with a wide variety of products and technologies to fight the deadly virus.

"The best way to get engaged is to get connected, I am confident that we will have many more achievements together", **added Prof P Rajalakshmi, Dean (Students).**

During the event Dean (PCR), Prof C Krishna Mohan said, "I hereby urge you all, to share more and more of your good work and potential collaborations opportunity with our PCR Office so that we can make the IITH brand recognized globally".

"Since the foundation started, the number of alumni in the USA has grown significantly. We would like to help IITH in its growth journey", **said, Mr Ankit Singh, IITH US Foundation President.**

Speaking about the initiatives of the Alumni Association of the Institute, Dr Sai Chandra Teja, President, IITH Alumni Association, said, "We will build upon the legacy created by past associations. During this term, Alumni Association would like to expand the Startup culture at IITH. Powerful people come from powerful places, students have been trained to become powerful at IITH. We should thank our family and the institute that made us powerful. Let's believe, we are powerful; we will stay powerful and create history."

Electronic Media Release of the event:
https://www.youtube.com/watch?v=ZxcOzv17H58

Snapshots from Alumni Day 2021

Alumni Awardees 2021

Basics should be strong to sustain in future

Sailaja Bodrothu
BTech 2017-2021,
Department of Materials Science and Metallurgical Engineering
Computational Materials Engineer, Paninian Pvt. Ltd.

As IIT Hyderabad is a new IIT, the opportunity to grow will be more. Getting into a cultural or technical club and exploring our interests is easy here.

I enjoyed being part of Rangde manch and shuffle crew. I was also NSS Coordinator during my study at IITH.

Courses at IITH offer a comprehensive understanding. Also being strong at basics provides an advantage for any job role.

IITH provides a lot of opportunities. Exchange programs, culture meets, and many more. Try to make the most of these opportunities.

The best thing about our campus is, it is a student-friendly one. Students' opinion is valued here.
Improvement area for IITH: Interdisciplinary master's programs, which are already introduced in 2021.

A Tree with strong roots laughs at storms.
- Malay Proverb

Alumni's Diary

Award winning 'एक कप चहा (Ek Cup Chaha)' by Sumit Yempalle, has been released on IITH Youtube for public viewing

Content Curated by Ms Mitalee Agrawal, Public Relations Officer, IITH

In 2018, IIT Hyderabad Alumni Sumit Yempalle was discovering ideas for his short film assignment. Having written 7 different narratives, he was not satisfied with any. At this point, he consulted his mentor, who asked him to look within himself as every individual has a life filled with unique experiences and a treasure of stories. ❤

Thus "Ek Cup Chaha" was born, inspired by all his life events. An old conversation with his father became the plot of the film. The film received a phenomenal response at various national and international film festivals, winning 14 awards and many special mentions. Sumit presents this film as a tribute to all the fathers out there.

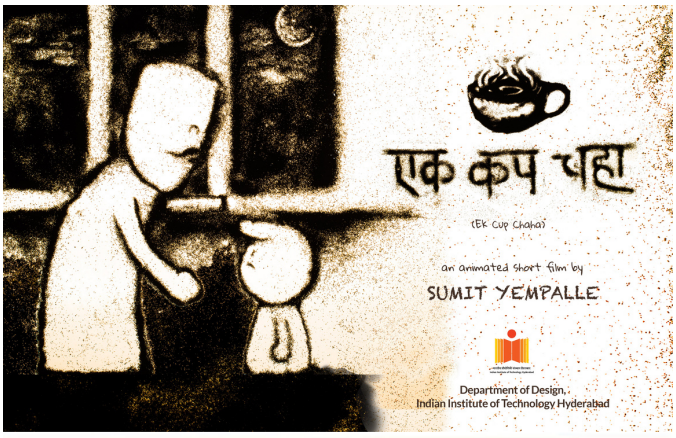
The short animation film titled- 'एक कप चहा (Ek Cup Chaha)' has been released on Youtube for public viewing. It has made with the help of Tea Powder.

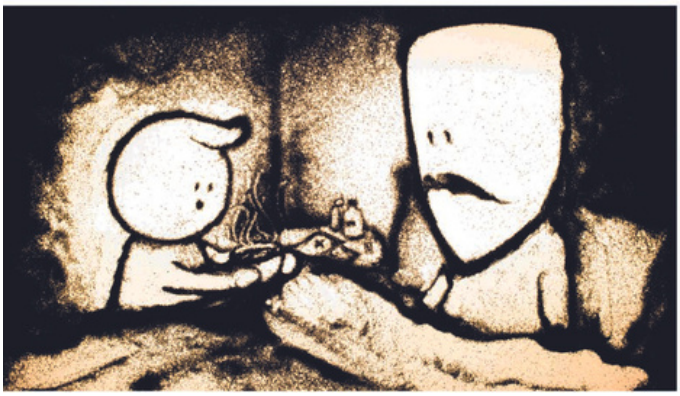
एक कप चहा (Ek Cup Chaha) has won 13 awards and has been screened at 21 (national and international) festivals including the prestigious ANIFEST - organized by The Animation Society of India. Maker expresses special thanks to his mentors at IITH - Dr Delwyn Remedios, Prof Deepak Mathew Dr Prasad Onkar, Dr Shiva Ji, Ms Seema Krishnakumar & Dr Neelakantan.

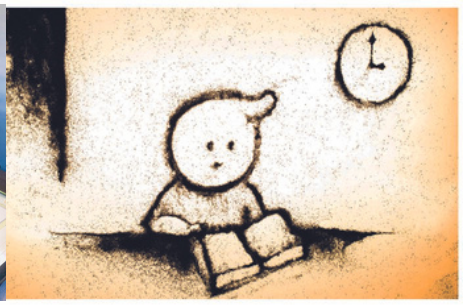
The film was made as a classwork work project during his Master of Design course at the Department of Design, IITH in 2019. After which it was submitted to various film festivals for over a year.

Film details :
Duration - 2 min 23 sec (excluding credits)
Type - Experimental Animation (Stop motion)
Category - Short Animation (Student)
Language - Marathi (English Subtitles)
Medium - Tea Powder on back-lit glass
Photography - Nikon D750 | 24mm | ISO 200 | SS 1/6 | A-8

Link to the movie: https://youtu.be/hJNVWQXbLEA







Snapshots from making of एक कप चहा

Incubatee's Diary

Activities by iTIC Incubator at IIT Hyderabad

Venu Rathore, Consultant (R)
Keyur Punjani, Manager - Programs (L)
i-TIC Incubator)

MoU with FICCI Flo

iTIC Incubator signed an MoU with the Hyderabad chapter of FICCI Ladies Organization on November 17, 2021, to establish an entrepreneurial ecosystem with a focus to foster and nurture female entrepreneurs. With this MoU, iTIC endeavors to organize talks and workshops for its members and provide mentoring support to entrepreneurs.

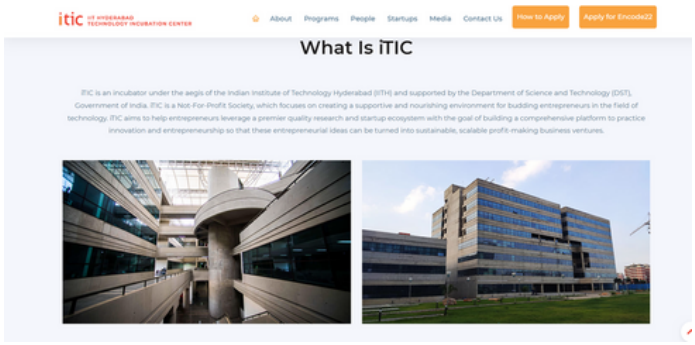
IITH Team with FICCI FLO Team

Launch of new iTIC Website

After many months of hard work and dedication from our team at iTIC Incubator, we are pleased to announce the launch of our updated website and new domain name.

Our primary goal during the redesign process was to create a more valuable, user-centric, and responsive resource across all platforms and devices. We wanted to focus on making it easier for our users or applicants to learn and locate valuable information about the Programs, Events & Challenges we organize frequently.

New domain for iTIC website: **https://itic.iith.ac.in**



Snapshot from i-TIC Incubator new Website

Launch of Encode22 Hackathon: Applications open till January 20, 2022

iTIC Incubator has organized a hackathon, Encode22, in Collaboration with Engro Technologies and MeitY Startup Hub. The Hackathon offers a chance to work on real-world challenges and propose a solution that can be converted into a full-fledged business or can also be adapted by industry.
The Problem statements that were identified for this hackathon are:

- Building a hardware solution for the video transcoding platform
- Multi-cloud key management for access control
- Building an NFT Marketplace

Get more information and apply on: **https://itic.iith.ac.in/encode22/**

Encode 2022 Announcement

Structured Mentor sessions

iTIC Incubator organizes structured one-to-one mentorship sessions for each of its startups frequently. The purpose of one-to-one mentoring is to offer the right guidance and advice from an expert who understands the ins and outs of building and running a scalable business.

Some of the mentoring sessions we organized:

- Mentoring Session with Mr. Ramesh Sinha (Founder & Director - E-Procurement Technologies Pvt. Ltd.)
- Mentoring Session with Mr. Sumit Karranji (Country Sales Head - Vinculum Group)
- Mentoring Session With Mr. Ashwin Nandapurkar (IITH Alumni, Growth Hacker)

Interactive Sessions

Some of the Interactive Sessions we organized for our startups:

Operational Structure of the Company by Mr. Dhruv Gupta
The workshop was to understand how a scalable and robust company can be built. The interactive session was beneficial to early-stage startups by learning how to prioritize and departmentalize the tasks to avoid costly mistakes and fire fighting.

Business Model Canvas by Mr. Dhruv Gupta
The workshop was to understand Business Model Canvas (BMC) - a strategic management tool to quickly and easily define and communicate a business idea or concept. It allows startups to get an understanding of the business and to go through the process of making connections between what their idea is and how to make it into a business.

Case Study: Goli Vada Pav by Mr. Dhruv Gupta
This case study was about the journey and learnings of how Goli Vada Pav started.

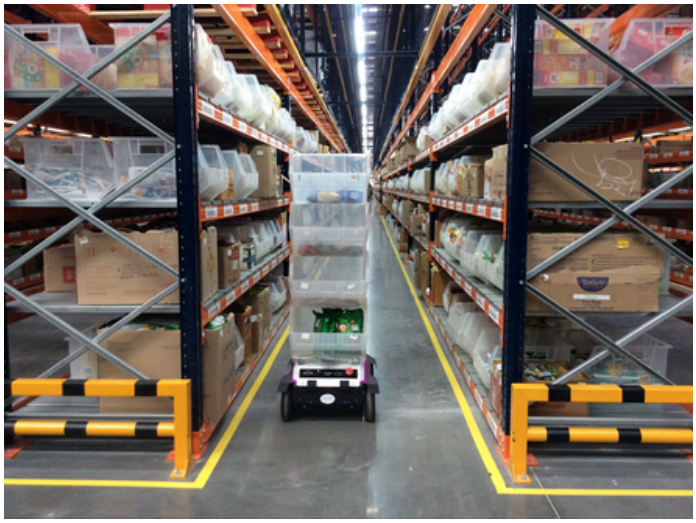
Case Study: Hotel VP by Mr. Dhruv Gupta
This case study was about the learnings from a China-based startup HotelVP.

Startup Updates

GermSAFE
Our Startup Germsafe Technology LLP headed by Dr. Sarjerao B Doltade signed a Commercial Lease Agreement with WEFSA Enviro Pvt. Ltd for using its Hydrodynamic Cavitation System towards Industrial Waste Water (Greywater) Treatment.

GermSAFE with WEFSA during agreement exchange

Alog Tech
Our Nidhi Prayas startup Alog Tech is piloting its Autonomous Robot with Flipkart. ALOG provides an innovative Autonomous productivity solution that allows complete configurability and flexibility. Bins are stacked vertically in a grid and retrieved by robots that travel on the top layer of the system. This makes it possible for the grid to be placed around columns, on mezzanines, and on multiple levels.



Alog Tech Pilot Project

IITH in News

मिलाप

Fri, 22 Oct-21; Daily Milap - Hyderabad; Size : 31 sq.cm.; Circulation:44300; Page : 16

आईआईटी हैदराबाद परिसर में सुपर स्पेशियालिटी क्लीनिक स्थापित

आईआईटी हैदराबाद परिसर में क्लीनिक का शुभारंभ करते कॉन्टिनेंटल अस्पताल के सीईओ डॉ. रियाज खान, निदेशक प्रो. बी.एस. मूर्ति। साथ में अन्य।

हैदराबाद, 21 अक्तूबर (मिलाप ब्यूरो) विद्यार्थियों को गुणवत्तापूर्ण चिकित्सा प्रदान करने के उद्देश्य से आज आईआईटी हैदराबाद परिसर में कॉन्टिनेंटल हॉस्पिटल ने सुपर स्पेशियालिटी क्लीनिक स्थापित किया। कॉन्टिनेंटल हॉस्पिटल के सीईओ डॉ. रियाज खान ने कहा कि छात्रों और कर्मचारियों को बेहतर उपचार प्रदान करने के उद्देश्य से आईआईटी हैदराबाद परिसर में क्लीनिक स्थापित किया गया है।

निदेशक प्रो. बी.एस. मूर्ति ने कहा कि वर्तमान व्यस्त जीवनशैली में स्वास्थ्य की उपेक्षा करना उचित नहीं है। स्वास्थ्य समस्या होने पर चिकित्सकों का परामर्श लेना चाहिए। छात्रों के स्वास्थ्य को ध्यान में रखते हुए संस्थान के परिसर में क्लीनिक स्थापित करने के लिए अस्पताल की टीम के साथ संपर्क किया। परिणामस्वरूप आज इसकी स्थापना की गई। उन्होंने कॉन्टिनेंटल टीम को बधाई दी।

THE TIMES OF INDIA

Sun, 14 Nov-21; Times Of India - Hyderabad; Size : 39 sq.cm.; Circulation:267065; Page : 4

IIT-Hyd inaugurates new building

Hyderabad: The Indian Institute of Technology, Hyderabad (IIT-H) inaugurated a one lakh square feet building for department of bio-medical engineering and biotechnology.

The new building was inaugurated by professor Balram Bhargava, director general, Indian Council of Medical Research (ICMR) and secretary, department of health research, Union ministry of health and family welfare.

The infrastructure is a part of phase-2 of the campus development project under the broader India-Japan collaboration. TNN

THE TIMES OF INDIA

Sun, 17 Oct-21; Times Of India - Hyderabad; Size : 152 sq.cm.; Circulation:267065; Page : 2

IIT-H to offer three new BTech courses

TIMES NEWS NETWORK

Apart from the special curriculum designed for the three programmes, students will also have an opportunity to increase their depth in the subject by undertaking elective courses from any other department

Hyderabad: The Indian Institute of Technology, Hyderabad (IIT-H) is set to offer students three new industry-oriented BTech programmes in biotechnology and bioinformatics, computational engineering and industrial chemistry from the academic year 2021-22.

The BTech curriculum in the three new programmes provides an opportunity to students to take courses from all branches of sciences, viz., maths, physics, and chemistry in the first two semesters. In the sixth semester, students can opt for the semester-long projects which provide an opportunity to work and gain experience in biotech, pharma, manufacturing, IT, data analysis, chem informatics and for a gradual transition to full-time jobs.

"Curriculum for BTech in biotechnology and bioinformatics is designed to train the students with in-demand bioinformatics skills, including artificial intelligence and soft computing, structural biology, biological data mining, image processing, modelling and simulation, systems biology and biostatistics to ensure complete industry readiness of the students," said professor Anindya Roy, head of department of biotechnology, ndian Institute of Technology, Hyderabad .

Apart from the special curriculum designed for the three programmes, students will also have an opportunity to increase their depth in the subject by undertaking elective courses from any other department. They can pursue a minor in areas of their interest, outside the department, like entrepreneurship, computer science, etc., by completing 12 additional credits in that area.

"BTech in industrial chemistry will have a particular emphasis on producing the finest graduate students with adequate knowledge of applied chemistry and technology to work in various industries like pharma and drug design, polymer industry, petrochemical industries, environment ," said professor G Satyanarayana, head, department of chemistry.

पत्रिका

Sat, 23 Oct-21; Rajasthan Patrika - Delhi; Size : 84 sq.cm.; Circulation:7641; Page : 9

आइआइटी, हैदराबाद ने बीटेक के 3 कोर्स शुरू किए

शैक्षणिक सत्र 2021-22 के लिए आइआइटी, हैदराबाद ने बीटेक प्रोग्राम के तीन नए कोर्स संचालित करने का निर्णय लिया है। जानें इनके बारे में-

बायोटेक्नोलॉजी एंड बायोइंफॉर्मेटिक्स

इस विषय के तहत स्टूडेंट्स बायोइंफॉर्मेटिक्स स्किल्स की जानकारी ले पाएंगे। इसमें विशेषकर स्ट्रक्चरल बायोलॉजी, वेब टेक्नोलॉजी, इमेज प्रोसेसिंग, एआइ व सॉफ्ट कम्प्यूटिंग आदि के बारे में जान सकेंगे।

कम्प्यूटेशनल इंजीनियरिंग

इस विषय में स्टूडेंट्स न्यूमेरिकल मैथड्स एंड एल्गोरिद्म, मॉडलिंग एंड साइमुलेशंस ऑफ इंजीनियरिंग सिस्टम्स एंड प्रोसेस, हाई परफॉर्मेंस कम्प्यूटिंग व प्रोसेस कंट्रोल आदि के बारे में जानेंगे।

इंडस्ट्रियल केमिस्ट्री

इस विषय में इंडस्ट्री के बिल्डिंग मैटीरियल, प्लास्टिक्स, टेक्सटाइल व पेट्रोलियम प्रोडक्ट्स को बेहतर बनाने के लिए सही फॉर्मूला और एनालिटिकल मैथड व प्रोसेस को अपनाने के लिए बारे में बताते हैं।

The Financial Express - 29-12-2021

IIT Hyderabad reaffirms to up-skill the GenZ for being future-ready

Prof B S Murty, who took over as the Director of IIT Hyderabad on 26th August 2019, shared the status of the 'IIT Hyderabad's Vision for 2024' with the media in Hybrid Mode on December 28, 2021, in the presence of Prof C Krishna Mohan, Dean (Public & Corporate Relations), IIT Hyderabad and Mitalee Agrawal, Public Relations Officer, IIT Hyderabad.

Speaking on the occasion, Prof B S Murty, Director, IIT Hyderabad, said, "Despite Pandemic, we could witness a fruitful year with World-class Research, Academic Advancement, Best-ever Placement Season, State-of-the-ar-Centre of Excellence, Significant Campus Development & commendable recognition of IITHian. Keeping up the momentum, we are now striving to train & upskill the talents among youth in line with our motto to Invent & Innovate in Technology for Humanity".

IITH has a strong culture of Innovation & Entrepreneurship on Campus. In a recently released star rating by the Ministry of Education Innovation Cell, IITH has been rated 4-star for its splendid performance for FY 2020-21. It is based on various initiatives taken to firmly establish the innovation & entrepreneurship ecosystem at the IITH. A Research Park and an Innovation Park spanning 1.5 lakh sqft each are also coming up, which will be a major boost to startups and industry relations. The Institute is also introducing a series of online & industry Oriented MTech programs in the coming year.

IITH in News

THE HINDU
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Mon, 13 Dec-21; Hindu - Hyderabad; Size : 130 sq.cm.; Circulation:191215; Page : 2

HC Robotics inks pact with IIT-Hyderabad

SPECIAL CORRESPONDENT
HYDERABAD

HC Robotics, a tech firm specialising in design and manufacture of customised UAVs, aerostats, EOIR cameras, and AI-based image processing, has signed an MoU with IIT-Hyderabad for testing of new technologies at the newly built IIT-H Technology Research Park Foundation (IITHTRP) facility in the campus last week.

The technologies to be taken up for research and testing from January 2022 include robotics arms attached to drones to implement certain unmanned tasks with the subsequent manufacturing to be done by HC Robotics.

The firm already has research and design centres in the United States and Australia. It is also partnering with IIIT-DM, Kurnool, for research collaboration on UAVs and other advanced technologies.

HC Robotics have received patents for longest and lightest Robotic Arm for UAVs and Robotic Insulator Cleaner for transmission towers.

The firm has received approval from DGCA for conducting experiments on Beyond Visual Line of Sight operations and have been allotted an area to conduct the experiments.

THE HINDU
Copyright© 2014, The Hindu
Wed, 29 Dec-21; Hindu - Hyderabad; Size : 437 sq.cm.; Circulation:191215; Page : 2

Driverless vehicle at IIT-H in six months

Suzuki's innovation centre to come up on campus, first outside Japan

R. AVADHANI
HYDERABAD

By mid-2022, the Indian Institute of Technology, Hyderabad (IIT-H) will have an autonomous vehicle on its campus. Yes, it is one that runs without a driver.

Suzuki Corporation of Japan has decided to establish its innovation centre on the premises of IIT-H. This will be the first such centre outside Japan.

Disclosing the details at a press conference held at the institute on Tuesday, IIT-H director B.S. Murty said several industries are showing interest to set up their research centres on their campus, and such developments could benefit both the industry as well as the students. He said the institute will be coming up with a policy in a month that aims to support innovations.

The institute is focusing on improving the industry-academia relationship with a stress on preparing industry-ready graduates and post graduates. A research park and innovations park coming up on about 1.5 lakh square feet each will a boost for startups and innovations, he added.

The Indian Institute of Technology-Hyderabad is also working on a policy to support innovations. • FILE PHOTO • FILE PHOTO

It will also make arrangements to train the rural youth from select villages in skill development. The IITH is also considering taking diploma students and offering them courses with a duration of one/ two and three years and they will be offered certificate, advanced certificate and under graduation respectively.

The institute director said they have adopted engineering colleges, and agreements were signed with BVRIT, GITAM and Malla Reddy Engineering College.

Stress on Sanskrit

Mr. Murty said Sanskrit language is being taught to interested students so that they can extract science from the Sanskrit slokas and recalled how they were able to develop some nano-material based on Sanskrit scriptures with the help of a language expert. About 100 students are learning the language.

Answering a question, he said that they have already been implementing the suggestions made in the National Education Policy and as part of that, inter-disciplinary Ph.Ds are being offered.

Referring to the second phase of construction at IIT-H, Mr. Murty said it would be completed by 2023 and by then, the student strength will be about 5,000 while that of faculty will be around 500. The institute is also making efforts to attract bright foreign students by offering them a monthly scholarship of ₹60,000 per month in addition to offering an amount of ₹1 lakh to procure material for research.

IIT-H dean C. Krishna Mohan (Public and Corporate Relations) was also present.

Thu, 09 Dec-21; Telangana Today - Hyderabad; Size : 74 sq.cm.; Circulation:149245; Page : 6

IIT-H student bags Rs 65L package, 466 get jobs

STATE BUREAU
Sangareddy

A total of 466 students of Indian Institute of Technology-Hyderabad (IIT-H) got placement offers, including 34 international ones, from 104 companies during phase-1 of the Campus Placements drive held between December 1 and 7.

The highest package was Rs 65 lakh, and the average package was 23 lakh during the ongoing phase-1 of the placement drive

A total of 650 plus students had registered for placements this year and a total of 210 companies were part of the placement drive. Including the accepted Pre-Placement Offers (PPOs), a total of 427 students have already been placed in the ongoing phase-1 placements for the 2021-22 academic year.

A lot of India-based startups and firms were among the recruiters.

Prof BS Murty, Director, IIT-H said: "We believe in creating industry-ready talent pool and I am confident that the measures taken in past year will fetch appropriate dream jobs for students."

THE TIMES OF INDIA
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Thu, 30 Sep-21; Times Of India - Hyderabad; Size : 187 sq.cm.; Circulation:267065; Page : 2

IIT-H research team develops hydrogel to regenerate cornea

TIMES NEWS NETWORK

Hyderabad: Scarring due to corneal injury can now be prevented thanks to a novel technology developed by researchers at the Indian Institute of Technology, Hyderabad (IIT-H). Currently, no treatment is available other than partial donor corneal graft or transplantation for corneal scarring.

A corneal scar is either opacity or irregularity in the cornea that could limit the cornea's ability to accurately focus light. Researchers from the biomedical department at IIT-H collaborated with LV Prasad Eye Institute and Centre for Cellular and Molecular Biology to come up with a technique, which is less invasive and can replace complex surgical procedures in ophthalmology.

Using discarded cornea from slaughterhouses and disqualified cornea for transplantation from eye banks, the team of researchers have developed a tissue-derived hydrogel that when injected can regenerate the cornea without scarring.

"We have tested the corneal hydrogel for two complications associated with cornea — corneal scarring and keratoconus — and, in both cases, we found that this can be successfully used as a new treatment strategy to avoid complicated surgeries," Shibu Chameettachal, PhD scholar, department of biomedical engineering, IIT-H, said, adding that the institute was also planning for human pilot studies for some of its applications soon.

Experts believe that this technology would have a huge impact in countries where there was a scarcity of eye bank and donor tissue.

"The southern part of India is much more developed than north for eye care. Still, states like Uttar Pradesh and Bihar have the least accessibility to donor cornea and they have to travel to south India for any corneal perforation, scars or related disease. This technology will even be used to prevent blindness in rural north India, where there is limited availability of donor cadaveric transplantation grade cornea," said Dr Vivek Singh, senior scientist, LVPEI and one of the principal investigators.

Finally, the aim of the research is to develop a complete human cornea to replace the human cadaveric donor cornea with 3D bioprinting technology. The researchers have filed both Indian and US patent for the preparation of the hydrogel.

A RELIEF FROM COMPLEX SURGERY

- The technology can replace some of the complex surgical procedures in ophthalmology
- It was developed using discarded cornea from slaughterhouses and disqualified cornea for transplantation from eye banks
- The processing method is simple and using only eco-friendly and harmless chemicals
- Preclinical studies indicate that the corneal scar for which cadaveric corneal grafting is the only available option currently, can be cured using this hydrogel
- Its potential to treat thinning corneal disorders was also explored with successful outcomes

IITH in News

The Hans India Date - 24-12-2021

Japanese Research Institute, IIT-H renew MoU

MoU lists joint projects on machine learning, deep learning, data mining, other AI themes

HANS NEWS SERVICE
HYDERABAD

JAPAN'S National Institute of Advanced Industrial Science and Technology (AIST) and Indian Institute of Technology-Hyderabad (IIT-H) have renewed a bilateral memorandum of understanding (MoU).

An IIT-H communique on Thursday said that it would further strengthen the relationship and the collaborative activities between the two organisations. The AIST's Artificial Intelligence Research Center (AIRC) and IIT-H established a working relationship in Artificial Intelligence through a MoU signed on October 29, 2018. Over the past three years, the cooperation led to many research projects; AIRC hosted many student interns. IIT-H students worked on joint projects related to machine learning, deep learning, data mining, and other AI themes.

The renewed MOU covers joint scientific and technological cooperation in areas, including, but not limited, to machine learning and probabilistic reasoning techniques for various data types and their combinations, Activities include organising seminars, symposia, or other types

of discussions; co-guidance for IIT-H intern-students participating in joint activities; scientist, staff, and researcher exchanges; and collaborative research projects of mutual interest, it added. Junichi Tsujii, Director, AIRC said "the cooperation between IIT-H and AIRC started in 2018 when the then director of IITH Dr Uday B. Desai, visited Japan with Prime Minister Narendra Modi and signed the first MoU. Since then, AIRC has received researchers from IIT-H who have given invited talks at AIRC's international symposia and exchanged research ideas with AIRC. Based on the collaborative discussions, AIRC hosted five intern-students whose works contributed to the progress of the joint research endeavours of the two institutions."

Prof B S Murty, IIT-H director, said it is one of the pioneering academic institutes in the country especially in the field of AI & ML. We have gauged the importance of AI well in advance. We are the first to start an undergraduate (B Tech) programme in AI. We are also the first in the country to have a complete department of AI that offers B Tech, M Tech & PhD in AI with 25+ young and dynamic faculty. Collaborations with institutes, like AIST, is a step in the right direction to establish a global centre of excellence for AI & ML at IIT-H and thus to serve society well with its changing needs".

THE HINDU
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Mon, 13 Dec-21; Hindu - Hyderabad; Size : 130 sq.cm.; Circulation:191215; Page : 2

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SPECIAL CORRESPONDENT
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The firm has received approval from DGCA for conducting experiments on Beyond Visual Line of Sight operations and have been allotted an area to conduct the experiments.

The Hans India Date - 26-10-2021

Digital classrooms inaugurated at IIT-H campus school

HANS NEWS SERVICE
HYDERABAD

THE IIT Hyderabad Board of Governors (BoG) chairperson and founder-chairman, Cyient Dr B V R Mohan Reddy observed on Monday that adapting to changing needs is key to success.

Addressing the gathering while inaugurating digital classrooms in IIT-H, he urged teachers to adapt to technological advances to ensure "our future leaders are ready to face future."

He added, "we have used the best technological platform for interactive teaching and learning in IIT-H DAV School. It will be upgraded as and when there is a demand from teachers and change in technology." All the 11 digital classrooms for IITH campus school include a digital library. Dr Reddy said that students 'are our future', reiterating his objective to invest in future leadership.

Emphasising his vision of making IITH a dream destination, Prof B S Murty, Director, said in the last two years, the IIT campus progressed exponentially with new facilities/amenities. The campus school is one such major infrastructural debted to Dr Mohan Reddy, and the Cyient Foundation for equipping the school with smart classrooms.

He expressed confidence that the digital classrooms will help the school into a world-class institution. With dedicated teachers, it will become a dream destination for students in Hyderabad.

The project was sponsored to enhance the learning experience of the school wards to be at par with the needs of the hour. Cyient's CSR team took the initiative earnestly to ensure the project delivery within three months, in collaboration with Technology Partner 'Tata Class Edge'. Enriching the IIT campus facility with this digitation of the school could be possible with continuous coordination by the Academic Section of IIT-H under the leadership of Dean (Academics) Prof Saptarshi Ma-

मिलाप
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Thu, 09 Dec-21; Daily Milap - Hyderabad; Size : 64 sq.cm.; Circulation:44300; Page : 9

छप्पर फाड़ के

आईआईटी हैदराबाद के 427 विद्यार्थियों का प्लेसमेंट

अधिकतम वार्षिक पैकेज 65 लाख, जापान और ताइवान की प्रतिष्ठित कंपनियों में मिला अवसर

हैदराबाद, 8 दिसंबर-(मिलाप ब्यूरो) भारतीय प्रौद्योगिकी संस्थान हैदराबाद द्वारा आयोजित कैंपस प्लेसमेंट के प्रथम चरण के दौरान 427 विद्यार्थियों का प्लेसमेंट हुआ। प्रथम चरण में 104 कंपनियों से 466 ऑफर प्राप्त हुए, जिसमें 34 अंतरराष्ट्रीय कंपनियों भी शामिल हैं। दूसरा चरण जनवरी 2022 से शुरू होगा।

आज यहां जारी प्रेस विज्ञप्ति के अनुसार, ऑनलाइन प्रक्रिया में छात्रों ने घर बैठे साक्षात्कार में भाग लिया। इस वर्ष विभिन्न विभागों में प्लेसमेंट के लिए कुल 650 से अधिक छात्रों ने पंजीकरण कराया। पिछले साल कुल 195 कंपनियों ने पंजीकरण कराया था। सर्वेक्षण प्री-प्लेसमेंट ऑफर सहित कुल 427 छात्रों को पहले ही 2021-22 शैक्षणिक वर्ष के लिए चल रहे पहले चरण में अवसर मिल चुका है। आईआईटी हैदराबाद में स्मार्ट मोबिलिटी में एमटेक पाठ्यक्रमों के पहले स्नातक बैच ने प्लेसमेंट प्रक्रिया के पहले सप्ताह के भीतर 100 प्रतिशत प्लेसमेंट देखा। प्लेसमेंट के अनुरूप आयोजित किए गए इंटर्नशिप में छात्रों की संख्या पिछले वर्ष की तुलना में दुगुनी से अधिक रही। देश में कुछ सबसे प्रतिष्ठित और कंपनियों इस साल टॉप रिक्रूटर्स में शामिल हैं। इस साल 10 स्टार्ट अप्स ने 36 ऑफर दिए हैं। उच्चतम पैकेज 65 और औसत पैकेज 23 लाख रुपये है। पिछले साल की तुलना में इस साल भी अंतरराष्ट्रीय कंपनियों में छात्रों को काम करने का मौका मिला है। वर्तमान प्लेसमेंट वर्ष 2021-22 के लिए जापान और ताइवान की सात कंपनियों से 34 अंतरराष्ट्रीय प्रस्ताव प्राप्त हुए हैं। दूसरे चरण में और अधिक अंतरराष्ट्रीय ऑफर प्राप्त होने की उम्मीद है। आईआईटी हैदराबाद के निदेशक प्रो. बीएस मूर्ति ने कहा कि संस्थान उद्योग के लिए प्रतिभाओं का पूल बनाने में विश्वास रखता है और उन्हें विश्वास है कि पिछले एक साल से किए जा रहे प्रयास से पुराओं का बेहतरीन और प्रतिष्ठित कंपनियों में काम करने का सपना पूरा होगा। उन्होंने कहा कि पिछले दो वर्षों में बीटेक के लिए प्लेसमेंट लॉन्ग इंटर्नशिप, इंटरडिसिप्लिनरी एमटेक, इंडस्ट्री लेक्चर, इंडस्ट्री-डिसाइड एमटेक प्रोजेक्ट्स आदि जैसी विभिन्न पहलों के परिणाम सामने आने लगे हैं और इसमें और सुधार करेंगे।

आईआईटी हैदराबाद परिसर।

Thu, 16 Dec-21; Telangana Today - Hyderabad; Size : 30 sq.cm.; Circulation:149245; Page : 6

In a nutshell

Sangeeddy

IIT-H Professor wins award

Assistant Professor at Department of Liberal Arts, Indian Institute of Technology-Hyderabad (IIT-H) Dr Shuhita Bhattacharjee, has been awarded the "Outstanding Woman Researcher in English Literature (Humanities and Social Sciences) Award" in the 7th Venus International Women Awards (VIWA) 2022.

मिलाप
Copyright 2014 Daily Hindi Milap. All rights reserved.
Wed, 13 Oct-21; Daily Milap - Hyderabad; Size : 39 sq.cm.; Circulation:44300; Page : 18

आईआईटी हैदराबाद के स्टार्टअप्स में आईटीआईसी करेगा निवेश

ऑटोनॉमस नेविगेशन प्रोग्राम के तहत स्टार्टअप्स निवेश के लिए आयोजित बैठक में उपस्थित तिहान ऑटोनॉमस नेविगेशन सेंटर, आईटीआईसी इन्क्यूबेटर-आईआईटी हैदराबाद के पदाधिकारी एवं अन्य।

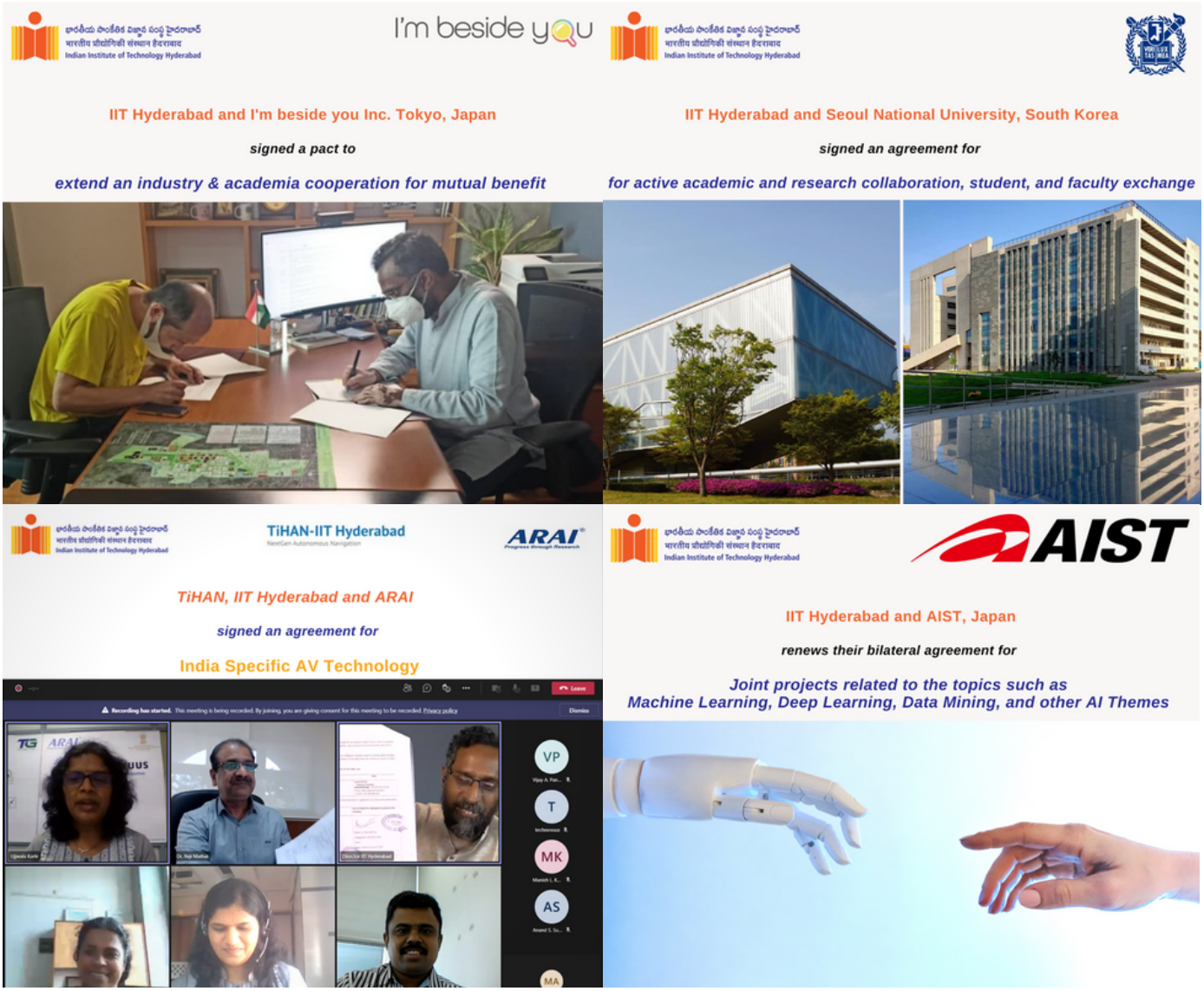
हैदराबाद, 12 अक्तूबर-(मिलाप ब्यूरो) तिहान ऑटोनॉमस नेविगेशन सेंटर, आईटीआईसी इन्क्यूबेटर-आईआईटी हैदराबाद के माध्यम से देश भर के 6 स्टार्टअप्स के लिए 1 करोड़ से अधिक का निवेश करेगा। आईटीआईसी इन्क्यूबेटर के अनुरूप तैयार स्टार्टअप्स में प्रत्येक में 25 लाख रुपये तक निवेश किया जाएगा। इसके अलावा आईटीआईसी शुरुआती चरण के स्टार्टअप्स के लिए प्रत्येक में 10 लाख रुपये तक का निवेश करेगा।

आईटीआईसी इन्क्यूबेटर और तिहान के संयुक्त प्रोग्राम के हिस्से के रूप में आईआईटी हैदराबाद में आईटीआईसी इन्क्यूबेटर द्वारा हाल ही में देश भर से ऑटोनॉमस नेविगेशन के क्षेत्र में कार्य कर रहे 6 स्टार्टअप्स का चयन किया गया है। निवेश के अतिरिक्त स्टार्टअप्स को संरचित परामर्श, सह-कार्य स्थल, मेकर लैब और आईआईटी हैदराबाद की आधारभूत संरचना तक समर्थन प्रदान किया जाएगा। आने वाले महीनों में ऑटोनॉमस नेविगेशन के डोमेन से अधिक से अधिक स्टार्टअप्स को समर्थन प्रदान किया जाएगा।

आईआईटी हैदराबाद के निदेशक, आईटीआईसी व तिहान के अध्यक्ष प्रो. बी.एस. मूर्ति ने स्टार्टअप्स और उद्यमियों का स्वागत करते हुए कहा कि प्रौद्योगिकी विकास और नई प्रतिभाओं को आगे बढ़ाने में संस्थान हमेशा आगे रहा है। उन्होंने कहा कि इनक्यूबेशन गतिविधियों के माध्यम से आईआईटी हैदराबाद इन नवाचारों के सफल व्यावसायीकरण के लिए स्टार्टअप्स को उचित परिस्थितिकी तंत्र प्रदान करना चाहता है। तिहान परियोजना निदेशक प्रो. राजलक्ष्मी ने कहा कि तिहान कार्यक्रम के माध्यम से आईआईटी हैदराबाद स्वायत्त के क्षेत्र में अनुसंधान क्षमताओं के निर्माण पर ध्यान केंद्रित कर रहा है। स्टार्टअप्स के अलावा प्रमुख सुविधाएं अनुसंधानकर्ताओं के लिए उपलब्ध रहेगी। इनक्यूबेशन के संकाय प्रभारी प्रो. सूर्यकुमार ने कहा कि इस नई सुविधा के साथ आईटीआईसी में स्वायत्त नेविगेशन उद्यमी समुदाय अधिक मजबूत और विविध हो गया है। अगले पाँच वर्षों में इनोवेशन और स्टार्टअप्स में प्रतिभाओं का भंडार होगा।

Campus Corner

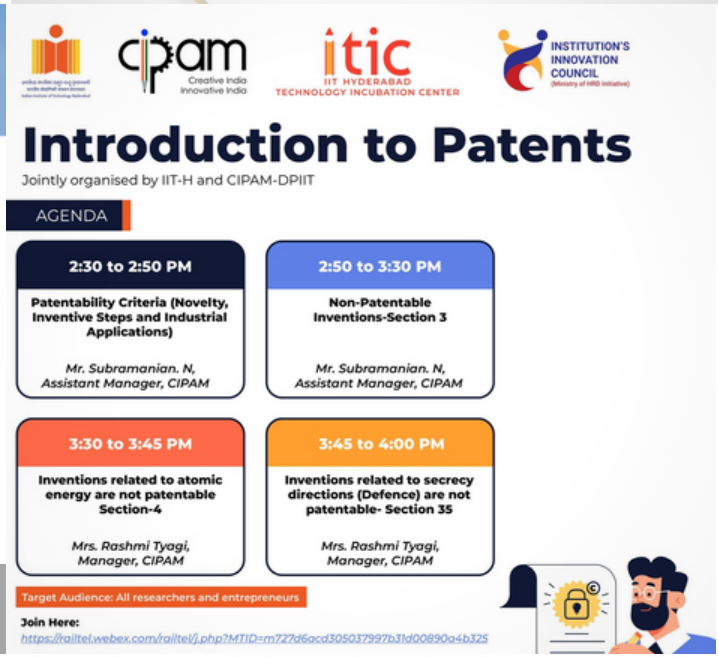
Collaborations



Seminars & Talks

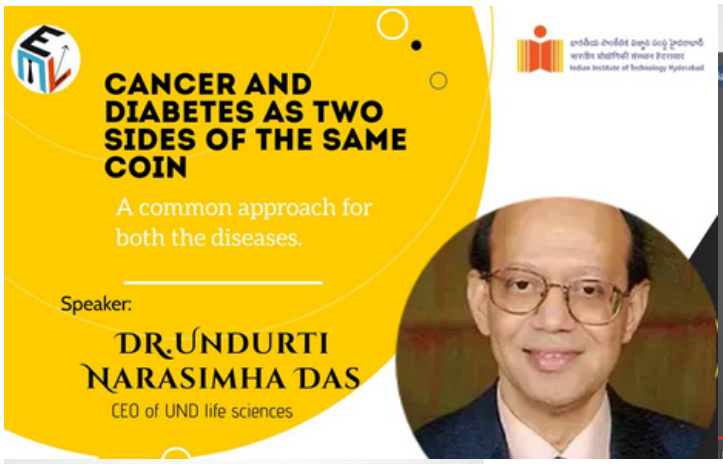
Campus Corner

Seminars & Talks



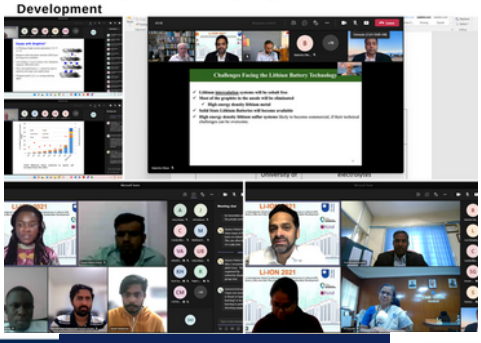
Campus Corner

Seminars & Talks



One Day National Symposium On "Recent Advances In Magnetism and Spintronics (NS-MAGSPIN-2021)" by Department of Physics @IITHyderabad

IIT Hyderabad & The Open University, UK has organized Li-ION 2021, an international Conference on Recent Advances in Lithium-ion Batteries (LIBs) & their Recycling Methods for Sustainable Development



IIT Hyderabad organized a Training and awareness session on 'Prevention of Sexual Harassment at the Workplace'

Institute Innovation Council @IITH, organized an engrossing workshop on "Entrepreneurship & Innovation as a career opportunity".

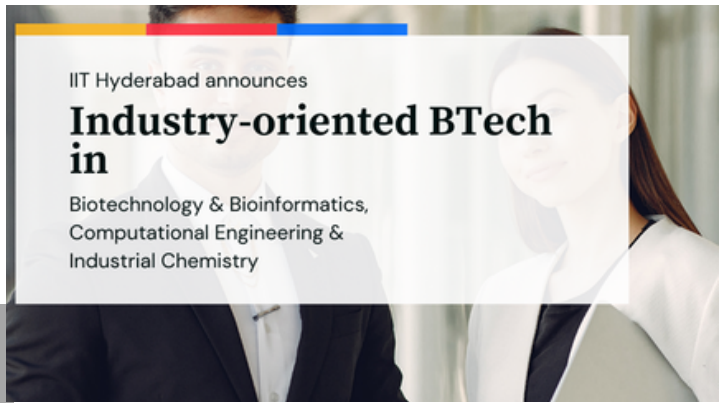
Link to the workshop: https://youtu.be/k8P980yLfXc

ANOMALIES 2021 - International conference organized by Department of Physics @IITHyderabad

Campus Corner

Highlights

ContinentalHospitals set up a super specialty clinic with the objective of providing corporate-level treatment to residents#IITHyderabad Campus.



IIT Hyderabad announces first of its kind industry-oriented three BTech Programs, starting October 2021

Prof Balram Bhargava, DG-ICMR, Secretary, Department of Health Research, MoFHW, inaugurated leading-edge BME-BT Building at IIT Hyderabad.

India should be an international hub for Medical Innovations said, Prof Balram Bhargava.

IIT Hyderabad has set up a comprehensive waste management system on Campus. A Resource Recovery Park (RRP) and the bio-digestor are steps towards sustainable waste management, said Prof B S Murty, Director, IIT Hyderabad.

Read more at: https://tinyurl.com/r4s6mfr4

Team iTIC Incubator & TiHAN Centre along with the selected Start-up at IIT Hyderabad

TiHAN & iTICIncubator, @IITHyderabad to invest more than INR 1 Cr into 6 deep tech startups working on Autonomous Navigation

Highlights:

- A joint program by iTIC Incubator and TiHAN.
- Area of interest include Autonomous Navigation and Data Acquisition Systems (UAVs, ROVs, etc)
- Selected 6 startups at idea and prototype stages for this year.
- Startups to get a total support of more than INR 1 Cr

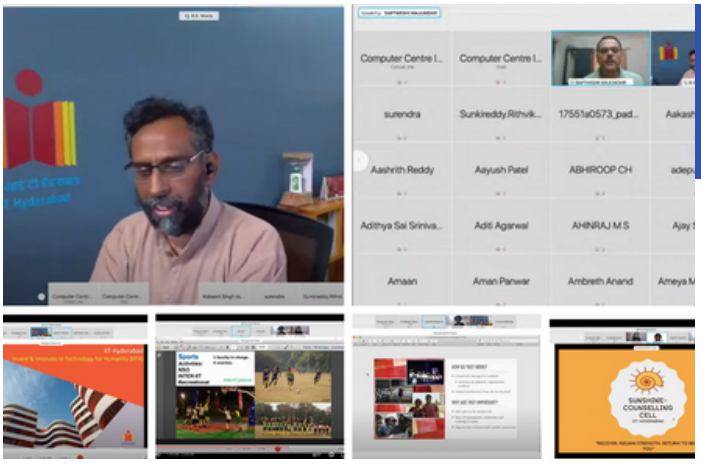
Read more at: https://tinyurl.com/4z9tupf

Campus Corner

Highlights

Priyabrata Rautray, PhD Scholar, Dept of Design represented Bio-Bricks #IITHyderabad at a national level Conference-cum-Expo on New Urban India: Transforming Urban Landscape as a part of Azadi ka Amrit Mahotsava (AKAM) to commemorate 75 Years of India's Independence in Lucknow under the clarion call of #AatmaNirbharBharat of Hon'ble Prime Minister organized by the Ministry of Housing and Urban Development (MoHUA).

DIESTA2021 - An interdepartmental week long sports & cultural fest celebrated @IITHyderabad



IITHyderabad welcomed neophytes to the family. An orientation has been organized by the Director, Deans, Heads, and Faculty -in-charges for various wings at IIT Hyderabad to familiarize the newsies with the vibrant colors of the campus.

Bathukamma & Dandiya dandiya Colors are cherished with full spirit @IITHyderabad

IITHyderabad welcomes the #AustralianHighCommission in India led by Mr BrettGalt, Counsellor, Education & Research, Ms Shazia Naqvi & Ms Janaki Sreerama. The team visited IITH to understand the research & academic capabilities & to better Indo-Australian links.

Campus Corner

Highlights

Know the experience of the first batch of the BTechs in BioMedical Engineering @IITHyderabad

Have a look at the video abstract to explore the details: https://youtu.be/ETOPFgDL6_0

Pic: Kherkar Purva Ganeshrao, Lady Physical Training Instructor

Worshipping the tools of healthy habits @IITHyderabad

Sports Department @IITH celebrated the auspicious occasion of Ayodhya Pooja, revering the tools & tackles that foster the IITHians' fitness.

Cyient Foundation digitalized IIT Hyderabad's DAV Campus School.

Cyient Founding Chairman Dr BVR Mohan Reddy inaugurated the facility.

Read more: https://tinyurl.com/4wchdkfs

IIT Hyderabad successfully organized the 4th Covishield Vaccination Campus for the IITHians.

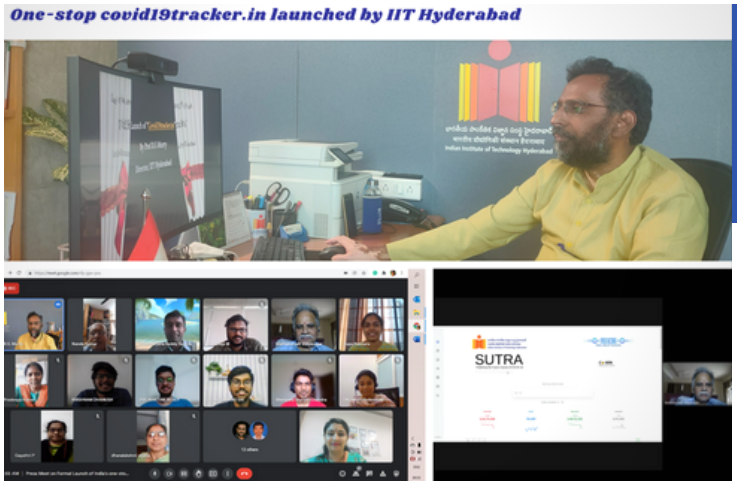
Deepawali lights dazzles on the campus of IIT Hyderabad

Campus Corner

Highlights

To create awareness about Pollution Prevention, IIT Hyderabad organized a painting competition for IITHians to observe the National Pollution Control Day 2021 and accorded the winners for the out-of-the-box thought process.

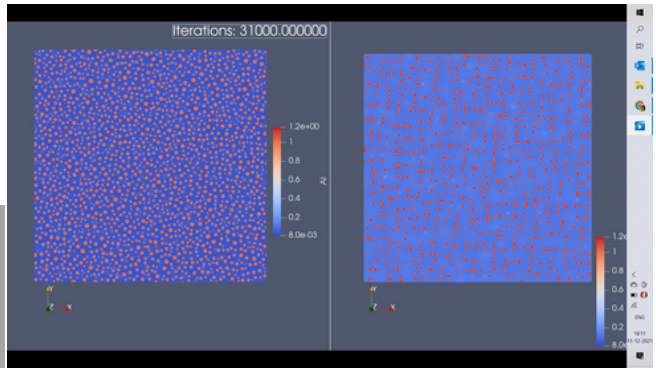
VigilanceAwarenessWeek2021 IIT Hyderabad, a week full of Act of Acuity with Expert's Talk, Elocution Competition, Essay Writing, Painting by School Kids.



Get one-stop COVID updates at 'covid19tracker.in' portal by IIT Hyderabad

Prof B S Murty, Director, IITH launched the portal and declared it open for public use

Read more: https://tinyurl.com/ytaxwncd



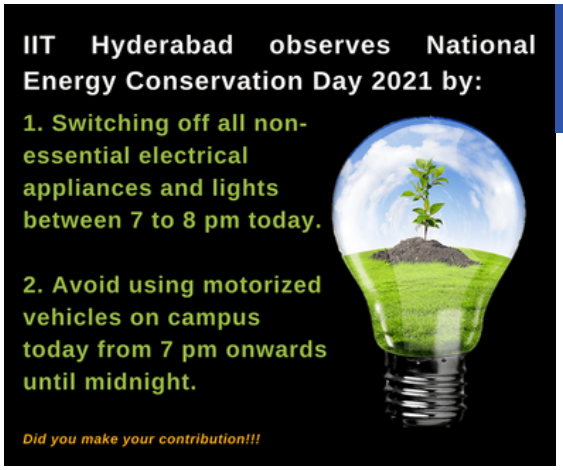
As part of India's National Supercomputing Mission (NSM) under the Department of Science and Technology, Government of India, the Indigenous Open Source Repository of Phase-Field Codes - MicroSim 1.0.2 has been released for the public domain use.

IIT Hyderabad celebrated Constitution Day 2021 to commemorate the adoption of the Constitution of India. The Hon'ble President led the reading of the Preamble on the day. The faculty, staff and the students took part in this event virtually and also celebrated the day with the mass-reading of the Preamble.

New security check post inaugurated at @IIT Hyderabad. Check post is equipped with the Biometric Scanning of the employee & students and RFID tagging for the institute vehicle to plan soon.

Campus Corner

Highlights



IIT Hyderabad observes National Energy Conservation Day 2021 by:

Did you make your contribution!!!

#IITHyderabad placements Phase-1 rocks with 466 job offers to 427 Students

Highlights:
• Highest placements tally so far
• Total 466 job offers including 34 international offers & 82 PPOs (as on date).
• The top recruiters include Flipkart, Indeed, Infurnia, JP Morgan, Meesho, Microsoft, NTT-AT, Newzera, Silicon Labs, Suzuki Motor Corp, TSMC & Zomato.

Read more at: https://tinyurl.com/yrc7y755

IIT Hyderabad Women's Association has donated clothes to the Asha Kuteer Homes, an orphanage & old age home in the city.

IIT Hyderabad organized Fit India Freedom Run 2.0 on the august occasion of Celebrations of India's 75 years of Independence- Azadi Ka Amrut Mahotsav with the theme, Fitness ki Dose - Adha Gantha Roz

Glimpses of JAPAN DAY 2021 #IITHyderabad in association with #JICA & #JETRO: https://youtu.be/T4e8tFwFsio

13 Japanese companies attended the two-day online "JAPAN DAY 2021" @IIT Hyderabad

Joint Industry-Academia-Government session has been held for the first time as an initial interactive opportunity for nurturing future collaboration between India and Japan.

Campus Corner

Highlights

For effective utilization of the computation resources, #IITHyderabad has renovated the Institute Datacenter (IDC) to facilitate the hosting of additional servers/ clusters by adding 633 Trillion FLOPS computation power to its existing capacity which provides wide scope for Faculty and students in performing their research activity.

=>IDC has come up with Active non-IT equipment to the existing list with

- One 160kVA (~128kW) UPS power backup
- One 250kVA (~225kW) DG
- Two 16Ton PAC in active/standby pair

=> New 18 Rack server to host additional IT equipment in a Cold Aisle Containment (CAC) approach.

=> Also upgraded the Automatic mains failure (AMF) panel that gives the feasibility to synchronize existing and new DGs and, can also draw the DG power to the UPS as well.

Merry Christmas at IIT Hyderabad. Residents of IITH celebrated Christmas in full spirit to spread the message of love & joy in humankind.

From the glittering stars to the glorifying hearts & decorated trees to dedicated souls, its X-mas impact is everywhere.

IIT Hyderabad and IIITRaichur wish all a Merry Christmas. May this day bring you hope and love.

"Timeless Memories- Chamba through the lens of Sham Sunder Das"

Venue - State Art Gallery, Hyderabad

The collection showcased in the exhibition is part of ongoing research undertaken by Professor Deepak J Mathew and Ankana Sen at Department of Design, IIT Hyderabad.

Badminton Doubles Tournament Closing Ceremony at IIT Hyderabad.

Campus Corner

Highlights

IIT Hyderabad has observed the day with the administration of the Rashtriya Ekta Diwas (National Unity Day) pledge.

Rural Development Centre and Unnat Bharat Abhiyan at IIT Hyderabad have jointly organized the National Farmers Day.

61 mattresses & a few pillows to Mahima Ministries Orphans & Oldage Home on 6th December 2021 on behalf of the IIT Hyderabad community. These were collected from the rooms of our graduated students after they had been vacated. Such a kind act wouldn't have been possible without the assistance & support of IITH authorities & the student community. We would like to thank the students who had been a part of this donation for their kind gesture. Thank you all for lighting up hundreds of smiles!!

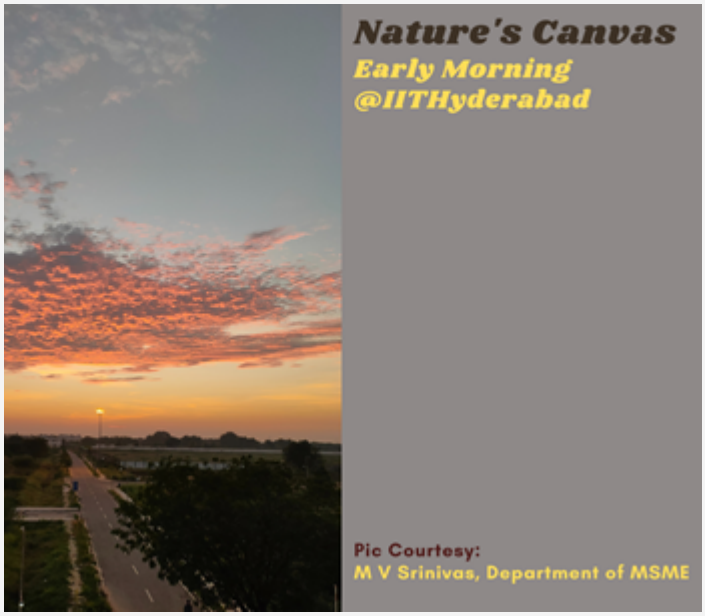
Plantation December Month @IIT Hyderabad

Campus Corner

Campus View

Pic Courtesy: Mr M V Srinivas

Pic Courtesy: B V Raju, Department of MSME



Pic Courtesy: K Ramesh Yadav, Department of Physics

IITH's Bank of Knowledge

Teaching Staff

Dr Ashok Kumar Pandey

Professor
Department of Mechanical & Aerospace Engineering

Before joining the Institute, he completed his Masters and PhD from the Indian Institute of Science, Bangalore, and Postdoc from Technion, Israel. He has worked in the area of design and characterization of MEMS structures based on linear and nonlinear analysis of Multiphysics for the last 15 years. While he continues to work in this interesting area which uncovers interesting physics, he has started working in Vehicle Dynamics to explore the application of MEMS-based sensors in controlling the performance and safety of conventional as well as autonomous vehicles. He has published over 60 Journal papers and book chapters and presented over 100 conferences, workshops, and invited talks in India and abroad. He also being awarded Hetenyi Award 2010 by the Society of Experimental Mechanics, the USA, and the best teaching award in 2012 by IIT Hyderabad.

My Experience at IIT Hyderabad:

IIT Hyderabad is truly a dream destination of scientists and researchers who would like to follow their passion for research and development. It is heartening to see the supports and encouragement given by the administration to its student and faculty so that they can work wholeheartedly in the area of their research. While IIT Hyderabad campus is very unique not only in terms of its campus which are progressing at an unprecedented rate but it has innovated in many academic and research problems. By looking at the various activities in the past, I get a feeling that IIT Hyderabad is not only fortunate to be led by dreamers but it has not hesitated to take a lead in many niche areas for the development of technology for the nation and society which gel well with its theme of "Inventing and Innovating in Technology for Humanity" for IITH. I am very lucky and happy to be part of this great Institution!

Having completed MSc in Mathematics from the Hyderabad Central University in 2002, he went on to pursue my research in Functional Analysis and obtained PhD degree from IIT Madras in 2008. He has joined as an Assistant Professor in the Department of Mathematics at IIT Hyderabad in 2011. Before that, he has worked as a Post-Doctoral Fellow at the Indian Statistical Institute, Bangalore.

My Experience at IIT Hyderabad:

My principle research exploration revolves around operator theory, specifically the spectral theory of operators that are bounded as well as unbounded. For the past few years, I have been working on developing the spectral theory of absolute norm attaining operators, absolutely minimum attaining operators (both bounded and unbounded ones). These classes are introduced to solve the invariant subspace problem (for a class of operators), which is a longstanding open problem in the field of Operator theory. In addition, I have also been working on Operator Algebras, Quaternionic Operator Theory, and C-Normal Operators. All these topics are closely related to solving operator equations that arise in differential equations and Mathematical Physics.

Being part of this wonderful institute from its early years, the quintessential tiny contributions and learnings are quite high in terms of research, teaching, and administration. I am very happy with my successful journey in this rapidly growing institute.

Dr G Ramesh

Professor
Department of Mathematics

Dr Mahendrakumar Madhavan

Professor
Department of Civil Engineering

Prof Madhavan holds a PhD from the University of Alabama in Birmingham in the United States and a Master's degree from the National University of Singapore in Singapore. He has worked as a Structural Engineer at Alabama Power Company in Birmingham before joining IIT Hyderabad and is a Registered Professional Engineer (PE) in the state of Alabama, USA. Prof. Madhavan's main research areas include physical testing of structural elements and systems, numerical modeling using commercially available finite element software, and the development of innovative design approaches for steel-intensive structures. He is the only Indian who is a Fellow of the "Structural Engineering Institute (SEI), American Society of Civil Engineers (ASCE)", the "ASCE SEI Cold-Formed Steel Members Committee", and "ASCE Technical Administrative Committee on Metals". He has over 40 peer-reviewed publications in globally renowned journals. He is a member of the Journal of Structures Editorial Board and an Associate Editor for the ASCE Journal of Structural Engineering. Prof. Madhavan teaches at the undergraduate and postgraduate levels, conducts short courses and seminars for industry, provides consulting services to practicing structural engineers, and leads the structural steel research group at IITH, all to enable sustainable construction practices in India and around the world. Recently, Prof. Madhavan also organized India's First Structural Steel Conference, named "Indian Structural Steel Conference - ISSC 2020." The conference was supposed to take place in March of 2020. However, it was postponed owing to COVID constraints. This conference focused on the theme of sustainability and the challenges encountered by researchers, industry professionals, and policymakers in implementing sustainable steel building techniques in India.

My Experience at IIT Hyderabad:

The experience at IIT Hyderabad in the recent past has been phenomenal. Despite having a pandemic, the institute functioned exceptionally well in all areas be it academics, research, or institution-related activities. The online classes were conducted very smoothly without any difficulties and the students responded well since they are now accustomed to the online mode of teaching. With research labs functioning without restrictions, the research work has been progressing without hindrance and so is all other general administrative activities. The emphasis by our Director to bring more and more facilities to campus residents is commendable. A few examples are Faculty Gym, Post Office, and DAV school building. Also, the vision of our Director to add more greenery to our campus as soon as he took charge is now showing results and as a result, the campus is becoming more inclusive with the arrival of different species of birds making the early morning walk by the residents more pleasant.

IITH's Bank of Knowledge

Teaching Staff

Dr P A Lakshmi Narayana

Professor
Department of Mathematics

Prof Ananth received MSc from the Regional Engineering College Warangal in 2002. He subsequently went on to IIT Kharagpur to obtain PhD in Fluid Mechanics, which he received in 2008. His main research interests are fluid dynamics, convection in porous environments, and the electrophoresis of diffusive soft particles. Using both linear and nonlinear theories, He is looking at flow stability in porous media and interfacial flow instability. In 2011, He joined IIT Hyderabad as an Assistant Professor after working as a postdoctoral researcher at the University of KwaZulu-Natal in South Africa and the University of Nancy in France.

My Experience at IIT Hyderabad:
I have been at IIT Hyderabad for over 11 years and have thoroughly liked both the curriculum and the atmosphere.

Dr Manish Kumar Niranjan

Professor
Department of Physics

Dr Niranjan graduated from IIT Kharagpur with an integrated MSc (5 Yrs) degree in Physics and obtained his Ph.D. from the University of Texas at Austin, USA. Prior to joining IIT Hyderabad, Dr. Niranjan worked as a Post-Doctoral Fellow at the University of Nebraska at Lincoln USA and the University of Texas at Austin USA. His research interests include Theoretical and Computational Condensed Matter Physics.

Dr Ramadurai Ranjith

Professor
Department of Materials Science and Metallurgical Engineering

Dr Ranjith has joined IITH in Nov 2011, as an Assistant Professor. Before working at IIT Hyderabad, he was an Alexander Von Humboldt fellow at Leibniz University of Hannover, Germany. He possesses a Ph.D. degree from IISc Bangalore. His research interests are in the fields of Multifunctional smart materials and devices.

Dr Maunendra Sankar Desarkar

Associate Professor
Department of Computer Science and Engineering

Prior to his current appointment, Dr. Maunendra had been working as an Assistant Professor in the Department of CSE, IIT Hyderabad since 2015. He is also associated with the Department of AI at IIT Hyderabad. Before starting a faculty position, he has worked for Samsung Research India Bangalore and Sybase Inc. (an SAP Company). Dr. Maunendra obtained his MTech and PhD degrees from IIT Kanpur and IIT Kharagpur respectively. His research interests are in the fields of Natural Language Processing, Recommendation Systems, and Information Retrieval.

My Experience at IIT Hyderabad:
IITH has a vibrant research community. The research discussions with faculty colleagues and the students are extremely interesting and enriching. There is a strong sense of fellow-feeling, which along with the strive towards excellence makes this association a relishing one.

IITH's Bank of Knowledge

Teaching Staff

Dr Viswanath R R S R Chinthapenta

Associate Professor
Department of Mechanical & Aerospace Engineering

Previously, he was Assistant Professor at IIT Hyderabad, a postdoctoral fellow at IISc-Bangalore, and Dassault Simulia Systems-Providence and Engineer at GE-Bangalore. Viswanath did his B.E. (Civil) from MVSREC, Osmania University, M.E. (Aerospace) from IISc, and Ph.D. (Solid Mechanics) from Brown University. His research interests are in the fields of Ductile fracture, Biomechanics, and Composites

My Experience at IIT Hyderabad:
Good

Dr Anurag Tripathi

Associate Professor
Department of Phyiscs

Dr Tripathi obtained his Ph.D. from Harish-Chandra Research Institute (HBNI) and joined IIT Hyderabad as Assistant Professor in 2015. His broad area of research is Theoretical High Energy Physics and he specializes in Perturbative Quantum Chromodynamics (QCD).

My Experience at IIT Hyderabad:
The excitement of faculty, staff, and students is contagious!

Dr Mohan Raghavan

Associate Professor
Department of Biomedical Engineering

Dr Raghavan has been with the department of Biomedical Engineering, IIT Hyderabad since 2014. His primary research is in the area of neuro-musculoskeletal modeling and simulation. Creating virtual moving patients and pathologies therein is a driving vision of his lab. He has been a co-founder and co-head of the Centre for Healthcare Entrepreneurship at IIT Hyderabad where he was responsible for setting up the prestigious fellowship program and mentoring early-stage startups. He is also an adjunct faculty member in the Department of Artificial Intelligence at IIT Hyderabad. He holds an interdisciplinary PhD in Computational Neuroscience from IISc, Bangalore, and has been a post-doctoral fellow at the TIFR National Centre for Biological Sciences, Bangalore. Prior to moving into Neuroscience, he served as Senior Software Engineer at Motorola India, where he was part of the team that developed the world's first 3G mobile phone.

My Experience at IIT Hyderabad:
IIT-H has been a fantastic home for a researcher, vibrant set of faculty colleagues, inquisitive students, and a very supportive administration. The best part of being in a place like IIT-H is that being a relatively new IIT, faculty have access to a variety of experiences and responsibilities and can be a part of a great institution as it grows. The location in Hyderabad with its large networks of healthcare infrastructure, research and public sector industries, technology ecosystems affords a great testbed for research and collaboration.

Dr Manish Singh

Associate Professor
Department of Computer Science and Engineering

Dr Manish has graduated from the Indian Institute of Technology, Delhi with a Dual Degree in Computer Science and Engineering in 2009 and did my Ph.D. from the University of Michigan, Ann Arbor, USA in 2014. He has joined IIT Hyderabad as an Assistant Professor in August 2014. He is also an adjunct faculty member in the Department of Artificial Intelligence and the Department of Engineering Science at IIT Hyderabad. For the last 12 years, he has been working in research areas such as Databases, Data Mining, Social Network Analysis, Recommendation Systems, Healthcare Data Analysis, and Natural Language Processing.

My Experience at IIT Hyderabad:
I feel so happy to have joined IIT Hyderabad, which is one of the most progressing institutions among the newer IITs. Being a member of the institute ranking committee, I feel very happy to see how IIT Hyderabad has been doing so well in various research and teaching aspects compared to other institutions. The colleagues here are very friendly and there is a lot of scope for interdisciplinary research. When I joined IITH, our campus and facilities were not so great. There were various challenges. But now it has become so beautiful. The little struggles we all took to bring IITH to its current position seem so relishable now.

IITH's Bank of Knowledge

Teaching Staff

Dr Manohar Kaul

Associate Professor
Department of Computer Science and Engineering

Dr. Manohar Kaul was an assistant professor at IIT Hyderabad in 2015. Prior to that, he was a postdoctoral researcher at DIMA, Technische Universität (TU) Berlin, Germany, headed by Prof. Volker Markl, investigating scalable machine learning methods, especially, locality sensitive hashing (LSH). He did his Ph.D. in the computer science department at Aarhus University, Denmark, where he worked on fast and approximate path-finding algorithms on massive 3D polyhedral meshes, under the guidance of Prof. Christian S. Jensen. He did his master's from Uppsala University, Sweden, in the Uppsala database laboratory (UDBL) headed by Prof. Tore Risch, where he investigated the near-future prediction of continuously evolving moving-object trajectories. His current research interests are applied algebraic topology (topological data analysis), geometric machine learning (graph and point-cloud representation learning), and optimal transport (discrete OT and assignment problems).

My Experience at IIT Hyderabad:

I joined IITH towards the end of 2015. So, over the years, I have witnessed the overall growth of the institute, especially, the computer science department. Our department has grown rapidly in stature as one of the top CSE departments in the nation, synonymous with excellent research and teaching. I believe these achievements can largely be attributed to the positive work culture cultivated by my department colleagues. Interacting with enthusiastic, imaginative, and hardworking students has been fun, both during lectures and research discussions. Here is to hoping that the pandemic settles down and we get to spend more in-person time with colleagues and students.

Dr Kaushik Nayak

Associate Professor
Department of Electrical Engineering

Prior to that Dr. Nayak had been working as an Assistant Professor in the Department of Electrical Engineering since Aug 2015. He is also an adjunct faculty member in the Department of Climate Change at IIT Hyderabad. He is a Senior Member of IEEE and a member of the American Physical Society. He has earned his Ph.D. in Electrical Engineering and M. Tech. degree in Microelectronics from IIT Bombay in the years 2014 and 2007 respectively. Post-PhD, he worked as Senior Device Engineer in Global Foundries, Singapore. During his Ph.D. program, he was also a visiting scholar with Frontier Research Center, Tokyo Institute of Technology, Japan, and also worked as an IBM research fellow in Nanoscale electron devices Physics and modelling with IBM Semiconductor Research and Development Division. His research interests include Electron Devices Physics, Condensed-matter physics, Mesoscopic Electronics, and carrier transport phenomena. He has other research interests in broad areas of physical sciences including Stellar & Planetary Physics, Earth System Science, History & Philosophy of Science, etc.

My Experience at IIT Hyderabad:

The past six and half years of my academic life at IIT Hyderabad as a faculty member has been very joyful and fruitful. Both teaching and scientific research have been my passion in academia to pursue intellectual and scholarly pursuits. My intellectual pursuit is fuelled by delivering lectures, participating in intellectual discussions, engaging in in-depth learning to broaden my scientific and technical knowledge horizon. And my thirst for knowledge and understanding of nature has never been quenched. It is always an ongoing process. Teaching and research in academia go hand in hand, each providing fresh incentives to the other. In essence, what we do not know, we (re)-search for the knowledge/scientific truth, and what we do not understand we teach each other till we understand. In my teaching endeavor, I have offered about fourteen PG and UG courses in the Electrical Engineering department covering topics within the broad areas of both [i] Physical electronics (i.e., Semiconductor physics, Devices physics, Transistor Physics, CMOS Nanoelectronics, Mesoscopic electronics, etc) and [ii] Physical Communication electronics (i.e., Electromagnetic fields & waves; Antennas, etc). Most of the teaching course topics are driven by research, peer literature survey, interaction with students, and the emergence of new ideas through deep thinking & thought experiments. Also, due to my wider interest in the physical sciences division including planetary physics and Earth system science, I have offered related PG courses in the Climate change department. My Core research area in Electrical Engineering has been in Semiconductor devices physics with emphasis on Nano-MOSFET design, modelling, and performance evaluation. My other curiosity-driven devices research efforts are in the domains of Diamond electron devices, Heterojunction transistors, Photonic devices, Quantum electron devices, etc.

As a modern university of higher learning and research, IIT Hyderabad should strive towards looking forward as a factory of new knowledge and technological innovation. The goal of education is to teach and instill the following qualities in an individual; (a) Spiritual & moral principles, (ii) noble conduct, and (iii) intellectual ability, etc. Further, the actions of intellect should be guided by verifiable facts and critical reasoning as per scientific practices. Modern science and technology have enabled us to practice and exploit Materials culture on this planet to maintain the global economy towards material development. This has resulted in the significant disruption of harmony in the biosphere on Earth, which happens to be the only planet in our galaxy and universe as far as we have scientifically observed. Everybody should realize that long-term sustainable materials development only follows spiritual development. For the latter to develop, our educational system should guide individuals towards self-discovery and journey towards higher consciousness levels. As told by Aristotle, “The roots of education are bitter, but the fruit is sweet”. Hence, students should not shy away from the hardship of academic rigour and the learning process, however bitter it appears. Also, only the educated are free. Hence, for one’s freedom and liberation, the only path is the path of learning through good education. The educated individual should acquire knowledge and wisdom towards freedom of the human spirit. Also, the educated should have an earnest and loving desire to live in harmony with the laws of nature.

IITH's Bank of Knowledge

Teaching Staff

Dr Aravind Kumar Rengan

Associate Professor
Department of Biomedical Engineering

Dr Aravind is a Physician-Scientist working in the area of Nanomedicine and Theranostics. He did my MBBS at Thanjavur Govt Medical College. I then did my Masters in Nanomedical Sciences at Amrita Centre for Nanosciences, Kochi, and PhD from IIT Bombay (2015).

My Experience at IIT Hyderabad:

I joined IITH as an Assistant Professor in 2015, immediately after completing my PhD. IITH has been very supportive in my career growth. I was fortunate enough to get some big govt fundings (Eg. IMPRINT, DBT-UK, IYBA, DST-TDP, etc) in addition to the regular grants (SERB- ECR, CRG, ICMR, etc). The IITH-JICA funding enabled us to establish state of art In-Vivo imaging facilities in our BME Dept. The institute has been very supportive in providing us with a conducive environment for research and teaching.

Dr Satyavrata Samavedi

Associate Professor
Department of Chemical Engineering

Dr Satyavrata had earlier worked as an Assistant Professor beginning in late-2015 in the department of Chemical Engineering. Before joining IIT Hyderabad, he worked as a postdoctoral researcher at Rensselaer Polytechnic Institute in New York. Satya obtained his BTech. in Chemical Engineering from NIT Trichy, and his Ph.D. also in Chemical Engineering from Virginia Tech, Blacksburg. His research interests include biomaterials, polymer electrospinning, drug delivery, and inflammation. Satya is also a professionally trained Carnatic vocalist and tabla player.

Dr Priyotosh Bandyopadhyay

Associate Professor
Department of Phyiscs

Dr Priyotosh has obtained Bachelor's degree with Physics honors from RKM Vidyamandira (under the University of Calcutta) and went to the Indian Institute of Technology Bombay, Powai for a Master's degree in Physics. During this period he was also a visiting summer research fellow at Tata Institute of Fundamental Research, Mumbai with Prof. Deepak Dhar. After finishing master's, he decided to stay in India and Joined Harish-Chandra Research Institute, Prayagraj (earlier known as Allahabad). Here he wrote a thesis on Higgs searches in different scenarios including supersymmetry and universal extra dimension under the supervision of Prof. AseshKrishna Datta. Just after PhD he joined Korea Institute for Advanced Study, Seoul, South Korea in 2010 as a postdoctoral Research Fellow where his journey with Prof. Eung Jin Chun started. He left Korea after a small stint and moved to the University of Helsinki Finland as a University postdoc and worked with Prof. Katri Huitu during (2011-14). During this time he also taught BSc, MSc, and PhD students for three years. He was also an adjunct scientist at Helsinki Institute of Physics during this time period. He also got an offer of Inspires faculty from DST-India but he chose to join INFN Lecce, with a prestigious INFN fellowship and worked with Prof. Claudio Coriano before moving to IIT Hyderabad as an assistant professor in July 2016.

My Experience at IIT Hyderabad:

When I joined IIT Hyderabad in July 2016, it was not in very perfect shape, especially after visiting so many world-class institutions. I still remember the Kandi campus was under construction without any road inside and we were staying in ODF guest house, room no. 502 sharing a single toilet. Most of us started staying in the city and were communicating daily. I was also a huge personal during that time and wanted to leave as soon as possible, especially when I had a few offers from institutions with better infrastructure. But, I stayed back thinking of my PhD students and the projects I started working on. Soon, IITH started making progress very fast. We moved to the campus, Acad block C, B started. I received a few international and national grants and started the postdoctoral program in HEP and the workshop Anomalies, which is probably the biggest international conference today in India in HEP. I got involved in many activities like departmental Open day, TEQIP. Many foreigners (around 30) visited my group from various places around the world. Students and postdocs started getting recognitions and positions (like IFIC Valencia, Spain) for the first time at IITH from HEP. I made my own set of systems of computations which are now used by many students and I can see people from other parts of the country want to visit IITH and collaborate. Currently, we are in collaboration with Univ. Of Seigen, CP3 Louvain, INFN Lecce, INFN Bologna, KIAS, Concordia Univ., Kindai Univ., IOPB, Univ. Of Delhi, IISER Pune, IISER Kolkata.

IITH's Bank of Knowledge

Teaching Staff

My Experience at IIT Hyderabad (continued):

During this short period of time, I got to teach around nine different subjects, thanks to my theoretical background. I also supervised around 12 students along with one PhD student, who finished in less than four years and is now pursuing a postdoc at the University of Delhi. Among others, there are M.Sc, EP and interns who worked with me. During the process, I was also involved in ARIIA ranking and this year we ranked 7th in India, beating two of the first generation IITs. We thank IITH fraternity, both the directors, registrars, and all the deans for the support and encouragement throughout the journey. We hope after Corona with more support we will be able to bring more researchers and visitors to make IITH a world-class research Institutions along with teaching. The interactions with the students inside and outside the classrooms, including the dinner and tea parties, are the things I will cherish for the rest of my life.

Dr Haldar had been working as an Assistant Professor in the Department of Physics, IIT Hyderabad since Aug 2016. He graduated from Ramakrishna Mission Vidyamandira Belur, Kolkata University with a B.Sc. Degree (2005) in Physics and he earned his M.Sc.-Ph.D Dual Degree (2011) in Physics from IIT Bombay. Prior to joining IIT Hyderabad, Dr. Haldar worked as a postdoctoral fellow at the National University of Singapore, Singapore, and Colorado State University, Fort Collins, USA. He worked also as a Scientist-C at S. N. Bose National Centre for Basic Sciences, Kolkata. He is a recipient of the Ramanujan Fellowship and Young Scientist Research Award, BRNS. His research interests include magnetization dynamics in thin-film nanostructures, magnonics, and microwave magnetics.

Dr Arabinda Haldar

Associate Professor
Department of Physics

My Experience at IIT Hyderabad:

It's been an exciting journey since Aug 2016. IITH has helped me to grow in different directions of my career as a faculty. Research has always driven me and IITH has supported me to realize my ambitions. Apart from classroom teaching, I have got the opportunity to mentor or guide students in different capacities. In addition, I was involved in several administrative activities. Over these years, I have learned a lot about managing projects, duties besides research and teaching. I am grateful for the opportunities and look forward to contributing to the growth of the institute in the future.

Dr Surendra Nadh Somala

Associate Professor
Department of Civil Engineering

Dr. Surendra Nadh Somala got his Masters and PhD from the California Institute of Technology (CALTECH), after completing his bachelor's at the Indian Institute of Technology Guwahati. He was also associated with Halliburton, based out of the UK, dealing with induced microseismicity due to the extraction of shale gas from unconventional reservoirs. He has received multiple international projects from the Department of Science and Technology (DST), one of which is with Russia. He also raised funding from several agencies, including but not limited to, Science Education and Research Board (SERB), Ministry of Earth Sciences (MoES), Department of Atomic Energy (DAE) through IUCAA. He is also a LIGO Scientific Collaboration (LSC) member. He is a co-developer of spectral element software for dynamic fracture computations. He also co-developed a finite element code for quasistatic crustal deformation. He is part of collaborative efforts like earthquake source inversion, SCEC code verification groups. His work on earthquake simulations using High-Performance Supercomputing clusters helps in understanding the risk to existing and future infrastructure and further making them resilient to impending disasters. He is now more focussed on climate resilient infrastructure bringing in his expertise from space-based dense and rapid observations coupled with artificial intelligence.

My Experience at IIT Hyderabad:

IIT Hyderabad provides probably the most conducive environment for interdisciplinary and socially relevant research. The younger set of faculty at IITH further facilitates better interaction cutting across disciplines. The state-of-the-art research facilities, both existing and those coming up, are way superior to those at some of the foreign universities. The civil engineering building, with a mixture of concrete and steel buildings, catering to the needs of heavy labs and office spaces is quite unique in its design. Wider and diverse exposure to students provided through Japanese exchange programs and partnered PhD students with Swinburne University, Australia is making IITH the preferred choice of the brightest minds of India and abroad. Faculty and staff family get-togethers arranged by the competent authorities make everyone feel part of one big family here at IITH.

IITH's Bank of Knowledge

Teaching Staff

Dr Narendra Kurra

Assistant Professor
Department of Chemistry

Prior to joining IIT Hyderabad, Dr Narendra Kurra was working as an Assistant Professor in the School of Chemistry at the Indian Institute of Science Education and Research-Thiruvananthapuram (IISER-TVM), Thiruvananthapuram, Kerala, India. He was a Research Assistant Professor at A. J. Drexel Nanomaterials Institute, Drexel University, USA before moving back to India. He received his PhD from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India in 2013. He obtained his Masters' degree in Chemistry from the School of Chemistry, University of Hyderabad (2006-08). His research focus is on developing nanomaterials for electrochemical energy storage applications including multivalent metal-ion batteries, high rate On-chip energy storage, and hybrid metal-ion capacitors.
His hobbies include playing cricket, volleyball, and badminton.

My Experience at IIT Hyderabad:
The inclusive environment and the support from the IIT Hyderabad fraternity made me feel comfortable since my joining in October 2021. It was a great experience for me to participate in the planation day held on the first day of the new year 2022 on campus. The dynamic leadership and the mission towards "Inventing and Innovating in Technology for Humanity" make IITH a unique yet diverse platform for hosting vibrant careers. I look forward to contributing to the teaching, research, and outreach activities of IITH.

Dr Roshan Khan

Assistant Professor
Department of Civil Engineering

Prior to joining IIT Hyderabad, Dr. M. Roshan Khan was working as an Institute Post-Doctoral Fellow in the Department of Civil Engineering at IIT Bombay, following his position as a Research Associate and his Ph.D. in Civil Engineering from IIT Bombay (2020). Dr. Khan also completed his Professional Education in Railway Engineering from Delft University of Technology (TU Delft), The Netherlands in 2019. His research interests include geo-dynamic characterization of ground-borne railway vibrations, numerical modelling of railway track support systems, geo-environmental impact assessment of railway operations, and valorization of industrial by-products as ground vibration wave barriers. Dr. Khan is also a recipient of prestigious awards, including the 'IGS-AISAT Award' from Indian Geotechnical Society for Best Master's Research Thesis (2012-13), 'Best Presentation Award (2017)' and 'Best Paper Award (2012)' in International and National level conference presentations and 'Techno Shark Award' from Indian Society for Technical Education (2010).

My Experience at IIT Hyderabad:
I could have the opportunity to interact with the faculty and staff members of various departments, who have been cheerful and extensively supportive in my transition to IITH. The environment here is vibrant, and there is a strong sense of unity within the fraternity. The encouraging work culture and the hard work and excellence of the colleagues are truly inspirational. I could also find the students to be very enthusiastic and passionate about learning and innovating - truly moulded by IITH. I am looking forward to collaborating and working with more faculty members and students, and productively contributing to the growth of the institute.

Dr Jyotirmoy Rana

Assistant Professor
Department of Mathematics

Dr. Jyotirmoy Rana has been appointed as an Assistant Professor in the Department of Mathematics, IIT Hyderabad on 3rd November 2021. Prior to joining, Jyotirmoy was an Assistant Professor (Mathematics) at the Department of Applied Science in Haldia Institute of Technology, West Bengal for a very short period. Before that, he finished three years of postdoctoral research in 2021 from the School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, China. Jyotirmoy obtained his MSc and PhD degrees from IIT Kharagpur and completed BSc. from Midnapore College, West Bengal. His research interests are in the fields of Bio-Fluid Mechanics, Solute dispersion, Quantum Mechanics, and Homotopy Analysis Method.

My Experience at IIT Hyderabad:
After joining the IITH, I am really liking and enjoying a new life here. I am having good accommodation and the facilities are excellent. Our colleagues are very helpful and friendly in behaviour. This IIT motivates me to do good research. Also, I am enjoying my teaching due to good interaction and high standard students. In a word, I am very much delighted to be here as a faculty.

IITH's Bank of Knowledge

Teaching Staff

Prior to joining IITH in 2021, Dr Maheswaran was an Inspire Assistant Professor in IIT Delhi from 2013-2016. After that, he was a Post-Doc Fellow at the University of Minnesota, the USA, and Alexander Von Humboldt Fellow at PIK, Potsdam Germany. Dr Maheswaran finished his BE from Anna University and obtained his M.Tech from BIT Mesra and PhD from IIT Delhi. His research interests include Stochastic Hydrology, Hydrologic Forecasting, Multiscale Processes and modelling, Large Scale Hydrologic Modeling and Climatic Downscaling, and Impact of Climate Change.

My Experience at IIT Hyderabad:

I really appreciate the warm welcoming attitude of the other colleagues and also the vibrant research and academic environment on the campus. People around are surcharged with enthusiasm and are motivated to contribute to the advancement of science and technology, therefore, feeling happy to be part of this fraternity.

Dr Maheswaran Rathinasamy

Assistant Professor
Department of Civil Engineering

Vishnu R Unni did his Dual Degree (BTech and MTech, 2012), and PhD (2017) from IIT Madras. His research focus during PhD was on combustion dynamics. Later he expanded his research area into nonlinear dynamics and complex systems theory. Prior to joining IITH, Dr. Vishnu worked as a research associate at the Law Lab, Princeton University, USA, and a postdoctoral scholar at Saha Lab, University of California San Diego, USA. Presently he works on the characterization and control of complex self-organized dynamics of turbulent reactive flows. He performs both experimental and theoretical investigations to unravel the universal behaviors that reactive/non-reactive flow systems exhibit, and further develops data-driven models that capture phase transitions in such systems.

My Experience at IIT Hyderabad:

The atmosphere of IITH has been very welcoming and energizing. All around, you see bustling growth and movement. Be it the nonstop construction of phase 2 buildings, trees being planted by diligent workers along the roadside under the scorching sun, silently hurrying electric commuter that carries students and other IITH community members across the campus, a flock of pigeons occasionally chased by playful hawks, students exploring the transformed campus that was closed to them for a little too long than anyone desired, and so on. There is a palpable sense of purpose and determination in the IITH community. Very much needed for the progress of a new IIT like ours. I am looking forward to contributing my part to this endeavor.

Dr Vishnu R Unni

Assistant Professor
Department of Mechanical and Aerospace Engineering

Dr Rajesh Kedia joined as an Assistant Professor in the Department of Computer Science and Engineering at IIT Hyderabad in December 2021. Previously, Rajesh was a project scientist at IIT Delhi exploring efficient techniques for cooling processors and memories. He obtained his PhD in CSE from IIT Delhi and B.Tech. in ECE from MNIT Jaipur. Before joining PhD., he worked in the semiconductor chip design team at Texas Instruments in Bengaluru for 8.5 years (Jul 2006 – Dec 2014). His research interests broadly span computer architecture, embedded systems, and design automation of electronic hardware.

My Experience at IIT Hyderabad:

Right from Day-1, I found the entire IITH community to be quite supportive and helpful. Coming from extreme cold weather in Delhi, the weather as well as campus ambiance felt quite blissful. I also met and discussed ongoing research work with a few existing faculty members and am fascinated by the variety of latest topics being explored. Initiatives like monthly plantation drive, the get-together of faculty/staff, etc. are providing ample opportunities for networking beyond work. I feel privileged to be a part of such a vibrant community and look forward to an enriching career at IITH.

Dr Rajesh Kedia

Assistant Professor
Department of Computer Science and Engineering

IITH's Bank of Knowledge

Teaching Staff

Prior to joining IITH, Dr Shubhadeep was working as a postdoctoral fellow at the University of Manchester, UK, and at Tyndall National Institute, Ireland for the last three years. He has completed BE from BITS Pilani (2007-11) and obtained MSc (Engg.) and PhD degrees from IISc Bangalore (2014-18). In between B.E. and PhD I worked in ST Ericsson, Bangalore as a VLSI Hardware design engineer (2011-14). His research is motivated by the large and rather unsustainable power consumption in modern-day computation systems. Taking an experimental nanoelectronics route, he is interested in exploring device strategies for next-generation low power computing.

My Experience at IIT Hyderabad:
It is great to be part of a young, vibrant and ambitious institute.

Dr Shubhadeep Bhattacharjee

Assistant Professor
Department of Electrical Engineering

Prior to joining IITH, Dr Ramkarn was an Assistant Professor in IIT ISM Dhanbad from February-2021. Before working at IIT ISM Dhanbad, was a postdoctoral fellow at Technion-Israel Institute of Technology Haifa, Israel. Ramkarn did his B.Tech. from Dr. Babasaheb Ambedkar Technological University, Lonere, and obtained a PhD degree from IIT Kanpur. His research interests are in the fields of hydrodynamic stability, biofluid mechanics, pattern formation, thermocapillarity, buoyancy, and additive.

My Experience at IIT Hyderabad:
I found IITH people quite welcoming, especially faculties of the Chemical Engineering Department thereby showing the spirit an institution of international importance must-have. The HoD, Prof Kishalay Mitra, was quite frank about the next steps I must take as a faculty which certainly provided me the much-needed start as a new faculty of IITH. Additionally, a brief interaction with Prof. B. S. Murty motivated me to pursue my research and teaching with strong zeal and passion.

Dr Ramkarn Patne

Assistant Professor
Department of Chemical Engineering

Dr Rahul completed his PhD in Bioinformatics from CSIR-IMTECH, Chandigarh. In his PhD, he worked on developing biological databases and machine learning-based prediction models to design anticancer therapeutics. Then, he joined the Institute of Cancer Research, London and there he worked on the identification of synthetic lethal interactions using high throughput genomic technologies. Then he joined Memorial Sloan Kettering Cancer Center, New York and extensively worked on the genetics of rare forms of breast cancers to identify their putative genetic drivers. Later he joined Columbia University Irving Medical Center, New York as a staff scientist and focused on the non-coding genome of diffuse large B-cell lymphoma (DLBCL), an aggressive type of blood cancer. Rahul enjoys playing badminton, cricket, and table tennis.

My Experience at IIT Hyderabad:
I joined IIT Hyderabad in October 2021 and I found this place an excellent academic ecosystem. Infrastructure for research and support from the administration is fabulous. IITH campus is a dream campus for any faculty to start an academic career. I am enthusiastically looking forward to a flourishing research and teaching career at IITH.

Dr Rahul Kumar

Assistant Professor
Department of Biotechnology

Prior to joining IIT Hyderabad, Dr Prakhar Gupta was a postdoctoral researcher at LaCaN, UPC, Barcelona, Spain. He received his Ph.D. in 2018 from the Department of Applied Mechanics, Indian Institute of Technology Delhi. At IITH, he has established SUCSHM (Searching Unique Class of Small-scale High-performance Materials) lab, which focuses on designing architected metamaterials by exploiting the nanoscale effects. The current research interests of his lab include multiscale modeling, electromechanics, and biomechanics, with a focus on the continuum modeling of nanostructures.
Apart from work, he enjoys writing nonfiction articles and poems, composing devotional songs, playing musical instruments such as harmonium and dholak, and playing badminton.

My Experience at IIT Hyderabad:
I am deeply passionate about teaching and research; thanks to the environment of IIT Hyderabad, I am enjoying both here. I feel fortunate to join the IITH family, where faculty and staff are highly cooperative. I look forward to gaining some exciting experiences and contributing my services to the nation's fastest-growing academic institute: IITH.

Dr Prakhar Gupta

Assistant Professor
Department of Mechanical and Aerospace Engineering

IITH's Bank of Knowledge

Teaching Staff

Dr Ashok K

Assistant Professor
Department of Materials Science and Metallurgical Engineering

Prior to joining IITH, Dr Ashok was a Senior Scientist in Metal Extraction and Recycling (MER) Division of CSIR-National Metallurgical Laboratory (NML), Jamshedpur, and an Assistant Professor in the Academy of Scientific and Innovative Research (AcSIR). Ashok did his B.E. in Metallurgical Engineering from Government College of Engineering, Salem (Affiliated with Anna University, Chennai) and obtained his M.Tech. & Ph.D. degree from AcSIR, CSIR-NML. The overarching research theme of Ashok is the physical (cold/hot) simulation of steelmaking practices towards the production of ultra-clean steel products. His other research interests are inclusion engineering, alloy steel development, and indigenization of technologies for Certified Reference Materials (CRM) in steel.

My Experience at IIT Hyderabad:

I joined just in the last week of Dec 2021. Firstly, I am very much thankful to the staff and faculty guided all along the process for smooth joining at IITH. I am feeling committed after joining IITH and so excited to chase my dream of becoming a passionate teacher. The atmosphere around the staff/faculty towers is indeed beautiful and peaceful to live in. I am fortunate and happy to be a part of IITH family and keen to make a productive and worthful career over here.

Dr Jose Titus received the BTech degree in Electrical and Electronics Engineering from NIT Calicut in 2009. During 2009-2012, he was an engineer with NTPC Ltd., New Delhi, working on the commissioning of power plant equipment. He received the MTech and PhD degrees from IIT Madras in 2014 and 2020 respectively. Prior to joining IITH in 2021, he briefly worked as a research associate at IIT Madras, and as an Assistant Professor at the Government Engineering College, Kottayam, Kerala. His current research interests are in the field of electric machine design, medium voltage drives, and sensorless control techniques for motor drives.

My Experience at IIT Hyderabad:

Though it has been less than a month since joining, I have already found IITH to be a delightful place with a very friendly and welcoming environment. I am quite happy to be here and also excited to be part of what is unarguably the fastest-growing technical institute in India today. I have great respect for the present and past visionary leaders of IITH who have made this possible. I am enthusiastically looking forward to contributing my part to the further growth of the institute.

Dr Jose Titus

Assistant Professor
Department of Electrical Engineering

Dr Sayantee Jana

Assistant Professor
Department of Mathematics

Prior to joining IITH in 2021, Dr Sayantee was an Assistant Professor in IIM Nagpur from 2019. She did her PhD from McMaster University and was a recipient of the prestigious International Excellence Award and the F.R. Britton scholarship. She was a Postdoctoral Fellow at the University of Toronto. Prior to her PhD she has worked in the Public Health Foundation of India as a tutor and research associate, and in ACCESS Health International Inc. She has taught a variety of audiences, in undergraduate and postgraduate programs, including doctors, engineers, lawyers, government officials, corporate executives, etc. She has also served as the content writer for the UGC Swayam program. Her research interests are in the fields of multivariate and skewed distributions, Spatio-temporal modelling, and multiple testing. She is currently the chairperson of the Country-representative committee of the Caucus for Women in Statistics (CWS) and a member of the Social Program Committee of the International Biometric Conference (IBC) 2022.

My Experience at IIT Hyderabad:

I joined IIT H during the Christmas break when the campus was almost empty, students and many faculties were away for the winter break. There was dead silence all around and I felt as if I am in the middle of a desolate island. I must confess that wasn't a very delightful feeling. To my surprise though, everyone from the Director, my department colleagues, HOD, and colleagues from other departments were extremely welcoming and immediately made me feel at home. I had only heard about the Director, Prof. B.S. Murthy and never had the opportunity to meet him in person. He instantly makes you feel at ease regardless of your age, experience, and designation. Dean's office and my HOD and department colleagues had been in touch with me even before I joined Hyderabad to ensure a smooth transition and onboarding. At the guest house, very soon I hit it off with my neighbours, and we have been friends since then. Our classes started offline, and that was a great advantage for me, as I got to know the students before classes shifted online. I would like to end by saying, as my department colleagues say, the H in IIT H can stand for so many things but not hierarchy. I look forward to a fulfilling and academically enriching journey at IIT H. Right from Day-1, I found the entire IITH community to be quite supportive and helpful. Coming from extreme cold weather in Delhi, the weather as well as campus ambiance felt quite blissful. I also met and discussed ongoing research work with a few existing faculty members and am fascinated by the variety of latest topics being explored. Initiatives like monthly plantation drive, the get-together of faculty/staff, etc. are providing ample opportunities for networking beyond work. I feel privileged to be a part of such a vibrant community and look forward to an enriching career at IITH.

IITH's Bank of Knowledge

Non - Teaching Staff

Mr B Vivekananda chary

Technician
Department of Design

Mr Vivekanada is a Diploma holder in Interior design from Lakhotia Institute of Design Hyderabad. Now he is pursuing Graduation from Prof G Ram Reddy Center for Distance Education Osmania University Hyderabad. He has ten years of experience in the home interior and has worked on several projects in Hyderabad. His areas of interest are furniture design, mechanical innovations; conceptual product design; prototyping; laser cutting, engraving, and CNC products. He has designed a machine, is now under patent examination; he also has a design patent for one of his design concepts for electric truck carriers on Highways and ORR.

My Experience at IIT Hyderabad:
Joining IIT Hyderabad as a Technician at the Design Department has given me an excellent opportunity to work with a faculty considered among the most dedicated and skilled in India. I believe the cutting-edge equipment and labs will provide exposure to take my creative outcomes to the next, higher level, and I look forward to an intensely passionate and energizing engagement with students and faculty alike.

Mr B Vinod Kumar Raju

Junior Assistant
Hostel Section

Mr Vinod Kumar Raju did his Masters of Arts (Public Personnel Management from Osmania University Hyderabad). He started serving IIT Hyderabad in 2013 in the Director's Office.

My Experience at IIT Hyderabad:
I had a wonderful working experience with the Director sir and other officials. I gained much knowledge in whichever place I have been working, IIT Hyderabad gave me a platform to learn many development skills. IIT Hyderabad gave me a good working atmosphere and lovely colleagues. IIT Hyderabad introduced me to myself and was always encouraging to bring the best out of me. I assure to continue to give my best to the Institution.

Mr S Thirunavukkarasu

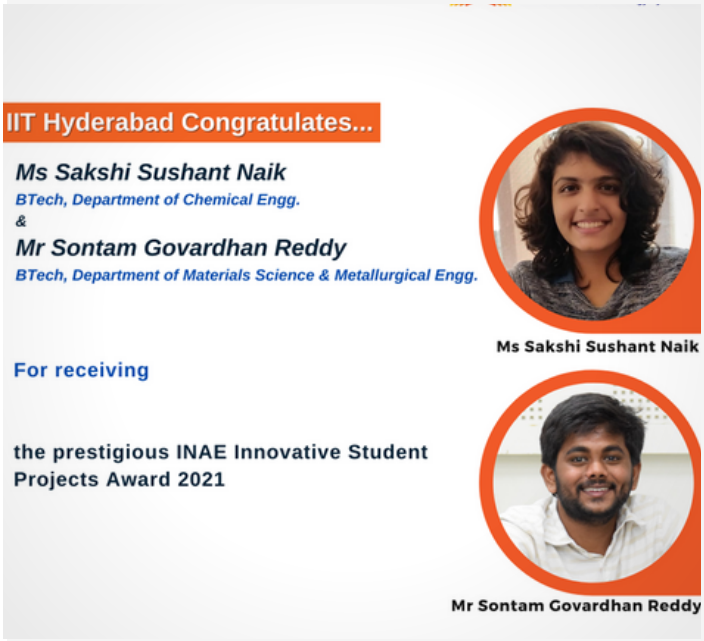
Junior Assistant
Purchase & Stores Section

Mr S Thirunavukkarasu has finished BCom & MCA from the University of Madras. Before joining IIT Hyderabad, he has served at IIT Madras as a Project Staff. He has joined IIT Hyderabad as a Project Staff and in 1st regular appointment in IIT Hyderabad as a Multi Skill Assistant in 2013. He has served more than 8 years in various departments like the Office of Dean Faculty, Administration. At present, he is working with the Stores & Purchase section. He is passionate about Cricket & Volleyball player.

My Experience at IIT Hyderabad:
Since the time of joining, working here each day is like an opportunity to learn so many things. Still, everyone gave me ample time to know the things. I saw "Team Spirit" at par here. Other things to be noted here at the campus are disciplined behavior owing to the prevailing Covid situation, Clean Environment, Enthusiastic youth, supporting people & delicious food.

I will be grateful to work here & become a part of the prestigious IIT Community

Moment of Pride



Moment of Pride

IIT Hyderabad Congratulates...

Mr Ajith Abraham George,
Adjunct Professor, Department of Design,

for being awarded

Best Sound Mixing
for Sufiyam Sujathayum
at 51st Kerala State Film Awards

IIT Hyderabad Congratulates...

Mr Siddharth Pilli,
Intern, Department of Artificial Intelligence,
Supervisor, Dr Vineeth N Balasubramanian

for being awarded

Byju's Young Genius award

Mr Siddharth P

Dr Vineeth N Balasubramani
Head (AI) & Associate Professor, Dept of CSE &

IIT Hyderabad Congratulates...

Dr Azahar Ali,
PhD, 2014, Department of Bio-medical Engineering,

for being appointed as

Assistant Professor
(Biosensor Engineering) at
Virginia Tech, Blacksburg, VA,
United States

IIT Hyderabad Congratulates...

Mr Emmadisetti Rangaiah,
Junior Technician
(Department of Materials Science and Metallurgical Engineering)

for being selected as

"Employee of the month" for
the Month of November 2021

IIT Hyderabad Congratulates...

Prof Chennupati Jagadish
Professor, Australian National University &
Adjunct Professor, Dept. of MSME, IIT Hyderabad

for being elected as

the President of the
Australian Academy of Sciences

IIT Hyderabad is glad to share...

Prof Jun Murai
Keio University &
Known as 'the Father of Internet in Japan'

appointment as

the Distinguished Professor at
IIT Hyderabad

Moment of Pride

IIT Hyderabad Congratulates...

Dr Suryanarayana Jammalamadaka
Associate Professor, Department of Physics

for being elevated as

IEEE Senior member

IIT Hyderabad Congratulates...

Prof V Kanchana,
Department of Physics &
Dean (Faculty)

for being selected to receive

MRSI Medal 2021 by
Materials Research Society of India

IIT Hyderabad Congratulates...

Dr Priyanka Devi Pantula
MTech (2016) & PhD (2021), Department of Chemical Engineering,

for being appointed as

Assistant Professor,
Department of Chemical Engineering
at IIT (ISM) Dhanbad

IIT Hyderabad Congratulates...

Prof C Krishna Mohan,
PhD Scholars, D Rajesh Reddy & Chalavadi Vishnu
Department of Computer Science & Engineering,

for their paper being selected for

Excellent Presentation Award, *in the*
14th International Conference on Machine Vision
(ICMV 2021)

Prof C Krishna Mohan

D Rajesh Reddy

Chalavadi Vishnu

IIT Hyderabad is glad to share...

Prof Chennupati Jagadish
Professor, Australian National University &
President, Australian Academy of Sciences

appointment as

the Distinguished Professor at
IIT Hyderabad

IIT Hyderabad Congratulates...

Dr Shuhita Bhattacharjee
Assistant Professor, Department of Liberal Arts

for being awarded

'Outstanding Woman Researcher
in English Literature
(Humanities and Social Sciences)' Award
in VIWA 2022

Moment of Pride

IIT Hyderabad Congratulates...

Dr Mohammad Shahid &
Chakradhar Alla

for being their paper being selected as

one of the Distinguished papers of the
HWWE International conference
on Ergonomics 2021 by IIT Guwahati


Dr Mohammad Shahid


Chakradhar Aalla

IIT Hyderabad Congratulates...

Vikram Kishore Bharti
Research Scholar, Department of Chemical Engineering

for being awarded

1st Prize under
Chemical Sciences category at
National Level Science
Communication Competition,
Saransh (सारांश),
by INYAS & Anton Paar India

IIT Hyderabad Congratulates...

Prof Pinaki Prasad Bhattacharjee
Department of Materials Science and Metallurgical Engineering

for receiving

SERB-STAR Award 2021
by Department of Science &
Technology, Govt. of India

IIT Hyderabad Congratulates...

Prof Mahendrakumar Madhavan
Department of Civil Engineering

for being elected as a

Fellow of ASCE's
Structural Engineering Institute
(SEI)

IIT Hyderabad Congratulates...

Chandrashekhar Lakavath & Vedashree Chandewar
Department of Civil Engineering,

for Securing

First & Second Position respectively at
Inter-IIT Civil Conclave 2021:
Stimulating Sustainability

IIT Hyderabad Congratulates...

Prof Prabu Sankar Ganesan &
Nandeshwar Muneshwar Giridhar
Department of Chemistry,

for receiving

American Chemical Society-Organometallics Best poster aw
from the International Conference on Main Group Molecules to Material
at NISER Bhubaneswar

Moment of Pride

IIT Hyderabad Congratulates...

Prof V Kanchana,
Department of Physics &
Dean (Faculty)

for being part of

Editorial board of Electronic structure
Institute of Physics

IIT Hyderabad Congratulates...

Mr Naresh K,
Executive Assistant
(Human Resource Section)

for being selected as

"Employee of the month" for
the Month of December 2021

IIT Hyderabad Congratulates...

Prof S Suriya Prakash ,
PhD Scholar Chandrashekhar Lakavath & Murali Sagar Varma
Department of Civil Engineering,

for receiving

Best Poster Presentation Award at
75th RILEM Conference



IIT Hyderabad Congratulates...

Team Space_d,
Masters of Design, Department of Design,

for receiving

Second runner up prize in
Samsung Innovation Awards


Dr Prasad Onkar
Project Guide

Anshul Chole

Pooja Verma

Vibhuti Sagar

Tito Sumi

IIT Hyderabad Congratulates...

Dr Sujiv Nair
PhD (2016), Psychology (Skill Development), Department of Liberal Arts

for being awarded

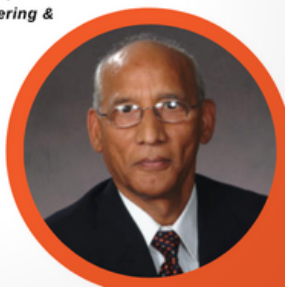
'IndiGlobal Innovation Leadership Award'
by IGEF

IIT Hyderabad is glad to share...

Prof V P Singh
Ph.D., D.Sc., D. Eng. (Hon.), Ph.D. (Hon.), D.Sc. (Hon.), P.E., P.H., Hon. D. WRE,
Academician (GFA), Distinguished Professor, Regents Professor
Caroline and William N. Lehrer Distinguished Chair in Water Engineering
President, FARA, President, G.B.S. Board, Editor-in-Chief, Water Science and
Technology Library Bookseries, Editor-in-Chief, Global Water Resources Book Series
Editor-in-Chief, Journal of Ground Water Research,
Department of Biological and Agricultural Engineering &
Zachry Department of Civil Engineering
Texas A&M University

appointment as

the Distinguished Professor at
IIT Hyderabad

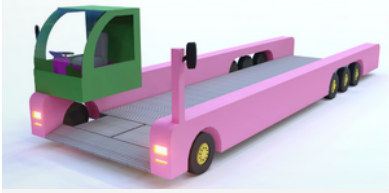


Moment of Pride

IIT Hyderabad Congratulates...

Mr B Vivekanada Chary,
Technician, Department of Design

for registering Design for
Electric Truck Carrier
The Patent Office, India



**Grand Release of "Demystifying the Nature"
by Honorable Vice President of India**

A Book by Dr Chandra Shekhar Sharma, Dr Mudrika Khandelwal & Ms Garima

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Cover Page Courtesy:
Rucmenya Bessariya
MDes, 1st Year
Idea behind illustration:
To show how the power of computation gives you the freedom to imagine & create a future for the world.

Creation & Content:
Mitalee Agrawal
Public Relations Officer
IIT Hyderabad