



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



OFFICE OF
CAREER SERVICES

Indian Institute of Technology Hyderabad

PLACEMENT BROCHURE 2026-27

OFFICE OF CAREER SERVICES,
IIT HYDERABAD

INDEX

Director's Message	1
Dean's Message	2
Core Values & Vision	3
Why Hire from IIT Hyderabad	4
List of Programmes	5
Placement Timeline	6
Previous Statistics	8
Dept. of Artificial Intelligence	10
Dept. of Biomedical Engineering	11
Dept. of Bio-Technology	12
Center for Inter-disciplinary Programs	13
Dept. of Chemistry	17
Dept. of Civil Engineering	18
Dept. of Climate Change	19
Dept. of Chemical Engineering	20
Dept. of Computational Engineering	21
Dept. of Computer Science & Engineering	22
Dept. of Design	23
Dept. of Electrical Engineering	24
Dept. of Engineering Science	25
Dept. of Entrepreneurship & Management	26
Greenko School of Sustainability	27
Dept. of Liberal Arts	28
Dept. of Materials Science and Metallurgical Engineering	29
Dept. of Mathematics	30
Dept. of Mechanical & Aerospace Engineering	31
Dept. of Physics	32
Activities at IIT Hyderabad	33
Contact Us	35

DIRECTOR'S ADDRESS



Prof. B.S. Murty

Director, IIT Hyderabad

Dear Friends,

Indian Institute of Technology Hyderabad (IITH) welcomes the Academic, Technology & Innovation leaders to join us in our endeavour Inventing & Innovating in Technology for Humanity (IITH) and make a better world that is technology driven for human needs.

IITH, established in 2008, has reached a respectable position in Academics, Research, Technology development and Startups in a short span of 18 years. In the National Institutional Ranking Framework (NIRF), IITH has bagged at 3rd in Innovation and 8th among Engineering institutes in the last two consecutive years, while it has maintained its rank within top 10 Engineering Institutes ever since NIRF was launched.

With 325+ full-time Faculty, 340+ staff and 5,200+ Students (PG + PhD students accounting for about 60%), IITH has a strong research focus with ~ 4630+ Projects worth of Rs. 1510+ Cr of R&D funding (Rs. 335+ Cr funding in 2024-25, which is Rs. 1+ Cr per faculty), 11,800+ Publications, 2,17,000+ Citations, 530+ Patents (210+ Patents in 2024 and a commitment to "Patent a Day: Mission 365" for 2025 to earn 365 Patents by the end of 2025), and about 260+ Startups (that have generated 1100+ jobs with a revenue of Rs. 1500+ Cr).

IITH is the first institute in India to start Fractal Academics, giving a lot of flexibility to students and faculty. IITH started unique BTech program (Engineering Sciences) wherein students can choose their curriculum. We have Industry oriented BTech programs such as Artificial Intelligence (first BTech program from India), Biomedical Engineering, Biotechnology & Bioinformatics, Industrial Chemistry, Computational Eng. and IC Design & Technology. At IITH every BTech student learns 10% of total credits from liberal arts and creative arts.

IITH offers semester-long internship with 6 credits in BTech to get connected closely with industry. IITH offers a mandatory 1-credit course on "Industry Lectures" and encourages its MTech students to carry out their M Tech thesis on industry defined problems. To enable this the thesis of such projects has an embargo for one year. The students are encouraged to pursue their startup dreams and Entrepreneurship ideas. Diploma can be given to BTech students after 2nd Year to pursue their startup dreams and they will have an option to complete BTech in next 5 years.

The students you will meet from IITH are a direct reflection of this dynamic environment. They possess innovation, resilience and academic excellence, have the agility to adapt, and have the collaborative spirit to thrive in today's fast-paced global landscape. They are equipped with the skillsets to tackle complex challenges and the integrity to lead with purpose.

At IITH, we believe that industry and academia are two sides of the same coin, destined to collaborate to drive progress. Partnering with IITH is more than a recruitment activity, as it is an investment in future-ready talent that will bring fresh perspectives and cutting-edge solutions to your team.

Our Office of Career Services is committed to ensuring a seamless and fruitful recruitment experience for you and for students to help them pursuing the right career paths. In addition to placements, we also assist students in securing admissions to premier institutions—both national and international—for higher studies.

IITH has consistently attracted a strong number of international offers, thanks to our growing collaborations with global companies. This year, we recorded 53 international offers and 15 international internships.

I invite you to engage with our exceptional students and discover for yourselves the passion, brilliance, and determination of our students.

We are looking forward to a strong and long-standing collaboration!

With warm regards,
Prof B S Murty
Director, IIT Hyderabad

DEANS ADDRESS



Prof. M. K. Madhavan

Dean Alumni and Corporate Relations, IIT Hyderabad

I am pleased to share a glimpse into the vibrant ecosystem of IIT Hyderabad and the exceptional talent we nurture. Each year, over 1,300 students graduate from IIT Hyderabad across a wide range of disciplines including Computer Science, Artificial Intelligence, Electrical, Mechanical, Civil, Chemical, Materials Science, Biosciences and Design.

With guidance from 350+ accomplished faculty members and access to cutting-edge labs, interdisciplinary research and real-world exposure, our students emerge as highly skilled, adaptable and industry-ready professionals. The OCS office, in close collaboration with a dedicated group of student placement coordinators, actively engages with a wide range of 250+ leading companies annually. These include technology giants, core engineering firms, finance and consulting leaders, public sector organizations and fast growing Indian enterprises. As a result, our students consistently secure top placements at organizations such as Google, Microsoft, Apple, Amazon, Qualcomm, Texas Instruments, Tata Steel, L&T, Goldman Sachs, Citi, ITC, DRDO, ISRO, HPCL and BPCL, among many others.

A unique strength of IIT Hyderabad lies in its strong culture of innovation and entrepreneurship. Supported by our iTIC Incubator, Center for Innovation and Entrepreneurship and a research-driven ecosystem, many of our talented students are choosing the entrepreneurial path—graduating not just with degrees, but with startups they have founded and nurtured during their time at IIT Hyderabad. Over 125+ startups have been incubated at IIT Hyderabad, many of which have attracted external funding and are contributing to critical sectors such as healthcare, sustainability, robotics and deep tech.

This spirit of innovation and leadership, combined with academic excellence, makes IIT Hyderabad a preferred destination for organizations seeking future-ready talent. We deeply value the continued trust of our recruiting partners and warmly invite more organizations to collaborate with IITH through campus placements and beyond.

We are confident that your engagement with our students will be mutually impactful and rewarding.

With warm regards,
Prof. Mahendra Kumar Madhavan
Dean Alumni and Corporate Relations, IIT Hyderabad

VISION & CORE VALUES

| VISION

Indian Institute of Technology, Hyderabad will be the cradle for inventions and innovations. It will advance knowledge and scholarship to students in science, technology and liberal arts, and equip them to handle the challenges of the nation and the world in 21st century.

| MISSION

To be recognized as ideators and leaders in higher education and research, and to develop human power with creativity, technology and passion for the betterment of India and humankind.

| CORE VALUES

INNOVATION & INVENTION

- We promote a culture of innovation, creativity, and impactful research.

INTELLECTUAL GROWTH

- We encourage lifelong learning, analytical thinking, and academic excellence.

QUALITY EDUCATION

- We provide holistic education with strong knowledge, skills, and values.

INSPIRATION & LEADERSHIP

- We nurture leadership, determination, and positive societal impact.

SUSTAINABILITY & RELEVANCE

- We support responsible and sustainable practices aligned with global needs.

WHY HIRE FROM IITH?



NIRF
INNOVATION

#6



NIRF
ENGG

#7



NIRF
OVERALL

#12



FACULTY
STUDENT RATIO

1:17



LABS

500+



NUMBER OF
FACULTY

330+



PROJECTS
5040+



CITATIONS
2,29,300+



R&D Funding
₹1600+ Cr



PATENTS
580+



STARTUPS
320+



PUBLICATIONS
12,220+

LIST OF PROGRAMMES

UNDERGRADUATE

BACHELORS OF TECHNOLOGY (B.TECH)

Qualifying Test: IIT-JEE(Advanced)

- Artificial Intelligence
- Biomedical Engineering
- Biotechnology and Bioinformatics
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Computational Engineering
- Electrical Engineering
- Engineering Physics
- Engineering Science
- IC Design & Technology
- Industrial Chemistry
- Materials Science and Metallurgical Engineering
- Mathematics and Computing
- Mechanical and Aerospace Engineering

BACHELORS OF DESIGN (B.DES)

Qualifying Test: UCEED

POSTGRADUATE

MASTERS OF TECHNOLOGY (M.TECH)

Qualifying Test: GATE & Self Sponsored

- Additive Manufacturing
- Aerospace Engineering
- Artificial Intelligence & Machine Learning
- Communications
- Computer Science
- E-Waste Resource and Engineering Management
- Energy Science and Technology
- Environmental Engineering
- Geotechnical Engineering
- Hydraulic & Water Resource Engineering
- Integrated Circuits and Microsystems Packaging
- Integrated Design and Manufacturing
- Materials Science & Metallurgical Engineering
- Mechanics and Design
- Medical Biotechnology
- Medical Device Innovation
- Microelectronics and VLSI
- Network and Information Security
- Ophthalmic Engineering
- Polymer
- Power Electronics and Power Systems
- Biomedical Engineering
- Quantum & Solid State Devices
- Semiconductor Materials and Devices
- Signal Processing and Learning
- Smart Mobility
- Structural Engineering
- Sustainable Engineering
- Systems and Control
- Techno Entrepreneurship
- Thermo-fluid Engineering
- Transportation Engineering

MASTERS OF SCIENCE (M.SC)

Qualifying Test: JAM

- Physics
- Medicinal Physics

MASTERS OF DESIGN (M.DES)

Qualifying Test: CEED & Self Sponsored

- Interaction Design
- Product Design
- Visual Design

MASTERS OF ARTS (M.A)

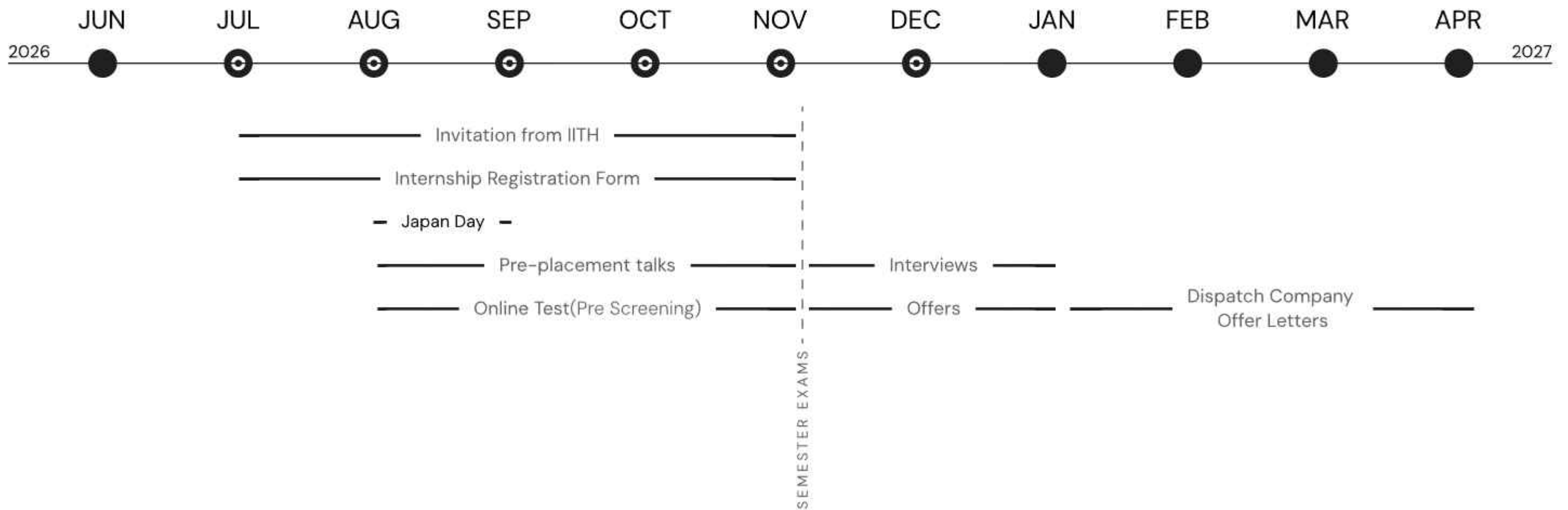
Qualifying Test: Written Test & Interview

- Development Studies
- Health, Gender & Society

PLACEMENT TIMELINE

PHASE 1

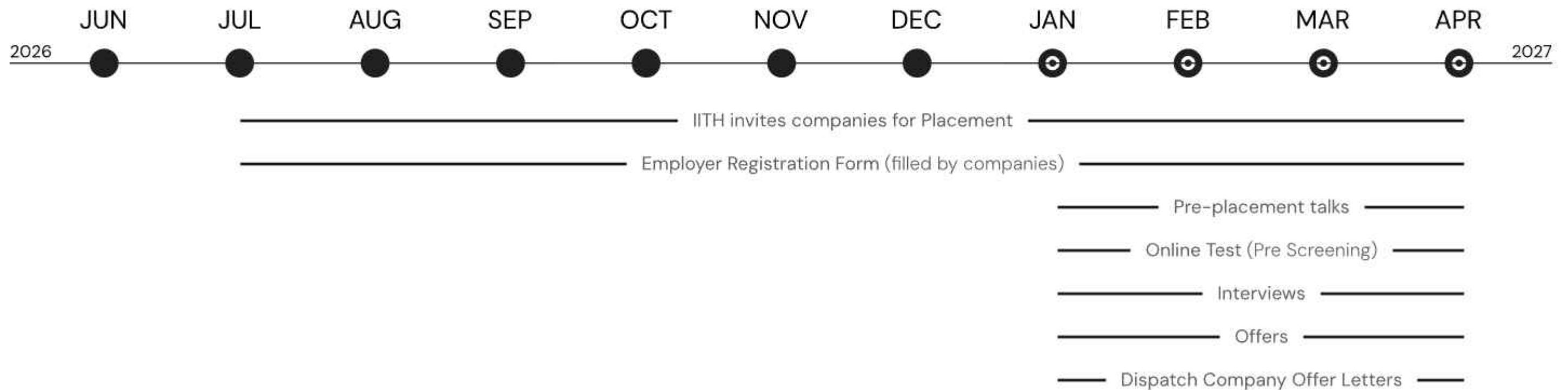
- Interviews in the month of November
- For competitive roles



PLACEMENT TIMELINE

PHASE 2

- Interviews from January to April
- For domain focused candidate



PREVIOUS STATISTICS (2025-26)

INTERNSHIP STATISTICS



PREVIOUS STATISTICS (2025-26)

PLACEMENT STATISTICS



DEPARTMENT OF ARTIFICIAL INTELLIGENCE

34

B.Tech

B.Tech (Artificial Intelligence)

M.Tech (Teaching Assistantship)

M.Tech (Research Assistantship)

PhD

The Department of Artificial Intelligence at IIT Hyderabad, established in 2019, offers a rigorous curriculum combining core AI foundations with advanced areas such as Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Reinforcement Learning, and Robotics. The program is supported by strong training in statistics, probability, optimization, game theory, algorithms, operating systems, and database systems.

The department fosters innovation, interdisciplinary research, and the development of impactful AI solutions, preparing students to become leaders in AI industry, academia, and emerging technology sectors at both national and global levels.

Additional Highlights

Labs

- Technology Innovation Hub on Autonomous Navigation (TIHAN-IITH)
- Machine Learning and Vision Lab (LAB 1055)
- Lab for Video and Image Analysis (LFOVIA)
- Bayesian Reasoning and Inference Lab (BRAIN)
- Natural Language and Information Processing Lab (NLIP)
- Game Theory Lab (GT Lab)
- Visual Learning and Intelligence Lab (VIGIL)
- Data-Driven Intelligence & Learning Lab (DIL)

Collaborations

- INTEL-AI Collaboration
- DRDO
- Microsoft
- NVIDIA
- Nasscom
- Honeywell
- Adobe
- IBM
- AIS(W)ARYAM (Centre of Excellence)

COURSES OF STUDY

• Core AI and ML

Foundations of Machine Learning
Deep Learning
Computer Vision
Natural Language Processing
Probability & Stochastic Processes
Matrix Theory
Convex Optimization
Deep Generative Models
Statistical Inference
Fraud Analytics
Reinforcement Learning
AI for Humanity

• Computer Science

Introduction to Programming in C
Advanced Data Structures and Algorithms
Database Management Systems
Computer Architecture
Operating Systems
Distributed Computing
Parallel & Concurrent Programming

PROGRAMS OFFERED

1. V. R. V. Rohith, E. V. S. Kadava, and K. R. Mopuri, "IMA & TMA: Efficient Test-Time Adaptation for VLMs via Linear Transformation in Embedding-Space," in Proceedings of the VISCALE Workshop, CVPR, 2026.
2. S. Mohanty and K. R. Mopuri, "Enhancing Coreset Selection via Teacher-Guided Soft Labels," in Proceedings of the DataCV Workshop, CVPR, 2026.
3. V. V. S. V. Kiran, A. S. Reddy, H. V. S. Sai, H. Allaka, and R. P. Kumar, "A Multi-Sensor Fusion Framework for Unmanned Aerial Vehicle (UAV) Navigation and Inspection in GPS-Denied and Degraded Environments," in Proceedings of the IEEE Applied Sensing Conference (APSCON), pp. 1–4, 2026.
4. Madarkar et al., "DermaCon-IN: A Multiconcept-Annotated Dermatological Image Dataset of Indian Skin Disorders for Clinical AI Research," in Proceedings of NeurIPS (Datasets and Benchmarks Track), 2025.
5. A. Majumdar, M. A. Krishna, and P. K. Srijith, "Neural Wave Equation for Irregularly Sampled Sequence Data," in Proceedings of ICLR, 2025.
6. P. Manupriya, Himanshu, S. N. Jagarlapudi, and G. Ghalme, "Multi-agent Multi-armed Bandits with Minimum Reward Guarantee Fairness," in Proceedings of AAMAS, pp. 1436–1444, 2025.

PAST RECRUITERS

Google, Amazon, Microsoft, NVIDIA, Apple, Jane Street, KLA, Thomson Reuters, Samsung Research, American Express, Qualcomm, Mathworks, IBM, Netradyn, Goldman Sachs, ServiceNow, Salesforce, Razorpay, Oracle, Accenture, BNY Mellon, Adobe, Flipkart, Zomato, Rippling, Paypal, JP Morgan, Deloitte, Morgan Stanley, Dell, Sprinklr, Mahindra, Recruit&Co, Alps Alpine, Atlassian, D. E. Shaw, Tower Research, NK Securities Research, Warner Bros, Deutsche Bank, Honeywell, Microsoft Research



DEPARTMENT OF BIOMEDICAL ENGINEERING

25

B.Tech

B.Tech (Biomedical Engineering)

M.Tech (Nano Medicine and Biomaterials)

M.Tech (Medical Sensing, Analytics and Simulation)

PhD

First IIT to start B.tech in Biomedical Engineering . The department at IITH is a highly interdisciplinary department that is working on various aspects to address the grand healthcare challenges facing humanity. At BME, engineering meets medicine, biology, AI, and innovation – creating technologies that can transform healthcare and improve lives. BME mainly have four domains :

- Bio-imaging & Biosensors
- Biomaterials & Nanomedicine
- Natural & Artificial Intelligence
- Biomechanics

The Department offers B.Tech, M.Tech, and Ph.D. programs at the intersection of engineering, medicine, and life sciences.

Highlights-

India's first Bioengineering centre for lung health has been launched in collaboration with Institute for lung health (ILH), Justus Liebig University, Giessen, Germany

Research Labs

1. Applied MRI technology
2. Bio-fabrication and Tissue Engineering
3. Bio-microfluidics and Lab on Chip
4. Biomaterials
5. Computational Neuroscience
6. Medical informatics and digital health lab
7. Medical Optics and Sensors
8. Medical ultrasound research laboratory
9. Nanotechnology
10. Neurotechnology
11. Computational Biology

Key Collaborators

1. LV Prasad Eye Institute
2. AIG Hospitals
3. Apollo Hospitals
4. AIIMS Bibinagar
5. CitiNeuro Center
6. Himedia Laboratories
7. SAMEER Mumbai (Indian MRI Project)
8. ICMR (INDIAN COUNCIL OF MEDICAL RESEARCH)
9. Nizam's Institute of Medical Sciences (NIMS)
10. Honeywell
11. Centre for Cellular and Molecular Biology (CCMB)
12. Japan International Cooperation Agency (JICA)

COURSES OF STUDY

• Core Subjects

Product Design and Prototyping
Advance Molecular Imaging
Cell Technology
Clinical immersion
Sensors and Transducers in healthcare
Biomechanics
Biomaterials
System Physiology

• Elective Subjects

Biofabrication
Lab on chip
Nanomedicine
Tissue Engineering
Tissue Engineering Lab
Biofabrication Technology
Ultrasound in medicine
Biomicrofluidics
Organ Printing
Statistical Inference Methods in Bioengineering
Accident and emergency informatics
AI regulations and standards
Advanced Biomechanics
Bayesian Inference in Bioengineering
Mathematical Modelling and Systems Physiology
Biomedical Imaging
Magnetic resonance imaging Principles

RECENT PROJECTS / RESEARCH

1. India's First High-Intensity Focused Ultrasound (HIFU) system to treat solid tumors.
2. Personalised Fatigue Detection in Analog Astronauts with Multimodal Physiological Signals
3. Automated PCOS Diagnosis using AI-Driven Ultrasound Imaging
4. Merging supramolecular chemistry with nanotechnology for hydrogel based soft electronics
5. 4D printing of self- morphed corneal equivalents using smart hybrid hydrogels.
6. Development of Gold coated calcium peroxide nanoparticles for photothermal ferroptosis against skin cancer and C. albicans
7. Carboxymethyl inulin functionalized gold nanoclusters within a chitosan matrix for biocompatible photothermal and anticancer theranostics
8. Optical coherence tomography(OCT) for surgical demarcation of GI tumor margins for accelerated decision-making during the surgical resection of tumors.

PAST RECRUITERS

Johnson & Johnson, Boston Scientific , Philips Healthcare , GE HealthCare ,Honeywell ,Mitsubishi Electric,,Goldman Sachs,Accenture , Phable, PharmaAce, HCL, Stryker,Thomson Reuters ,ServiceNow



DEPARTMENT OF BIOTECHNOLOGY

23

B.Tech

B.Tech (Biotechnology and Bioinformatics)

M.Tech (Medical Biotechnology)

PhD (Biotechnology)

The Department of Biotechnology at IIT Hyderabad focuses on interdisciplinary education, research, and innovation in biotechnology and bioinformatics. The department offers strong academic and research training in Molecular Biotechnology, Genomics, Proteomics, Computational Biology, Biomedical Data Analytics, and Machine Learning for Bioinformatics. Students gain both theoretical knowledge and practical exposure through advanced laboratories, computational facilities, and research-oriented projects.

The department emphasizes innovation, scientific ethics, and industry-oriented learning through hands-on training and collaborative research. Research areas include cancer biology, drug discovery, molecular simulations, genomics, bioinformatics, and medical image analysis. Graduates are well-prepared for careers in biotechnology, healthcare, pharmaceuticals, computational biology, research, and higher studies.

Research Facilities

- Biotechnology and Molecular Biology Labs
- Bioinformatics and Computational Biology Labs
- Genomics and Proteomics Facilities
- Advanced Microscopy and Imaging Facilities

Research Areas

- Computational Biology and Bioinformatics
- Cancer Biology
- Drug Discovery and Molecular Simulation
- Medical Image Analysis using AI
- Protein Engineering and Systems Biology

COURSES OF STUDY

- Biotechnology and Bioinformatics
- Molecular Biotechnology
- Biochemistry
- Immunology
- Gene Technology
- Genomics and Proteomics
- Structural Bioinformatics
- Next Generation Sequencing
- Biological Databases
- R and Python for Biologists
- Machine Learning for Bioinformatics
- Biological Data Analysis
- Computer Aided Drug Designing
- Molecular Dynamics Simulation
- Biomedical Data Analytics

RECENT PROJECTS / RESEARCH

1. Deep Learning Model for Protein-Ligand Docking
2. Mammogram Image Processing for Breast Cancer Screening
3. Neptune G1: Electronic Nose for Gastrointestinal Disorders
4. Subcellular Localization Prediction using Tree-Based Models
5. Molecular Dynamics Simulation of Drug-Protein Systems
6. Genetic Engineering of Yeast Strains for Fluorescence Microscopy
7. Role of Kinase Networks in B-cell Acute Lymphoblastic Leukemia
8. Decoding Myxobacterial Evolution through Motility, Respiration, and Genome Analysis
9. Studies on Stress and Toxicity Mechanisms of TDP-43 using Yeast Expression Models
10. Comparative Molecular Dynamics Simulation Analysis of Drug-Protein Systems
11. Site-Directed Mutagenesis and Functional Characterization of ADAR1 Variants

PAST RECRUITERS

Bharat Biotech, Dr. Reddy's Laboratories, Thermo Fisher Scientific, Syngene, Novartis, Siemens, Deloitte, Cognizant, TCS, Aganitha.ai, GreyB, Novotech



CENTRE FOR INTERDISCIPLINARY PROGRAMS

Department of Smart Mobility

Medical Device Innovation

Department of Additive Manufacturing

Department of Ophthalmic Engineering

Medical Physics Program

Lightweighting Engineering Program

Integrated Circuits and Microsystems Packaging (ICMP) Program

Centre for Interdisciplinary Programs serves as a bridge between traditional academic departments at IIT Hyderabad. CIP@ IIT Hyderabad envisions to create new paradigms in education, integrating techniques, tools and science from multi and cross – disciplinary expertise on IITH campus to address complex and multifaceted challenges.

DEPARTMENT OF SMART MOBILITY

13

2

M.Tech TA (Teaching Assistantship)

M.Tech RA (Research Assistantship)

The Smart Mobility program at IIT Hyderabad is India's first M.Tech in Smart Mobility, conceived and driven by TIHAN – the nation's first National Testbed for Autonomous Navigation, sanctioned by the Department of Science and Technology under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS). The program adopts a rigorous interdisciplinary approach engaging with cutting-edge research across eight specialized laboratories, working on problems spanning autonomous navigation, deep learning, computer vision, Wireless & V2X communication, IoT, and intelligent transportation systems.

The curriculum is anchored in strong theoretical foundations while emphasizing applied research through TIHAN's state-of-the-art testbed infrastructure equipping graduates with the analytical depth and systems-level expertise to contribute meaningfully to both industry R&D and advanced research in the smart mobility domain.

COURSES OF STUDY

Core Courses

Random Variables and Stochastic Processes
Foundations of Machine Learning
Advance Computer Networks
Internet of Things
Autonomous Navigation
Traffic Engineering and Intelligent Transportation Systems

Elective Courses

Deep Learning
Computer Vision
Natural Language Processing
Data Science and Analysis
Advance Data Structures and Algorithms
Convex Optimization
Automotive Communication and Sensing
Wireless Networks

RECENT RESEARCH & PROJECTS

Drive by Wire: Building drive by wire for autonomous vehicles using optimization techniques for all 4 wires, ie throttle, steer, brake and gear
Crack Detection
QoS Analysis of Robotic Teleoperation over 4G and 5G cellular networks
Camera – Lidar sensor fusion using attention bottleneck
Robotics integrated with AI/ML for real-world applications

PAST RECRUITERS

Microsoft, Qualcomm, Goldman Sachs, Intel, Samsung Research, Oracle, Turing, HP, DENSO (Japan), TCS Research, Blend, SaaS Labs, Phenom, C-DOT, HCL, Recykal, IDrive, NIUM, Mitsubishi Electric, BOSCH, Suzuki (Japan), Mercedes-Benz R&D, Philips, Orica, Pranik.AI, Netradyne, Accenture, Reliance New Energies, Drive Buddy AI, SanDisk.

DEPARTMENT OF

MEDICAL DEVICE INNOVATION

11

M.Tech TA (Teaching Assistantship)

The Medical Device Innovation (MDI) Program is a pioneering initiative in India that integrates Healthcare, Engineering, Design, and Artificial Intelligence to shape the future of medical technology. Through a unique blend of technological excellence, data-driven innovation, human-centered design, and product development, it equips exceptional engineering talent to transform unmet clinical needs into intelligent, affordable, and globally relevant healthcare solutions that advance patient care and improve health outcomes.

Technical / Interdisciplinary Courses: Bio Design Thinking, AI in Healthcare, Biomedical Devices, 3D Rapid Prototyping and Modelling, Flexible and Wearable Electronics, Embedded Systems and IoT, Medical Robotics (Optional), Physiology, Anatomy and Pathophysiology of Diseases, Intellectual Property Rights (IPR), Clinical Immersion, Capstone Project

RECENT PROJECTS

AR/VR Cath Lab Simulator: AI/ML/DL-powered simulator for training in angioplasty and angiography procedures.
Dental AI Analysis: Deep learning-based tooth numbering and anomaly detection using OPG dental images.
Mechanical Ventilator: Low-cost ventilator with turbine-driven airflow, precision valves, and microcontroller-based control.
3D Printed Anastomosis Ring: Design and fabrication of an anastomosis ring using DLP-based 3D printing.

PAST RECRUITERS

Alps Alpine, Innvolution, Quantum, Quantiphi, Recykal, Purview healthcare, Datalink, Healthedge, vipani.ai, House of EdTech

DEPARTMENT OF

ADDITIVE MANUFACTURING

17

The Additive Manufacturing (AM) program at IIT Hyderabad offers an interdisciplinary MTech curriculum spanning Mechanical, Materials Science, Design, and Biomedical Engineering. Students gain expertise in CAD/CAM, Product Design, Finite Element Analysis, Metal AM, Biofabrication, and emerging areas like Machine Learning, Nanomaterials, Thermo-mechanical processing and Topology Optimization, led by a distinguished faculty of 16 specialists. IITH houses state-of-the-art facilities including Wire-Arc AM setups, Powder Bed Fusion, and 3D Bioplotters under the "Shrusti Hub." The curriculum supports strong research in process monitoring, thermal modeling, and functional material design with tools like Abaqus and Simufact. The department collaborates with leading organizations including DRDO, Boeing, Pratt & Whitney, IGCAR, and international universities.

RECENT PROJECTS

Machine Learning Approach for Decision Making in Metal Additive Manufacturing Components, Boeing (Bangalore).
Additive manufacturing of nickel-based alloys, PRATT AND WHITNEY.
Thermal Management Approaches for Distortion Control in Metal Additive Manufacturing Component, Boeing (Bangalore).
Post-Processing of Direct Energy Deposition Components: Need Identification and Process Selection, CRG-DST.
LargeArea Additive Manufacturing (LAAM): Design and Development of Powder based Directed Energy Deposition System for Direct Fabrication of Rocket Components, DRDO.
Design and Development of Line beam based laser material processing head with thermal monitoring system

PAST RECRUITERS

Tata Advanced Systems, General Electric, Siemens, Bosch, KLA, Maruti Suzuki, Honeywell, Mahindra, Mercedes-Benz, Volvo, Hero, ISRO, Indian Oil, DRDO.

DEPARTMENT OF

OPHTHALMIC ENGINEERING

9

The M.Tech. in Ophthalmic Engineering at Indian Institute of Technology Hyderabad is a unique interdisciplinary program jointly offered in collaboration with L V Prasad Eye Institute, one of India's leading eye-care and vision research institutes. The program integrates engineering, vision science, healthcare technology, and clinical applications to address real-world challenges in ophthalmology and eye care. It combines expertise in biomedical imaging, artificial intelligence, medical device development, optics, biomaterials, and healthcare analytics, preparing students to contribute in areas such as diagnostic imaging, AI-driven healthcare, ocular devices, and clinical technology development.

COURSES OF STUDY

Core Subjects

AI in Ophthalmic Informatics
Applied Optics (Theory + Lab)
Lasers for Ophthalmic Engineering
Stress Analysis & Biomechanics
Optoelectronics
Multidisciplinary Ophthalmic Imaging
Computational & Numerical Methods
The Cornea & Crystalline Lens
Innovation & Technology in Ophthalmic Engineering
Eye and Brain Part 1: The Retina and Pupils
Eye & Brain Part 2: Visual Perception & Oculomotor Control

Elective Subjects

Biofabrication
Image and Signal Processing
Tissue Engineering
Nanomedicine
Biomicrofluidics

RECENT PROJECTS

Developing Android and iOS applications for AI-assisted vein visualization
Exploring multimodal brain signal analysis using EEG and fNIRS
Engineering next-generation corneal tissues using biofabrication techniques
AI based fundus image analysis

PAST RECRUITERS

DriveBuddy AI, LTIMindtree, MedevPlus, Xion Multiventures, LVPEI, Nayam Innovations, Mindtree, Forus Health, AMTZ, Edmund Optics, Orbees Medical, Transformco, KAS Global Commerce.

DEPARTMENT OF

MEDICAL PHYSICS

8

The M.Sc. in Medical Physics at IIT Hyderabad is a unique, AERB-approved program jointly delivered with the Basavarakam Indo-American Cancer Hospital & Research Institute (BIACH & RI), Hyderabad – one of India's premier cancer care institutions. Students benefit from two years of structured coursework split across IIT Hyderabad and BIACH & RI, followed by a mandatory one-year internship at BIACH & RI. The program is approved by the Atomic Energy Regulatory Board (AERB), Government of India, ensuring graduates meet national standards for clinical medical physics practice.

This interdisciplinary program bridges physics and clinical medicine, training students in radiological physics, radiation oncology, nuclear medicine, diagnostic radiology, and radiation safety. Graduates are well-prepared for careers in hospitals, cancer centres, research labs, and regulatory bodies, as well as in leading medical technology companies and R&D organizations. Additionally, those who clear the BARC – conducted Radiation Safety Officer (RSO) certification exam become eligible for RSO positions across medical, industrial, and research establishments.

RECENT PROJECTS

Project D – Cyclotron for Education and Research
Impact of Phantom Positioning Uncertainty on Dosimetry Audits in Advanced Radiotherapy and Its Role in Defining Passing Criteria
Python-Based Tool for Quantitative Assessment of Source Uniformity in Ophthalmic Brachytherapy Plaques
Geiger-Müller Counter for Radiation Detection
Radiation safety and Thermoluminescence study of Li₂B₄O₇:X (X = Cu, Eu, Mg) irradiated with gamma rays.
Institute – Inter-University Accelerator Centre (IUAC) – Student – Alvin Vijay
Magnetic Characterization & Stability Optimization for the MC-18 Medical Cyclotron

PAST RECRUITERS

Australian National University (ANU) in Canberra, TAEJOON®

DEPARTMENT OF LIGHTWEIGHTING ENGINEERING

8

The M.Tech in Lightweighting Engineering at IIT Hyderabad is a unique interdisciplinary program designed to develop next-generation engineers capable of designing lightweight, high-performance, and sustainable engineering systems that improve structural efficiency, reduce energy consumption, and enhance product performance. The program integrates advanced materials, topology optimization, additive manufacturing, composite structures, lightweight alloys, computational mechanics, and data-driven engineering. The curriculum emphasizes industrial relevance and addresses challenges in aerospace, automotive, energy, defense, and advanced manufacturing sectors, developing students by providing access to state-of-the-art laboratories, advanced simulation tools, and collaborations across multiple departments.

COURSES OF STUDY

Core Lightweighting Courses

Introduction to Lightweighting
Topology Optimization
Fundamentals of Lightweight Alloys
Manufacturing Science for Lightweighting
Lightweighting Design Lab
Lightweighting Design Topics

Advanced Engineering Courses

Analysis and Design of Composite Structures
Automotive Materials
Machine Learning and its Applications
Industry Lecture Series
Design for Metal Additive Manufacturing
Computational Design and Structural Optimization
Advanced FEM

RECENT PROJECTS

Dual Beam Laser Welding for Advanced Manufacturing Applications
Experimental and Analytical Investigation of Variable Angle Tow Composite Laminates for Improved Structural Performance
Design and Optimization of Variable Stiffness CFRP Panels with Large Cutouts using Variable Angle Tow Technology
Topology Optimization with Buckling Constraints under Design-Dependent Loading
AI-Based Framework for Non-Metallic Inclusion Monitoring and Control in Rolled Steel Products
Crystal Plasticity Finite Element Modeling of Additively Manufactured Ti-6Al-4V Alloy

DEPARTMENT OF INTEGRATED CIRCUITS & MICROSYSTEMS PACKAGING

11

The Integrated Circuits and Microsystems Packaging (ICMP) program at IIT Hyderabad is a unique interdisciplinary postgraduate engineering initiative established to develop skilled manpower and technopreneurs in the rapidly evolving domain of IC and microsystems packaging. As semiconductor scaling shifts toward advanced packaging, heterogeneous integration is emerging as a key innovation of the next decade. This program prepares engineers to lead it.

Equal emphasis is given to the Electrical, Mechanical, and Materials aspects of ICs and their packaging. The curriculum was designed in direct consultation with industry, and students receive hands-on training in state-of-the-art design tools and real packaging equipment.

RECENT PROJECTS

Polymer Based 3D Bonding Integration
Hybrid Bonding
Flexible Electronic Bandage
Analog In-Memory Computing
AI/ML-based framework for predicting optimal TSV configurations to minimize peak qubit temperature in 2.5D superconducting quantum processors
Signal & Power Integrity Analysis for High-Speed Interfaces
CMOS Analog & Mixed-Signal Circuit Design using Cadence Virtuoso
Digital System and Protocol Design in Verilog HDL
AI/ML-based framework for predicting optimal TSV configurations to minimize temperature and signal integrity in 2.5D advanced packaging co design
Electronic Circuit Simulation and MOSFET Characterization in LTspice
Thermal Design of 3D ICs and Quantum Computing Systems

PAST RECRUITERS

SanDisk, Western Digital (WD), Micron Technology, Qualcomm, Texas Instruments (TI), KLA Corporation, Synopsys, AMD, GlobalFoundries, Analog Devices Inc. (ADI), Intel

DEPARTMENT OF CHEMISTRY

22

B.Tech

B.Tech (Industrial Chemistry)

M.Sc (Chemistry)

PhD

The Department of Chemistry at IIT Hyderabad combines strong academic foundations with interdisciplinary research and offers a unique B.Tech in Industrial Chemistry that integrates chemistry with industrial applications, engineering, computational tools, and emerging technologies.

Students gain expertise in pharmaceuticals, petrochemicals, polymers, materials science, energy storage, catalysis, computational chemistry, and sustainable processes through rigorous coursework, laboratory training, and research-driven learning. The program prepares graduates for careers in R&D, manufacturing, consulting, analytics, sustainability, energy, and technology sectors.

Skills & Tools

Programming & Analytics

- Python
- MATLAB
- Data Analysis
- Machine Learning Fundamentals
- Computational Modeling
- Numerical Methods

Laboratory Instrumentation

- Hands-on experience with:
 - FTIR Spectroscopy
 - UV-Vis Spectroscopy
 - X-Ray Diffraction (XRD)
 - Single Crystal XRD
 - Gas Chromatography
 - Mass Spectrometry
 - Gel Permeation Chromatography
 - Differential Scanning Calorimetry
 - Electrochemical Characterization Tools
 - Chromatographic Separation Techniques

Core Technical Skills

- Chemical Synthesis
- Process Chemistry
- Catalysis
- Polymer Processing
- Analytical Characterization
- Industrial Separation Techniques
- Reaction Analysis
- Materials Testing
- Molecular Modeling

COURSES OF STUDY

• Core Chemistry & Industrial Applications

Industrial Organic Chemistry
Petroleum & Petrochemicals
Medicinal Chemistry
Drug Design & Food Technology
Polymer & Materials Science
Heterogeneous Catalysis
Electrochemical Energy Conversion
Biochemistry
Transport Properties
Thermodynamics
Chemical Industrial Separation Techniques

• Computational & Analytical Skills

Introduction to Programming
Introduction to Artificial Intelligence
Machine Learning in Chemistry
Numerical & Computational Chemistry
Data Analysis
Differential Equations
Calculus & Linear Algebra

• Laboratory & Technical Training

Industrial Chemical Methods Lab
Techniques in Industrial Chemistry Lab
Chemistry Synthesis & Separation Lab
Spectroscopy & Instrumentation
Advanced Analytical Characterization

RECENT PROJECTS / RESEARCH

1. Students and researchers in the department actively work in diverse interdisciplinary areas, including:
2. Development of advanced materials for energy storage and electrochemical applications
3. Catalysis-driven sustainable chemical transformations
4. Computational modeling for molecular systems and chemical processes
5. Medicinal chemistry and drug discovery research
6. Polymer synthesis and advanced functional materials development
7. Sustainable separation technologies and industrial chemical process innovation
8. Machine learning applications in chemical data analysis and molecular prediction
9. Environmental chemistry and green process development

RECRUITER DOMAINS

Students from the department are well-suited for opportunities in:

- Pharmaceuticals & Drug Discovery
- Specialty Chemicals
- Petrochemicals & Refining
- Energy Storage & Battery Technology
- Materials & Advanced Manufacturing
- Sustainability & Green Chemistry
- Chemical Process Industries
- Research & Development
- Consulting & Analytics
- Technology & Data-driven Roles
- Quality Assurance & Process Optimization



DEPARTMENT OF CIVIL ENGINEERING

54

B.Tech

B.Tech (Civil Engineering)

M.Tech (Hydraulic & Water Resource Engineering)

M.Tech (Transportation Engineering)

M.Tech (Environmental Engineering)

M.Tech (Structural Engineering)

M.Tech (Geotechnical Engineering)

PhD

The Department of Civil Engineering at IIT Hyderabad, established in 2008, is a center of excellence in education, research, and consultancy. The department addresses national challenges in infrastructure, sustainability, and smart mobility through fundamental and applied research. Faculty lead sponsored projects from NHAI, MNRE, MoE, and MoEF.

Students train on industry-standard tools:

ABAQUS, ANSYS, PLAXIS, STAAD Pro, and FLAC 3D, backed by well-equipped laboratories. The Transportation Research and Innovation Hub (TRIHUB) drives interdisciplinary research in road materials, mobility systems, and resilient infrastructure. With a curriculum that blends core engineering with programming, AI, and data skills, graduates are well-prepared for core civil, technology-driven, and management roles.

Additional Highlights

- TRIHUB (Transportation Research and Innovation Hub): interdisciplinary research in road materials, smart mobility, and resilient infrastructure
- Sponsored research from NHAI, MNRE, MoE, MoEF; industry-grade labs with ABAQUS, ANSYS, PLAXIS, STAAD Pro, FLAC 3D
- Cross-disciplinary career readiness: graduates placed at technology and finance companies, including ServiceNow, Amazon, Oracle, NPCI, Flipkart, and Synchrony
- Strong internship pipeline: students interned at Microsoft, American Express, ServiceNow, Thomson Reuters, Kotak Mahindra Bank, L&T, Denso, and more in 2025-26

COURSES OF STUDY

- Applied Elasticity and Plasticity
- Advanced Structural Mechanics
- Advanced Structural Steel Design
- Advanced Reinforced Concrete Design
- Design Studio
- Finite Element Analysis
- Prestressed Concrete Design
- Communication Skills (Advanced)
- Construction Materials and Management
- Geotechnical and Foundation Engineering
- Highway Design and Materials
- Traffic Engineering and Planning
- Environmental Engineering
- Basic Electrical Engineering
- Introduction to Programming
- Artificial Intelligence

RESEARCH & PROJECTS

- AI & ML Applications in Civil Engineering: liquefaction hazard mapping, GIS-based analysis
- High Performance Concrete using Recycled Aggregates & Construction and Demolition Waste
- Cold-Formed Steel Failure Mode Investigation using 3D Digital Image Correlation
- Hydrological Modeling: MIKE SHE, FLOOD MODELLER, PAR FLOW
- Carbon Capture from Power Plant Flue Gas using Microalgae

PAST RECRUITERS

L&T, Engineers India Limited, AG&E, Telangana Gas, WSP India, Bondada Engineering, McDermott International, Jacobs, Atkins, Thornton Tomasetti, BPCL, Reliance Industries, ServiceNow, Oracle, NPCI, Kotak Mahindra Bank, Synchrony, Bossworks, Flipkart, Amazon, Accelequant, InMobi, Strong Internship Pipeline: Microsoft, American Express, Thomson Reuters, ServiceNow, Kotak Mahindra Bank, Denso, L&T



DEPARTMENT OF CLIMATE CHANGE

8

M.Tech

B.Tech (Climate Change)

M.Tech (Climate Change)

PhD

The Department of Climate Change at IIT Hyderabad offers an interdisciplinary curriculum integrating climate science, sustainability, climate policy, clean energy, and data-driven analytics. Students gain expertise in climate modeling, AI/ML, geospatial technologies, Remote Sensing & GIS, and environmental data analysis.

The program emphasizes practical learning in climate risk assessment, ESG and sustainability analytics, renewable energy systems, and climate governance, preparing graduates for careers in climate-tech, sustainability consulting, renewable energy, research, and policy.

COURSES OF STUDY

Climate Analytics & Atmospheric Systems

- Climate Modeling
- Climate Data Analysis and Methods
- Data Modeling in Atmospheric Sciences
- Hydrometeorological Forecasting
- High Performance Computing in Weather Research and Forecast/GCM

AI, Data Science & Geospatial Technologies

- RS, GIS, and Climate Change
- Machine Learning for Process Systems Engineering
- Applied Computational Lab
- Advanced Computing

Sustainability & Clean Energy Systems

- Sustainable Energy Technology
- Life Cycle Assessment (LCA) for Corporate Sustainability and Climate Change
- Climate Change Mitigation & Adaptation

Policy, Governance & Industry Readiness

- Climate Governance

RESEARCH & PROJECTS

1. Spatio-temporal modeling of wind turbine wake effect using advanced machine learning Techniques
2. AI/ML/Statistical Analysis of Climate-Friendly Agriculture- Integrating Machine Learning and Process-Based Models for Agricultural GHG and Yield Prediction
3. CFD-Based Optimization of Diffuser Systems for Enhanced Aeration Efficiency in Biological Wastewater Treatment Under Indian Conditions
4. Spatio-Temporal Analysis and Pattern Recognition of Precipitation in Indian Cities using AI ML techniques
5. Precipitation Type Classification Over India Using Satellite Observations and Machine Learning Techniques
6. A Multi-Scale Machine Learning Framework for Indian Summer Monsoon Prediction Using Climate Variables and Teleconnections.
7. Renewable Energy Expansion and Land Conflicts: Governance Challenges in Rajasthan's Solar Parks.
8. Scope 2 Emissions – Purchased Grid Electricity at IIT Hyderabad.
9. Data-Driven Framework for Urban Heat Island Mitigation in Hyderabad: Public Health Adaptation Perspectives.
10. Soil Moisture Content Retrieval from Remote Sensing Data using Artificial Neural Network.

PAST RECRUITERS

Alfred, Nurix AI, KAS Global, Adani, Quantum Analytics, Quantiphi, Price Waterhouse Coopers (PwC), TATA Consultancy Services (TCS), Innominds, Arabesque, Qulabs Software, Head Digital, Protovulcan, Treeni Sustainability Solutions, Pro Zero Carbon, Gait Global, Energy Swaraj Foundation, The Society of Indian Automobile Manufacturers (SIAM)



DEPARTMENT OF CHEMICAL ENGINEERING

43

B.Tech

B.Tech (Chemical Engineering)

M.Tech (Chemical Engineering)

PhD

Chemical Engineering at IIT Hyderabad combines strong fundamentals and interdisciplinary exposure, developing engineers and researchers capable of contributing across diverse sectors, including core engineering, consulting, AI/ML, analytics, manufacturing, software, energy, pharmaceuticals, automotive, and R&D. Students are trained through research, industry projects, and computational tools for diverse engineering and technology roles.

Skills & Tools

Programming & Analytics

- Python
- MATLAB
- Data Analytics
- Machine Learning

Engineering Software

- Aspen Plus
- CFD Tools
- Process Simulation Software

Technical Skills

- Optimization
- Experimental Analysis
- Process Design
- Statistical Analysis
- Computational Modeling

Recruiter Domains

Students from the department have secured opportunities in:

- Core Chemical Engineering
- AI/ML & Data Science
- Consulting & Analytics
- Software & IT
- Manufacturing & Production
- Energy & Sustainability
- EPC & Design
- Pharmaceuticals & Healthcare
- Automotive & Materials
- Research & Development

COURSES OF STUDY

1. Core Chemical Engineering

- Thermodynamics
- Heat Transfer
- Fluid Mechanics
- Mass Transfer
- Chemical Reaction Engineering
- Process Control
- Transport Phenomena
- Process Design & Economics
- Mechanical Operations

2. Computational & Analytical Skills

- Numerical Methods
- Process Simulation
- CFD
- Optimization Techniques
- Machine Learning Applications
- Computational Modeling (ASPEN & ANSYS)
- Molecular Thermodynamics

3. Interdisciplinary & Emerging Areas

- Sustainable Energy & Fuels
- Battery Technology & Recycling
- Advanced Materials & Polymers
- Bio-Informatics
- Green Chemistry
- Catalysis
- Microfluidics
- Soft Matter Systems

RECENT PROJECTS / RESEARCH

1. Development of ML tools for extracting geometry information from CT scan images for blood flow simulations
2. Optimization of coal supply chains under uncertainty using Deep Learning
3. AI/ML-driven automation in image analysis using generative models and computer vision frameworks
4. Development of high-performance Lithium-Sulfur batteries using advanced carbon cathodes and electrocatalysts
5. Recovery of Platinum and Nickel from Spent Electrocatalysts Using Sustainable Electrochemical Processes
6. Separation and extraction of rare earth elements and critical minerals from coal ash
7. Sustainable production of biofuels and renewable chemicals from biomass using catalytic conversion
8. Development of predictive rheology models for vibration-damping adhesives with industrial

PAST RECRUITERS

Oracle, Jio, Jacobs, Swiggy, Jyesta Corporate Entity, Baker Hughes, Kia India, Artience, Asahi Kasei, Larsen & Toubro, Global Carbon Solutions, Macleods Pharmaceuticals Ltd., Accenture, Sprinklr, TCS Research, Microsoft, Deloitte, PwC, Adobe, McKinsey & Company, NTWIS, BLEND360, Deloitte, Micron, American Express, Aganith, ZS Associates, Sigmoid, Indian Oil, BPCL, HPCL, GAIL, Reliance Industries, Vedanta, Honeywell, NPCI, Toyo Ink, Accenture Japan, Mercedes-Benz, Loreal.



DEPARTMENT OF COMPUTATIONAL ENGINEERING

25

B.Tech

B.Tech (Computational Engineering)

The BTech in Computational Engineering at IIT Hyderabad, launched in 2021, is India's first undergraduate program designed to meet the computational demands of modern industry. The program integrates engineering, advanced computing, AI, and automation, preparing students for Industry 4.0 and digital transformation.

The interdisciplinary curriculum develops expertise in scientific computing, machine learning, optimization, numerical methods, simulations, and hardware description languages. With a focus on real-world problem solving, digital twins, and systems-level modeling, graduates are prepared for careers in software engineering, AI/ML, high-performance computing, and computational research.

Additional Highlights

- Placement & Internship Highlights
- 2026 Placements: 100% placed | Avg CTC: ₹37.3 LPA | Highest: ₹65.2 LPA
- 2025 Placements: Avg CTC: ₹39.3 LPA | Highest: ₹52.3 LPA
- 2027 Internships: Avg Stipend: ₹1.04 L/month | Highest: ₹2.67 L/month

Department Highlights

- AIR 1 in GATE Mathematics
- Select batch size of 25 students

Student Expertise

- AI/ML, HPC, Parallel Computing, Scientific Computing
- Azure, Angular, Proto, Julia, Low-Latency C, Kotlin
- Industry-focused research and cross-domain engineering projects

COURSES OF STUDY

Computer Science & Systems

- Data Structures & Applications
- Operating Systems
- Parallel & Concurrent Computing
- Design & Analysis of Algorithms

Machine Learning & Data Science

- Foundations of Machine Learning
- Deep Learning
- Optimization Techniques

Mathematics & High-Performance Computing

- Linear Algebra & Differential Equations
- Fundamentals of Scientific Computing
- Computer-Aided Numerical Methods

Core Computational Engineering

- CFD (Computational Fluid Dynamics) & FEM (Finite Element Method)
- Electronic Structure and Atomistic Modeling

RECENT PROJECTS / RESEARCH

- LLMops Platform with Agent Automation
- Custom ML/DL Framework with Autograd Engine
- Distributed LU Factorization for HPC
- 2D-to-3D CAD Generation using Transformers
- Optimization-Based Interview Scheduling System
- System Call Implementation and Demand Paging in xv6
- GAN-Based Rollout Acceleration for Dendritic Growth
- Parallelization of Finite Element Method (FEM)
- Benchmarking ML Force Fields for Molecular Dynamics
- Scalable Ticket Booking Platform using Microservices

PAST RECRUITERS

Google, Microsoft, Amazon, Goldman Sachs, Adobe, Oracle, Deutsche Bank, Morgan Stanley, Zomato, Accenture, American Express, Qualcomm, Samsung, Atlassian, DE Shaw & Co, Siemens, Bosch, Silicon Labs, KLA Tencor, Thomson Reuters, Verint, Teradata, Expedia, DevRev, Jupiter, Meltwater, Muratec Group, Carrier, Sagri, Accelquant, Eternal, Wontrex Cybertechnology, Crystal Ball.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

59

B.Tech

B.Tech (Computer Science and Engineering)

PhD

M.Tech (CSE, 2 years, Teaching Assistantship)

M.Tech (CSE, 3 years, Research Assistantship)

M.Tech (2 years, Networks and Information Security)

The Department of Computer Science and Engineering at IIT Hyderabad is a leading academic department with strong expertise in theoretical computing, software engineering, AI/ML, computer networks, cybersecurity, distributed systems, high-performance computing, blockchain, and secure IoT. The department combines a rigorous curriculum with a vibrant research ecosystem, state-of-the-art labs, entrepreneurship support, and strong industry engagement.

Additional Highlights

The department hosts premier research labs including NeWS, CANDLE, PRANET, Compilers, NLIP, BRAIN, VIGIL, LFOVIA, PDCRL, and the NVIDIA AI Technology Center. It maintains strong collaborations with academia, government, and industry through TIHAN, the Technology Research Park, and partners such as Google, Honeywell, Cyient, Wadhvani AI, Texas A&M University, and the University of Michigan.

COURSES OF STUDY

Core areas include Data Structures, Algorithms, Operating Systems, Computer Architecture, Database Management Systems, Theory of Computation, Cryptography, and Probability. Advanced electives cover Machine Learning, Deep Learning, Visual Computing, NLP, Data Science, Distributed Computing, Compilers, GPU Programming, Networks, Security, Parallel Programming, and Optimization.

RECENT PROJECTS / RESEARCH

Recent student and research work includes projects in autonomous vehicles, O-RAN/xApp development, concurrency vulnerability detection, Open-RAN and 5G security, confidential computing, IPv6 implementation, LLM uncertainty, RISC-V systems, compiler optimizations, fraud analytics, federated learning, full-stack web development, DBMS, multithreading, routing protocols, and custom compiler design.

PAST RECRUITERS

Servicenow, Oracle, Arcesium, Jaguar Land Rover Technology and Business Services India Ltd., Swiss Re Global Business Solutions India Pvt. Ltd., KLA, Salesforce, Qualcomm, Goldman Sachs, Google, Mercedes Benz Research and Development India, Warner Bros. Discovery, BeMap, iCIMS India Pvt. Ltd., Rippling, Squarepoint Capital, Schneider Electric, komprise, Chubb, Alps Alpine, Reliance Industries Limited, Synchrony, CDoT, BEL, CloudAngles, Leoforce, ICICI Bank, Jyesta Corporate Entity



DEPARTMENT OF DESIGN

24

B.Des

B.Des

M.Des (Interaction Design)

M.Des (Visual Design)

M.Des (Product Design)

PhD

The Department of Design at Indian Institute of Technology Hyderabad offers various programs focused on design excellence, sustainability, and interdisciplinary innovation aiming to develop creative designers equipped to address contemporary societal needs with innovative and sustainable solutions. The curriculum spans Interaction Design (UI/UX), AR/VR, Product & Industrial Design, Visual Communication, Film and Animation.

The department emphasizes practice-based learning through industry partnerships with organizations such as Animationbox, Microsoft, BookMyShow, Scala, and Swiggy, while interdisciplinary research is supported by the Center for Interdisciplinary Programs.

Research and teaching focus on emerging themes such as Participatory & Collaborative Design, Communication & Interaction Design, Professional Ethics & Sustainability, Product Systems & Services, and Wellness.

COURSES OF STUDY

- **Core Courses:** Product Design, Animation, Graphic Design, Photography, Typography, Ergonomics, Programming for Designers, Storyboarding, Design for Sustainability, Data Visualisation, Sound Design, AI in Design, System Design, Design Process and Methodology, Design Management & IPR, Design Research Seminar
- **Department Electives:** Web and Interaction, Product Photography & Studio Photography, Script Writing, Film Making, Computer-Aided Design, Branding & Identity, UI & UX, Character Design, Film Editing, Type Design, Furniture Design, Motion Graphics, Game Design, Advertising, Participatory Design, Service Design

PAST RECRUITERS

- Atlassian, Microsoft, Pepsico, Snapdeal, Infosys, IBM, Adobe, GE Digital, ADP, Bookmyshow, ICICI, Accenture, Salesforce, Godrej, Siemens, Deloitte, TCS, Bosch, TATA Elxsi, Kore.ai, Swiggy, Jio, L&T, Mindtickle, Swiggy, Optum, Bajaj Finserv, Dr Reddy's Laboratories, Bull Machine, Centella, Cognizant, Mahindra Finance, Darwin Box, Deshaw

RECENT PROJECTS

- Branding for 58th Inter-IIT Sports Meet
- UI Design for IITH's Main Gate & Library Entry/Exit Systems
- TEDx IIT Hyderabad Website
- Sony Camera UI/UX Redesign
- Thumb Ease – A user-friendly mobile keyboard
- Isthara Food Delivery App Redesign – UX Design
- Designmate – Tool borrowing app for IITH
- SkillMate – A skill exchange app for IITH students
- Hobgoblin – Hobby development platform
- Kalki – Sci-fi font design in Devanagari script
- HIV Statistics in Indian Mainland – Data visualization project
- Jolo – Animated film about limerence
- A Space Odyssey – Animated theme reveal for Elan & nVision
- Paradise Lost – Conceptual short film
- CRASH – Experimental video edit project
- Rethinking the Pill – Accessible packaging design
- Work Wear – Clothing design for construction workers
- Honda NSX Redesign – Automotive styling project
- Patola Ikat – Publication design on Indian textiles
- The Floods – Graphic narrative on Kerala floods
- Enigma – Book on rare Indian species
- Onam, The Malayali Way – Illustrated cultural guide
- Aaravchya Goshti – Child-friendly zine on safe/unsafe touch



DEPARTMENT OF ELECTRICAL ENGINEERING

63

B.Tech (Electrical Engineering)

24

B.Tech (ICDT)

B.Tech (Electrical Engineering)

B.Tech (IC Design & Technology)

M.Tech (Communications, Signal Processing and Learning)

M.Tech (VLSI)

M.Tech (Systems and Control)

M.S. (Research)

M.Tech (Power Electronics and Power Systems)

Dual-Degree (B.Tech & M.Tech)

PhD

The Department of Electrical Engineering at IIT Hyderabad is a premier hub for academic excellence and pioneering research, currently housing a vibrant community of 38 faculty members and over 600 students. Our curriculum integrates rigorous theoretical foundations with hands-on exposure in core areas such as Microelectronics & VLSI, Communications, Signal Processing & Learning, Power Electronics & Power Systems, and Systems & Control. We are dedicated to fostering critical thinking and problem-solving skills, supported by advanced research labs and strong industry collaborations with giants like Microsoft and Carrier Inc. Our students consistently excel on the global stage, earning accolades at prestigious international forums like the HOPE Meeting with Nobel Laureates. The department empowers graduates to lead innovations in 6G, semiconductor design, and sustainable energy systems.

Additional Highlights

- **Global Recognition:** PhD students have been selected to represent India at the 17th HOPE Meeting with Nobel Laureates in Japan, receiving Unique Presentation Awards.
- **Industry Integration:** Regular technical interactions with industrial leaders, such as seminars from Microsoft's Silicon team on semiconductor lifecycle development.
- **Research Opportunities:** Active projects in wireless coding with dedicated positions for undergraduate research.
- **Infrastructure:** Extensive state-of-the-art laboratory facilities located in the EECS and AD-2 buildings.

COURSES OF STUDY

Communication, Signal Processing & Learning–

- Wireless Communication, Deep Learning, and Error Correcting Codes.

Microelectronics & VLSI–

- Introduction to VLSI Analog and Digital IC Design, and Memory Circuits and System Design.

Power Electronics & Power Systems–

- Power Converter Design, Smart Grids, and Embedded System Design.

Systems & Control–

- Advanced Control Theory, Reinforcement Learning, and Automotive Communication.

PAST RECRUITERS

A selection of major global recruiters associated with the department:

Microelectronics & VLSI

- Intel, Qualcomm, Texas Instruments, AMD, Samsung, TSMC, MathWorks, Micron, Nvidia, Analog Devices, Cadence, Synopsys, Mediatek, Western Digital, Silicon Labs, SteradianSemi

Power Electronics & Systems

- Siemens, ABB, BHEL, Bosch, Eaton, GE, Switch Mobility, Hind Rectifier, SLB

Automotive & Core Engineering

- Mercedes-Benz, Suzuki, Tata Motors, Mahindra, Continental, Volvo, Jaguar, Honeywell, L&T Services, Bharat Electronics Limited

Technology & Software

- Google, Microsoft, Amazon, Apple, Atlassian, Oracle, HCL, TCS Research & Innovation, Accenture, Rakuten, Razorpay, Media.net, Blend 360, Goldman Sachs, Morgan Stanley, JP Morgan

RECENT PROJECTS / RESEARCH

Representative research initiatives driving the department's innovation include:

1. **Next-Gen Communications:** 5G/6G Communication Stack and ML Decoding for RIS-Aided MIMO Systems.
2. **Advanced Microelectronics:** Design of high-speed PCB for laser drivers and high-performance capacitive sensing ASIC for gyroscopes.
3. **Sustainable Power Systems:** Multilevel dual active bridge for EV charging and digital twin of inverter-fed PMSM.
4. **Industry-Funded Systems:** Transfer Learning Approach for PID Controller Design, funded by IIT Hyderabad.



DEPARTMENT OF ENGINEERING SCIENCE

38

B.Tech

B.Tech (Engineering Science)

The Department of Engineering Science at IIT Hyderabad offers a multidisciplinary B.Tech program that combines engineering fundamentals with AI-driven and computational technologies. Students develop expertise in AI, Machine Learning, Computer Vision, Data Analytics, Web Development, Software Systems, programming, algorithms, system design, and mathematical modeling through hands-on, project-based learning.

The curriculum integrates core engineering with advanced topics such as deep learning, agentic AI, intelligent systems, quantum computing, and full-stack development. With strong analytical, technical, and problem-solving skills, graduates are well-prepared for careers in software development, AI, data science, product engineering, R&D, and technology consulting.

COURSES OF STUDY

Core AI and ML

- Foundations of Machine Learning
- Deep Learning
- Computer Vision
- Natural Language Processing
- Deep Generative Models
- Fraud Analytics Using Predictive and Social Network Techniques
- Reinforcement Learning
- AI for Humanity

Computer Science

- Introduction to Programming in C
- Data Structures and Algorithms
- Database Management Systems
- Theory of Computation
- Operating Systems
- Distributed Computing
- Discrete Mathematics
- Computer Architecture
- Computer Networks

Mathematics

- Calculus
- Probability and Random Variables
- Convex Optimization
- Statistics
- Differential Equations
- Complex Variables
- Linear Algebra

RESEARCH & PROJECTS

Systems & Core CS

- RISC-V Assembly Simulator
- Flow-Aware SDN Network
- Custom Domain-Specific Language Compiler
- Online Compiler on AWS
- Query Optimisation via Apache AGE
- Timetable Scheduler Engine

AI / ML & Deep Learning

- Multi-Agent Web Penetration Tester
- Agentic AI Tools (RAG, Search & Research)
- Neural Machine Translation for Indian Languages
- Compositionality in Vision Transformers via Wavelet Analysis
- Facial Emotion Recognition via CDKD
- Fairness-Aware Machine Learning for Bias Detection
- Graph-Based Financial Fraud Detection (GNN + GAN)

Maths, Stats & Probabilistic Methods

- Probabilistic Bug Detection in Quantum Programs: Probabilistic framework to distinguish genuine bugs from noise in quantum computing programs.
- Bayesian Time Series Forecasting: Bayesian inference applied to time series modelling for energy demand prediction under uncertainty.
- Statistical Anomaly Detection in Finance: Statistical models to identify irregular patterns and anomalies in financial transaction datasets.

PAST RECRUITERS

Microsoft, Amazon, Google, Atlassian, Oracle, Salesforce, Mercedes, ServiceNow, NTT, Career Technologies, Flipkart, BNY Mellon, Thomson Reuters, Skan AI, Rippling, Mitsubishi Electric, 26 Miles Capital, Navi, Media.Net



DEPARTMENT OF ENTREPRENEURSHIP AND MANAGEMENT

20

M.Tech

M.Tech (Teaching Assistantship)

Major/Minor In Entrepreneurship

The Department of Entrepreneurship and Management at IIT Hyderabad, established in 2021, fosters an entrepreneurial mindset and supports students in becoming innovators and job creators through a strong startup ecosystem connecting academia, industry, and entrepreneurs.

Its M.Tech in Techno-Entrepreneurship combines engineering, business management, product development, market analysis, venture financing, and technology commercialization. The department also offers a Minor in Entrepreneurship for B.Tech students, preparing graduates to solve real-world problems, build startups, and lead technology-driven industries.

COURSES OF STUDY

Accounting & Finance, Strategic Management, Operations Management, Marketing Research, Innovation Management, Design Thinking, Foundations of Techno-Entrepreneurship, HR and Leadership, Introduction to Intellectual Property Rights, Introduction to Sales and Marketing, Game Theory for Startups, Economics for Technocrats, Text Analytics, Visual Analytics, Communication Skills, Marketing for New Ventures, Business Finance, Industry Lecture

PAST RECRUITERS

Suzuki Motor Corp. (Japan), Denso (Japan), Accenture Strategy and Consulting, Tomato (Japan), Turing, Thermoflyde, LTIMindtree, Tata Electronics, Mahindra Finance, Accenture (Japan), Tata Sons, Deloitte, American Express, NTT, Blend360, Netradyne, Reliance Industries Ltd

RECENT PROJECTS / RESEARCH

1. Rizqbloom.com – A platform that combines tax filings and investment suggestions based on AI agents and ML models. plan to incline the investments towards ethical finance, i.e., interest-free, without gambling etc.
2. Route Optimization using VRP Algorithm
3. Research survey on the role of Reverse Logistics in enabling Circular Economy in the Apparel Industry
4. Risk Assessment Model for Industry 4.0 in the Automotive Industry.
5. Strategic Case Study on IT-enabled Industry
6. DroneTrack (Automatic path routing + obstacle detection using AI).
7. Optimization and Real-Time Integration of MultiModal Transport Networks Using Constrained Dijkstra's Algorithm
8. Transforming Indian Railway Freight: A Data-Driven Approach to Strategic Modernization
9. Comparative analysis of multi-time period biogas production between multi-feedstock composition and single-feedstock using the C/N ratio.
10. Optimization of Multifeed Stock in Biogas Supply Chain.
11. Developing a Real-Time Supply Chain Digital Twin Framework to analyze scenarios.
12. Optimizing the Reverse Supply Chain of Second-Hand Mobile Phones Through Omni-Channel Procurement and considering EPR certification.



DEPARTMENT OF GREENKO SCHOOL OF SUSTAINABILITY

10	15	19
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M.Tech (E-Waste) M.Tech (Energy Science) M.Tech (Sustainable Engineering)

M.Tech (E-Waste Resource and Engineering Management)

M.Tech (Energy Science and Technology)

M.Tech (Sustainable Engineering)

The Greenko School of Sustainability at IIT Hyderabad offers cutting-edge interdisciplinary programs focused on climate action, sustainable technologies, and resource management. The school fosters research in energy transition, circular economy, AI for sustainability, and net-zero industrial solutions.

It offers three M.Tech programs:

Sustainable Engineering: Focused on climate change mitigation, renewable energy, energy storage, and circular economy.

E-Waste Resource Engineering and Management: A joint program with C-MET, emphasizing e-waste handling, metal recovery, AI, and global compliance.

Energy Science and Technology: Covers fossil fuels, renewables, hydrogen energy, EVs, and advanced energy storage.

These programs aim to develop future-ready professionals capable of addressing global sustainability challenges through innovation and cross-disciplinary expertise.

COURSES OF STUDY

• Sustainable Engineering

Concepts in Sustainable Engineering and Energy Technology, SWOT Analysis and Risk Management, Analysis and Methods for Sustainable Engineering, Optimisation Techniques, Carbon Capture, Utilisation and Storage, Net Zero Processes, Green Chemistry and Industrial Processes, Sustainable Waste Management, Sustainable Mobility, Sustainable Design and Building Materials, Machine Learning for Process Systems Engineering, Sustainable Highway Infrastructure Design and Retrofitting, Photovoltaics & Solar Economy, Recycling of Green Energy Materials

• E-Waste Resource Engineering and Management

Life Cycle Assessment in Waste Management, E-Waste Recycling Methods, Advanced Numerical Methods, Sustainable Chemical Metallurgy, Machine Learning for Process Systems Engineering, Instrumentation for Efficient Recycling and Automation, Trace Metal Analysis, Instrumentation and Characterization, Electrometallurgy, SWOT Analysis and Risk Management, Supply Chain Management and Circular Economy

• Energy Science and Technology

Electrochemical Energy Storage Systems, Electrochemistry, Lithium-ion and Sodium-ion Battery Technologies, Renewable Energy Systems, Photovoltaic (PV) Technologies, Semiconductor devices, Smart Grids, Power Electronics and Power Converter Design, Hydrogen Economy and Fuel Cell Technology, Material synthesis and characterization, Electric Vehicles and Energy Storage Integration, Petroleum Refinery, Energy audit & Management, Optimization Techniques, Data Science and Analysis, AI/ML in Energy Systems, Computational Modeling and Simulation.

• Specialization Electives

Sustainable Waste Management, Photovoltaic Technologies and Solar Economy, Hydrogen Economy, Carbon Capture, Utilization and Storage, Net Zero Processes, Clean Steel Practices and Technologies Materials

RECENT PROJECTS / RESEARCH

1. Sustainable Engineering

- ML-Assisted Ammonia Combustion Optimization
- Renewable-Integrated Ironmaking Optimization
- Urban Sustainability for Disaster Resilience

2. E-Waste Resource Engineering and Management

- ML-Based Battery Charging Optimization
- Eco-Friendly Metal Recovery from E-Waste
- Recycling of Tantalum (Ta) Capacitors from PCBs

3. Energy Science and Technology

- Advanced Battery and Energy Storage Systems
- Power Electronics and Renewable Energy Systems
- AI/ML Applications in Energy Systems

PAST RECRUITERS

Suzuki Motor Corporation, Alfred-Lab, Greenko, Environmental Defense Fund, Deloitte, RESCMM, Sagar Cements, Coral Innovations, TCS Research, Klüber Lubrication, DP World, Tata Electronics, Thermax, Hindalco Industries (Aditya Birla Group), RITEBANC, Hind Rectifiers, Applied Materials, Anand Group, Esyasoft, BluPine Energy, KIA, Reliance New Energy, Blend360, OLA electric, Amaraja Energy and mobility, Cospower, Suzlon Energy, Impresa AI.

DEPARTMENT OF LIBERAL ARTS

9

M.A.

M.A. (Development Studies)

The Department of Liberal Arts at IIT Hyderabad offers two interdisciplinary MA programs: Development Studies and Health, Gender, and Society. These programs are designed to equip students with a comprehensive understanding of complex social, economic, and cultural issues through rigorous academic training and practical research experience.

In Development Studies, students explore areas such as development theory and policy, social exclusion, health economics, and environmental sustainability. The curriculum emphasizes both qualitative and quantitative research methods, preparing graduates for roles in policy analysis, research, and development sectors.

The Health, Gender, and Society program focuses on the intersections of health systems, gender dynamics, and societal structures. Courses cover topics like mental health, chronic disease management, and health economics, complemented by hands-on training in research methodologies and tools like SPSS and STATA.

Both programs incorporate internships and dissertation projects, fostering skills in fieldwork coordination, academic publishing, and policy evaluation. Graduates are well-prepared for careers in academia, public policy, NGOs, and international organizations, contributing to evidence-based and inclusive approaches to societal challenges.

COURSES OF STUDY

Development Theory and Practice
Contemporary India
Principles of Economics
Quantitative Research Methods for Behavioural Sciences
Qualitative Research Methods
Impact Evaluation
Development Economics
Health Economics and Policy
Public Finance and Public Policy
Environment and Society
Labour and Development
Health and Society
Migration and Mobility
State and Humanitarianism

RESEARCH & PROJECTS

1. 3D imaging based vein intrusion guide system for pediatric and geriatric healthcare-Sree Padmavathi Venkateswara Foundation (SreePVF).
2. Labour Supply Chains in the Construction Industry: Circular Migrants, Contracting, and Covid. Azim Premji University
3. Patterns of innovation, competition, and firm performance in the case of the Indian Manufacturing sector -ICSSR
4. Competitiveness of Indian Technological Start ups - An Exploratory Study. - ICSSR
5. Cool Infrastructures: Life with Heat in the Off-Grid City. - Economic and Social Research Council (ESRC), United Kingdom.

PAST RECRUITERS

IIM Bangalore, IIM Indore, IIM Ranchi, Indian Statistical Institute (ISI), Delhi, IIT Bombay, IIT Kanpur, BITS Pilani, NIT Calicut, O.P. Jindal Global University, University of Hyderabad, SBI Youth for India Fellowship, George Institute of Public Health, GlobalLogic (California), Gainsight, Docvita and Mindhouse (Bangalore).



DEPARTMENT OF MATERIALS SCIENCE AND METALLURGICAL ENGINEERING

34

B.Tech

B.Tech

M.Tech (Materials Science & Metallurgical Engineering)

M.Tech (Semiconductor materials and devices)

M.Tech in Industrial Metallurgy (Online Program for Working Professionals)

M.S. (By Research)

PhD

The Department of Materials Science and Metallurgical Engineering (MSME) at IIT Hyderabad specializes in advanced materials, metallurgy, semiconductor technologies, and computational materials science. The curriculum integrates nanomaterials, biomaterials, energy materials, additive manufacturing, extractive metallurgy, and computational materials engineering with hands-on training using advanced characterization, fabrication, simulation, and processing facilities.

The department collaborates closely with industry, research organizations, and global institutions, providing exposure to cutting-edge technologies and real-world challenges. Graduates are prepared for careers in R&D, semiconductors, advanced manufacturing, sustainability, materials engineering, AI/ML-driven materials research, consulting, and core metallurgy. A key highlight is the Semiconductor Materials and Devices (SMD) specialization India's first semiconductor-focused M.Tech program covering the complete "Sand to Circuits" semiconductor ecosystem.

COURSES OF STUDY

• Core Materials & Metallurgical Engineering

Thermodynamics of Materials
Mechanical Behavior of Materials
Ironmaking & Steelmaking
Phase Transformations
Diffusion in Solids
Corrosion Engineering
Powder Metallurgy Processing
Transport Phenomena in Materials Processing
Extractive Metallurgy
Thermomechanical Processing

• Semiconductor Materials and Devices

Fundamentals of Semiconductor Materials
Semiconductor Materials Characterization Lab
Semiconductor Devices
Vacuum Technology in Semiconductor
Micro and Nano Fabrication
Semiconductor Devices Characterization Lab
Fundamentals of Electronic Packaging Materials
Semiconductor : Extraction , Refining and Crystal Growth
Advanced Nanofabrication and Characterization
Techniques for next generation Devices

• Computational & Analytical Skills

Computational Methods in Materials Science
Materials Simulation & Modeling
Thermo-Calc & FactSage
Quantum ESPRESSO
COMSOL & ANSYS
Machine Learning in Materials Science
Electronic Structure Modeling
Materials Data Analytics
High Performance Computing

• Interdisciplinary & Emerging Areas

Additive Manufacturing
Biomaterials
Energy Materials & Devices
Flexible Electronics
MEMS & Sensors
Advanced Characterization Techniques
AI/ML Applications in Materials Engineering
Nanotechnology & Functional Materials
Green Steel & Sustainable Metallurgy
Semiconductor Manufacturing

RESEARCH & PROJECTS

Defect Engineering in Hafnia (HfO_2) for semiconductor applications
Fabrication of plasmonic nanoparticle multilayer structures for neuromorphic computing and data storage
Machine learning approaches for band-gap prediction using computational materials databases
Semiconductor device fabrication using cleanroom-based lithography and thin-film processing
Research in MEMS, flexible electronics, and semiconductor sensors
High-throughput defect calculations in alpha-Fe using Quantum ESPRESSO workflows
Development of advanced energy materials and thermoelectric devices
Semiconductor packaging and device reliability studies
Research in additive manufacturing and powder metallurgy
Sustainable metallurgy and green steel technologies

MAJOR RECRUITERS

Applied Materials, GlobalFoundries, Intel Corporation, Qualcomm, TSMC, Texas Instruments, Cadence Design, Systems, Oracle Corporation, Tata Steel, Vedanta Limited



DEPARTMENT OF MATHEMATICS

25

B.Tech

B.Tech (Mathematics and Computing)

M.Sc (Mathematics)

PhD (Mathematics)

Minor (Mathematics and Computing)

The Department of Mathematics at IIT Hyderabad offers an interdisciplinary Mathematics and Computing (MnC) program that integrates Mathematics, Computer Science, Statistics, Artificial Intelligence, and Finance. The curriculum combines rigorous mathematical foundations with computing, machine learning, optimization, and statistical analysis to develop strong analytical and computational problem-solving skills.

The department promotes research and innovation through projects in AI/ML, data science, quantitative finance, cryptography, and algorithms, while encouraging participation in competitive programming and finance clubs. Graduates are well-prepared for careers in software engineering, analytics, AI research, fintech, quantitative trading, and higher studies at leading global institutions.

Additional Highlights

- Strong exposure to AI/ML, Quantitative Finance, and Data Science applications
- Active student participation in competitive programming and quantitative research teams
- Interdisciplinary curriculum covering Mathematics, Computer Science, Statistics, AI, and Finance
- Research opportunities in optimization, machine learning, cryptography, and computational intelligence
- Students actively contribute to finance clubs, AI clubs, and institute technical communities
- Industry-oriented training in analytics, algorithmic trading, software systems, and statistical modeling

COURSES OF STUDY

Data Structures and Algorithms
Database Management Systems
Operating Systems
Computer Networks
Probability Theory
Linear Algebra
Numerical Analysis
Bayesian Statistics
Convex Optimization
Introduction to Artificial Intelligence
Applied Statistics and Regression Analysis
Time Series Analysis and Probability in Finance

RECENT PROJECTS / RESEARCH

BTC-USD Algorithmic Trading Bot
Time Series Analysis of NSE Stock Prices
Recommender System using Fuzzy Expert Systems
Human Path Prediction using Social LSTM
Image Segmentation using Graph Min-Cut Techniques

PAST RECRUITERS

Google, Microsoft, Amazon, Salesforce, Oracle, Adobe, Goldman Sachs, JP Morgan Chase & Co., Optiver, DE Shaw & Co., Quadeye, Uber, American Express, BNY Mellon, Accenture, Flipkart, Sprinklr, Zomato.



DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

64

B.Tech

B.Tech (Mechanical Engineering)

M.Tech (Mechanics and Design MAD)

M.Tech (Thermo-Fluid Engineering TFE)

M.Tech (Aerospace Engineering AE)

M.Tech (Integrated Design and Manufacturing IDM)

M.Tech (Robotics and Intelligent System Engineering RIS)

PhD

The Department of Mechanical & Aerospace Engineering (MAE) at IIT Hyderabad combines strong fundamentals in mechanical engineering with advanced exposure aiming to develop engineers and researchers capable of contributing across diverse sectors including core mechanical engineering, aerospace, automotive, manufacturing, robotics, AI-enabled engineering systems, energy, defense, consulting, analytics, software, and R&D. The department emphasizes interdisciplinary learning through research, industry collaboration, computational tools, experimental facilities, and hands-on projects.

Skills & Tools

Programming & Analytics

- Python
- MATLAB
- Data Analytics
- Machine Learning
- Optimization Techniques

Engineering Software

- ANSYS
- Abaqus
- COMSOL
- MATLAB Simulink
- OpenFOAM
- CAD/CAM Software
- STAR-CCM+
- Simufact

Technical Skills

- Computational Modeling
- CFD & FEA Analysis
- Product Design & Development
- Experimental Analysis
- Manufacturing & Fabrication
- Simulation & Optimization
- Robotics & Automation
- Structural Analysis
- Thermal System Design
- Aerospace System Modeling

COURSES OF STUDY

• Core Mechanical & Aerospace Engineering

Engineering Mechanics
Strength of Materials
Machine Design
Fluid Mechanics
Heat Transfer
Thermodynamics
Dynamics & Vibrations
Control Systems
Manufacturing Processes
Aerospace Structures
Aerodynamics
Propulsion Systems
Computational Mechanics
Finite Element Methods
IC Engines & Combustion

• Interdisciplinary & Emerging Areas

Additive Manufacturing
Robotics & Intelligent Systems
Smart Manufacturing
Composite Structures
Sustainable Energy Systems
Electric Mobility
UAVs & Drone Technology
Aerospace Structures & Aeroelasticity
Soft Matter & Microfluidics
Industry 4.0 & Automation
Acoustics & Vibroacoustics
Battery Thermal Management

• Computational & Analytical Skills

Numerical Methods
Computational Fluid Dynamics (CFD)
Finite Element Analysis (FEA)
Optimization Techniques
CAD/CAM
Machine Learning Applications
Data Analytics
Computational Modeling
Multiphysics Simulation
High Performance Computing

RESEARCH & PROJECTS

Development of advanced additive manufacturing and hybrid manufacturing systems, Research on vibration, acoustics, MEMS, and vehicle dynamics, Computational and experimental studies in aerodynamics and aeroelasticity, Development of advanced composite structures for aerospace applications, Research in combustion dynamics, alternative fuels, and propulsion systems, CFD-based simulation of multiphase and turbulent flows, Development of AI/ML-assisted engineering design and optimization tools, Structural health monitoring and non-destructive testing of aerospace components, Sustainable and energy-efficient manufacturing systems, UAV, drone dynamics, and swarm technology research, Laser material processing and advanced joining processes, Research in renewable energy and battery thermal management



DEPARTMENT OF PHYSICS

33

B.Tech

B.Tech (Engineering Physics)

M.Sc (Physics)

M.Tech (Quantum & Solid state devices)

PhD (Physics)

The Department of Physics at IIT Hyderabad combines strong foundations in fundamental physics with modern computational, engineering, and technology-oriented learning. Along with core areas of physics, the department provides exposure to programming, scientific computing, data analysis, Artificial Intelligence, Machine Learning, semiconductor technologies, and interdisciplinary engineering applications.

Students develop both analytical and practical problem-solving skills through coursework, laboratories, research projects, and computational training, enabling them to contribute across research, software, AI/ML, semiconductor, electronics, and emerging technology domains.

Laboratories & Facilities

- Semiconductor Device Fabrication Laboratory
- Thin Film Deposition and Sputtering Systems
- RF/DC Magnetron Sputtering Facilities
- Semiconductor Oxidation and Mask Alignment Setup
- Quantum Optics and Photonics Laboratory
- Dark Sky Observatory
- MEMS and Microsystems Laboratory
- Optical Characterization Facilities
- Material Characterization Laboratory
- SQUID Magnetometry Systems
- XRD and Ellipsometry Facilities
- Cantilever Magnetometer Systems
- RF and Microwave Measurement Setup
- Cleanroom and Device Fabrication Facilities
- Simulation and Computational Modeling Labs

Collaborations

- Semiconductor and Quantum Technology Research Groups
- National and International Semiconductor Research Laboratories
- Industry collaborations in semiconductor fabrication and device engineering
- Research collaborations in photonics, spintronics, MEMS, and quantum technologies
- Industry interactions through industrial lectures and collaborative projects in semiconductor and quantum systems engineering

COURSES OF STUDY

• Core Courses

Quantum Physics for Engineers
Mathematical and Computational Methods for Quantum Devices
Electronic Materials and Quantum Devices
Physics of Low-Dimensional Systems and Quantum Devices
Quantum Optical Devices
Solid State Devices
Quantum Measurement and Sensing
Introduction to Quantum Computing
Simulations Laboratory
QSSD Experimental Laboratory

• Computational & Analytical Skills

Advanced Quantum Information, Communication and Computation
Fabrication and Characterization of Quantum Devices
Spintronics
Optoelectronic Devices and Applications
Nano Photonics
Guide Wave Components and Devices
Data Science Analysis
Optical Devices for Imaging
Quantum Sensors and Atomic Clocks
Quantum Transport in Nanoscale Systems and Devices
Solid State High Energy Detectors
MEMS and Microsystem Technology
Advanced Functional Materials
Advanced Numerical Techniques for Quantum Many-Body Physics
Terahertz Devices and Applications
Spin Logic Systems
Introduction to Quantum Communication

RESEARCH & PROJECTS

RRAM-based Neuromorphic Computing Architectures, Superconducting Quantum Metadevices, Quantum Cryptography and Secure Communication Systems, RFIC and Analog Mixed-Signal Circuit Design, Thin Film Deposition and Magnetic Characterization using SQUID and RF/DC sputtering systems, Semiconductor Device Fabrication using sputtering tools, oxidation systems, and mask aligners, MEMS and Microsystem Device Development, Quantum Optical Device Engineering and Single Photon Detection, AI/ML Applications in Photonics and Semiconductor Systems, Simulation of Quantum Algorithms using Qiskit, Electronic Structure Studies of 2D Ferroelectric and Heterojunction Materials, CMOS and RRAM Integration for Emerging Memory Technologies, Device Modeling and Simulation using TCAD and COMSOL, Quantum Sensing and Low-Noise Measurement Systems, Material and Device Characterization using XRD, Ellipsometry, and Magnetometry

PAST RECRUITERS

Synopsys, Intel, GlobalFoundries, Micron, Applied Materials, Qualcomm, TSMC, Silicon Labs, TAQBit Labs, LTIMindtree, KLA, SEDEMAC, Oracle, Deloitte, Zomato.



ACTIVITIES

INSTITUTE TECHNICAL COUNCIL AND CLUBS

IIT Hyderabad has a range of Sci-Tech Clubs, which include:

- **Aeolus** – The Racing Team
- **Aero** – Aeronautics and Drone Design Club
- **Blockspace**– The Blockchain Tech Club
- **Cepheid** – The Astronomy and Astrophysics Club
- **Elektronica** – The Electronics Club
- **Epoch** – The Machine Learning/Data Science Club
- **Glitch** – The Video Game Club
- **Infero** – The Algorithmic and Logical Reasoning Club
- **Kludge** – The Information Security and Networking Club
- **Lambda** – The Dev Club
- **Robotix** – The Robotics and Automation Club
- **Torque** – The Automobile Engineering and Design Club

The student-led clubs, utilizing industrial tech and practices, bridge the gap between industry and classrooms, and are supported by professors.

ELAN & NVISION

- Elan & nVision is the annual techno-cultural fest of IIT Hyderabad, combining vibrant cultural events with cutting-edge technical competitions. Renowned for its scale and diversity, it attracts talent from across the country and culminates in spectacular performances by renowned artists.

FINANCE & CONSULTING CLUB:

- Explores finance and consulting careers through talks, workshops, and its flagship event, Horizon.

TEDXIITHYDERABAD:

- Hosts thought leaders who share ideas on technology, culture, and society to inspire innovation and awareness.

E-CELL & E-SUMMIT:

- Promotes entrepreneurship via hackathons, mentorship, product-building camps, and founder talks to support student startups.

BUILD PROGRAM

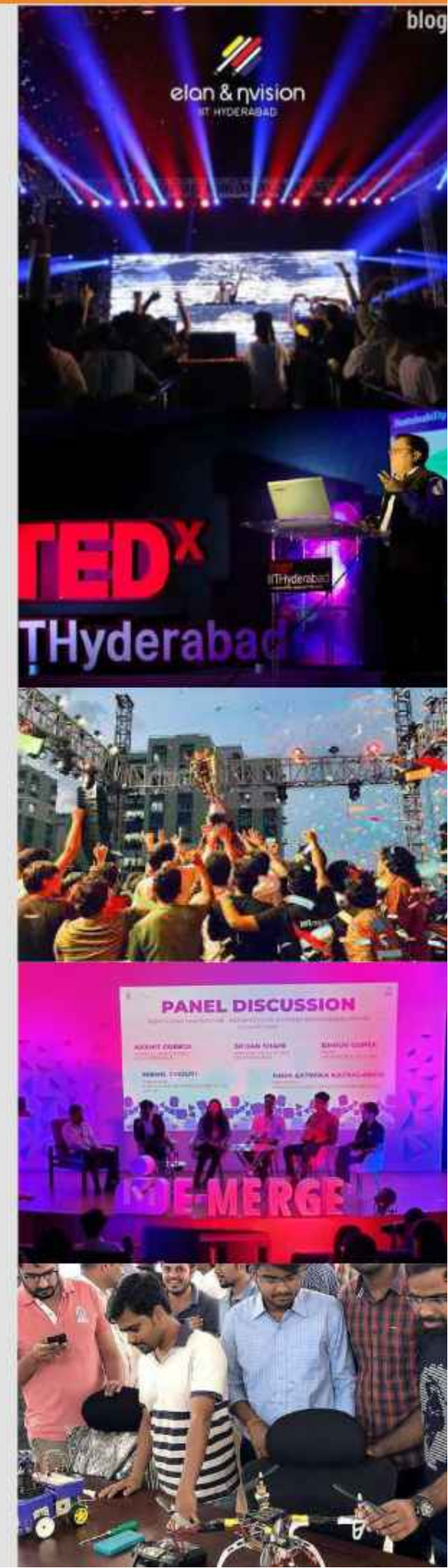
- Encourages student innovation through funding and mentorship for original project ideas. Selected proposals, evaluated by a panel of experts, receive funding—often with support from IITH alumni.

MILAN

- IITH's General Championship combining tech, sports, and cultural events, promoting hostel-based competitions and team spirit.

STARTUP X

- Serves as a vital networking platform and connects students with investors and VCs, providing a launchpad to pitch startup ideas.



ACTIVITIES

SPORTS

- Offers a vibrant sports culture with tournaments, Inter-IIT participation, and events in cricket, badminton, basketball, TableTennis, and more.
- Successfully Hosted Inter IIT Sports Meet 2026

EBSB(EK BHARAT SRESHTHA BHARAT)

- Fosters national unity via cultural and language exchange programs on campus.

CULTURAL COUNCIL

- IIT Hyderabad's Cultural Council nurtures creativity by offering platforms for students to express themselves through music, dance, theatre, art, and more. The council cultivates a lively, inclusive, artistic campus

ZOZIMUS

- Zozimus is the annual literary fest of IIT Hyderabad. It hosts discussions, readings, and events that bring together authors, publishers, artists, and quizzing enthusiasts for a rich exchange of literary thought.

EML(EXTRA MURAL LECTURES)

- Inspires students through guest lectures by experts from various fields – ranging from art and psychology to economics and science–, encouraging students to think beyond textbooks and explore impactful real-world narratives.

JAPAN DAY

- An annual career fair connecting students with Japanese companies for internships and job opportunities, enhancing global exposure.



CONTACT US

OFFICE OF CAREER SERVICES (OCS)

The Office of Career Services (OCS) at IIT Hyderabad is committed to empowering students to make informed and strategic career decisions aligned with their strengths and aspirations. By fostering strong collaborations with industry leaders and leveraging a robust alumni network, OCS facilitates a broad spectrum of career opportunities.

Through well-structured guidance initiatives and a streamlined recruitment process, OCS effectively bridges the gap between academic preparation and professional expectations, ensuring that students are equipped to excel in roles that best suit their career goals.



ADDRESS

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