Indian Institute of Technology Hyderabad (IITH)

Department of Biotechnology

M.Tech in Medical Biotechnology

INFORMATION BROCHURE-2024

Contact us:
Department of Biotechnology
Indian Institute of Technology Hyderabad
Kandi, Sangareddy, Telangana-502284, India
E-Mail: mtech.admissions@bt.iith.ac.in

Website: https://biotech.iith.ac.in/

About IITH

IITH is one of the 2nd generation IITs established by the Govt. of India in 2008. IITH offers 16 M.Tech programs, 20 Ph.D. programs, 15 B.Tech programs, 3 M.Sc programs, 2 MA programs, 1 M.Des program, and 1 B.Des program in all branches of engineering, science, liberal arts and design. The vibrant research culture at IITH is evident from the patents, publications and placements. IITH enjoys a very special relationship with Japanese Universities and Industries that goes beyond academic and research collaborations. IITH is creating a unique holistic educational ecosystem that offers interactive learning, a highly, flexible academic structure, cutting-edge research, strong industry collaboration and entrepreneurship. IITH achieved the NIRF ranking of 8th among all the engineering institutes, 14th overall rank in the country, and it is within the top 10 ranks from India in QS world rankings.

About the Department

The Department of Biotechnology was established in 2010 and has outstanding teaching & research programs: B.Tech (Biotechnology and Bioinformatics), M.Tech (Medical Biotechnology), and Ph.D. (Biotechnology). The department consists of **16 faculty** members with expertise in a variety of research areas such as Infectious Diseases, Genomics, Proteomics, Transcriptomics, Prion & amyloid Diseases, Innate Immunity, Advanced Bio-Imaging, Chromosome Biology and Genetic Disorders, Gene Regulation, DNA-Protein Interactions, DNA Repair, Circadian Rhythms, molecular mechanisms of diseases/toxicity using zebrafish, Molecular and Cellular Neurobiology, Structural Biology and Enzyme Engineering, Computational Biophysics, Virology, and Nanobiotechnology, Bioprocess Technology, Biofuels and Biochemicals, Waste Valorization, Circular Economy, Microbial genomics and Evolution, plant-microbe interactions, Systems biology, Biological networks, Machine learning, Metabolism and Transcriptional regulation

Course curriculum

M. Tech program is designed for 2 years (4 semesters)

Semester I (course work)	12+1 Credits	Core and Elective courses + English communication
Semester II (course work)	12+1 Credits	Core and Elective courses + Industrial Lectures
Semester III & IV (thesis work)	24 Credits	Research Project

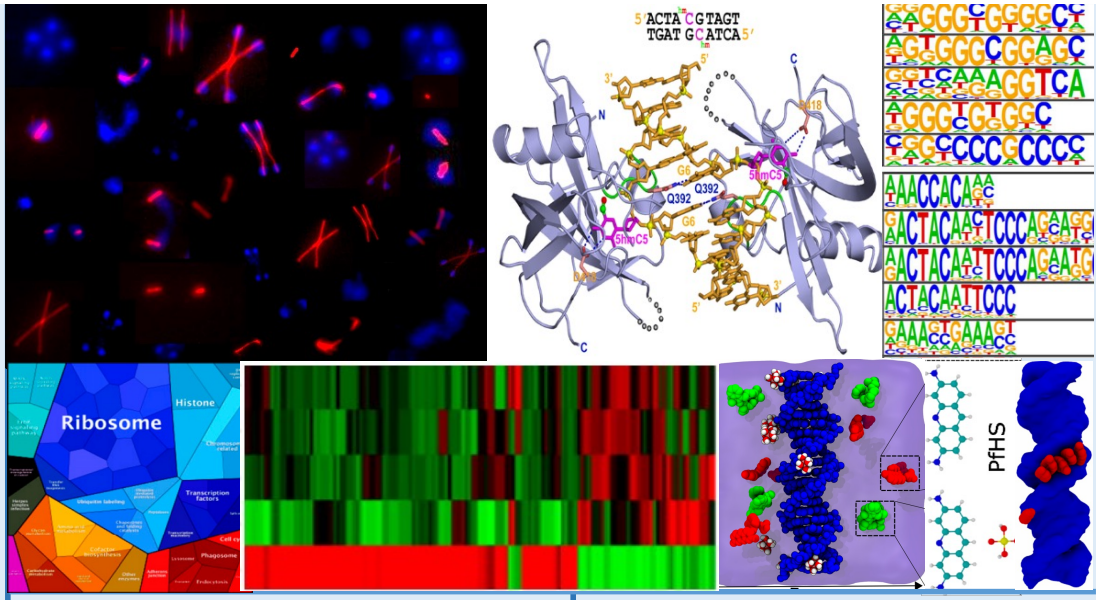
Research Labs for M. Tech Thesis

- Chromosome Dynamics and Gene Regulation Lab
- Circadian Rhythms and Disease Biology Lab
- Protein Misfolding and Disease Lab
- DNA Repair Lab
- Protein Interaction Analysis Lab
- Molecular Biophysics Lab
- Macromolecular Structural Biology Lab
- Cell Signalling Lab
- Cancer Genomics and RNA Biology Lab
- Computational Genomics and Transcriptomics Lab
- Computational Biophysics and Nanobiotechnology Lab
- Integrated Bioprocess Technology Research Lab
- Microbial Genomics and Evolution Lab
- Biological Networks and Systems Biology Lab
- Fifth Paradigm Lab
- RNA Biology and Neurodegeneration Research Lab

Industry Oriented M. Tech courses

- Cell Technology and Gene Technology
- Fluorescence Microscopy and Bioimage analysis
- Proteomics: Techniques and Applications
- Structural Bioinformatics
- Macromolecular Crystallography
- RNA Biology and Therapeutics
- Protein Misfolding in Neurodegenerative diseases
- Physiology and Pharmacology of Receptors
- Pharmaceutical Biotechnology
- Computational Genomics, Transcriptomics, and Machine Learning
- Biomolecular Simulations

For more courses, please visit:
https://biotech.iith.ac.in/pages/academicsPages/mtech%20course%20description.html



Research Areas

- Circadian Rhythm and Diseases
- Prion & Amyloid Diseases
- HIV-1 Biology
- Protein Engineering
- Structural Biology and Drug Design
- Cell Signaling
- Biomolecular NMR
- X-Ray Crystallography
- DNA Repair, Epigenetics
- Ion-channel biology
- Chromosome Biology
- Transcriptomics and Proteomics
- Advanced Bioimaging
- Computational Cancer Genomics
- Toxicology
- DNA Nanotechnology
- Synthetic Water and Ion Channels
- Computational biophysics
- Biofuels, Biomaterial and Biochemicals
- Microbial/plant Genomics & Evolution
- Systems Biology, Network Biology, Machine learning
- Bioinformatics and health informatics
- Software development, AI & ML

Research Facilities

- Real-Time PCR
- Circular Dichroism
- Isothermal Titration Calorimeter
- Electrophysiology
- FPLC
- Multimode Readers
- FACS
- Fluorescence Microscope
- Scanning Electron Microscope
- Transmission Electron Microscope
- Atomic Force Microscope
- Mass-spectrometer (LC-MS)

Programs Offered

Regular 2 year M.Tech Program*

- **Eligibility and Selection Criteria:**
- Candidates with B.Tech, B.E., B.Pharm or M.Sc in any branch of life sciences with a valid **GATE score** in BT or XL are eligible to apply. Candidates will be selected based on GATE score. Offers will be made through Common Offer Acceptance Portal (COAP).
- IIT B.Tech graduates with **CGPA of 8.0** or above without GATE score are eligible to apply. Candidates will be selected based on the performance in the written test and/or interview.
- *Students will receive a monthly scholarship of Rs. 12,400.

Self-sponsored 2 year M.Tech program#

- **Eligibility and Selection Criteria:**
- Candidates with a B.Tech or M.Sc in any branch of life sciences with a **CGPA of 7.0** or above are eligible to apply. GATE score is not mandatory. Candidates will be selected based on the performance in the written test and/or interview.
- #This is a non-subsidized program, wherein a student pays tuition fee per credit basis. The candidates registered in this program are NOT eligible for any financial assistance/scholarship.

Admission details: https://iith.ac.in/academics/post-graduate/
Fee structure: https://www.iith.ac.in/academics/fee-structure/

Career Prospects

Doctoral Research

Top Companies and Institutes

NIH National Institutes of Health
Pfizer
MERCK
Roche
BIO-RAD
Indian Institute of Science भारतीय विज्ञान संस्थान
Lilly
NOVARTIS
Stanford University
University of Oxford
ThermoFisher SCIENTIFIC
gsk GlaxoSmithKline
NUS National University of Singapore
Max-Planck-Gesellschaft
MIT Massachusetts Institute of Technology

Teaching

Science Writers, Science Communicators

Pharmaceuticals/Healthcare industries; Entrepreneurship