



**Indian Institute of Technology  
Hyderabad (IITH)**

**Department of Biotechnology**

**M.Tech  
in  
Medical Biotechnology**

**INFORMATION BROCHURE-2021**

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## About IITH

IITH is one of the 2<sup>nd</sup> generation IITs established by the Govt. of India in 2008. IITH offers 16 M.Tech programs, 16 Ph.D. programs, 11 B.Tech programs, 3 M.Sc 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 8 among all the engineering institutes, 17<sup>th</sup> 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. The department offers M.Tech in Medical Biotechnology and PhD in Biotechnology and has active research groups in the frontier areas encompassing Carcinogenesis, Infectious Diseases, Prion & amyloid Diseases, Advanced Bio-Imaging, Chromosome Biology and Genetic Disorders, Gene Regulation, Circadian Rhythms, molecular mechanisms of diseases/toxicity using zebrafish animal model, electrophysiology, Molecular and Cellular Neurobiology, Structural Biology and Enzyme Engineering. The department is rapidly expanding its capacity in other cutting-edge areas in biotechnology and industry collaborations.

## Course curriculum

M.Tech program is designed for 2 years (4 semesters). First two semesters of course work (core + elective courses) is followed by next two semesters of research project (thesis) within in-house laboratories.

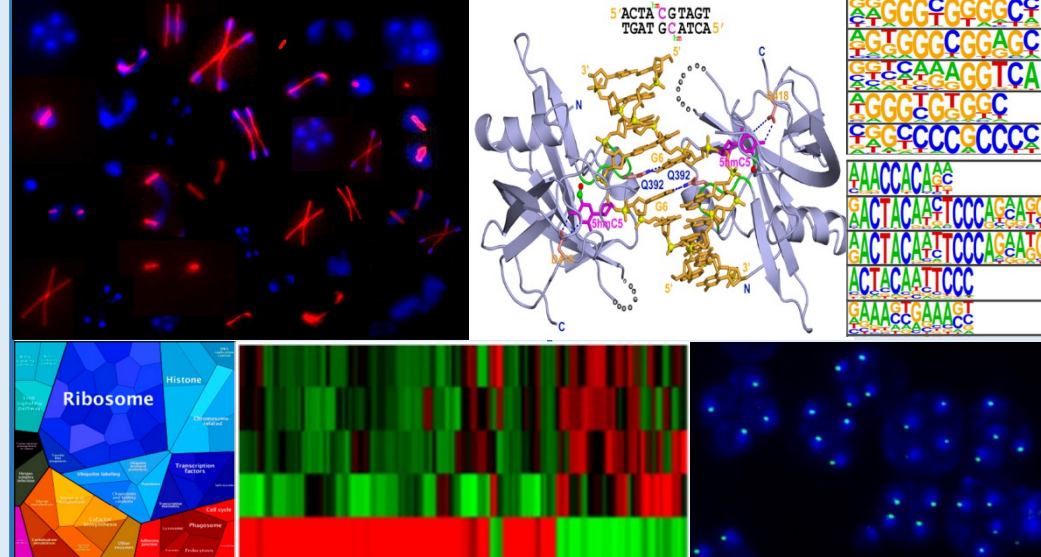
Semester I	12+1 Credits	Core and Elective courses + English communication
Semester II	12+1 Credits	Core and Elective courses + Industrial Lectures
Semester III & IV	24 Credits	Research Project (Thesis)

### 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

### Industry Oriented M.Tech courses

- Cell Technology
  - 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
- .....and many more (<https://biotech.iith.ac.in/academics/courses>)



### Research Areas for M.Tech Thesis

- Chromosome Biology, Genetic Disorders and Cancers
- Circadian Rhythm and Diseases
- Prion & Amyloid Diseases
- HIV-1 Biology
- Protein Engineering
- Structural Biology and Drug Design
- Protein Misfolding
- Cell Signaling
- Biomolecular NMR
- X-Ray Crystallography
- DNA Repair, Epigenetics
- Ion-channel biology
- Cancer Genomics
- Transcriptomics and Proteomics
- Advanced Bioimaging
- Toxicology....and many more

### Research Facilities

- Fluorescence Microscope
- Real-Time PCR
- Circular Dichroism
- Isothermal Titration Calorimeter
- Electrophysiology Rig
- FPLC
- Multimode Readers
- IBright Gel Imaging
- FACS
- Confocal Microscopy
- SEM
- TEM
- AFM ....and many more

## Programs Offered

### Regular 2 year M.Tech Program\*

- **Eligibility and Selection Criteria:**
- Candidates with B.Tech 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.

### Govt. Lab/ PSU 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. They should be sponsored by Govt. or PSU. 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 semester. The candidates registered in this program are NOT eligible for any financial assistance/scholarship.

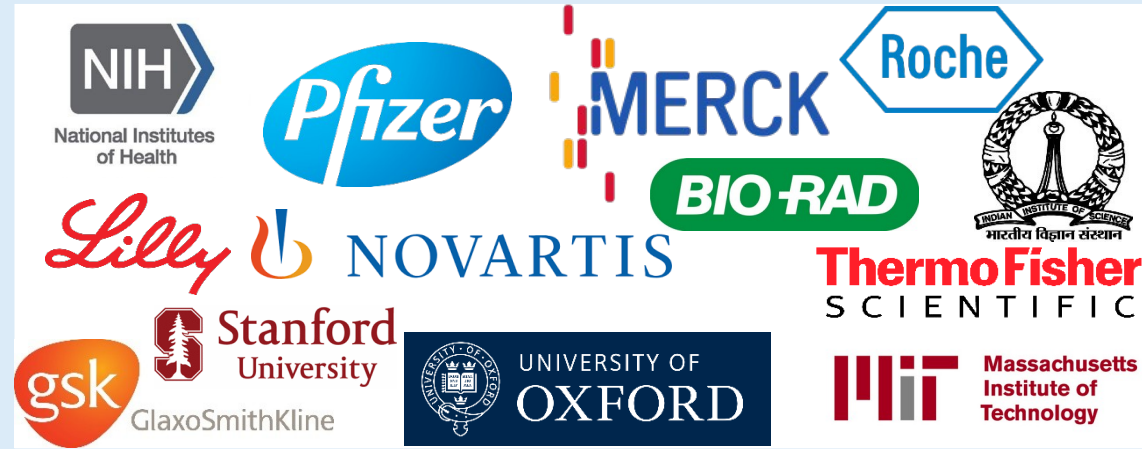
**How to apply online:** <https://iith.ac.in/mtechadmissions/home.jsp>

**Fee structure:** <https://www.iith.ac.in/academics/fee-structure/>

# Career Prospects

## Top Companies and Institutes

### Biomedical Research



### Teaching



### Science Writers Science Communicators



### Pharmaceuticals and Healthcare Industries

