MTech in Medical Device Innovation

Dept. of Biomedical engineering, IIT Hyderabad

Center for Healthcare Entrepreneurship, IIT Hyderabad

Asian Institute of Gastroenterology (AIG) Hyderabad

MAY 2021

Preamble

- IIT Hyderabad announces a unique Master's Degree Program to foster development of world-class affordable medical devices to address the existing gap in the country. This program, M Tech in Medical Device Innovation shall be offered in association with a clinical partner, Asian Institute of Gastroenterology (AIG) Hyderabad and an Incubator partner, Center for Healthcare Entrepreneurship, IIT Hyderabad.
- It shall add impetus for scaling up of Med Tech innovations by translating Academic Research and Clinical Needs Finding into downstream commercial design and development of medical devices
- This program is for those for impact-driven students, committed to societal impact with an entrepreneurial and intrapreneurial mindset.

Eligibility

A structured hands-on project-based program, suitable for industry professionals or healthcare professionals. The students should be eligible with a degree of:

- B Tech: Undergraduate Engineering Degree in any of the following Engineering Branches: Biomedical Engineering, Electrical Engineering, Engineering Physics, Instrumentation, Computer Science Engineering, AI, Mechanical Engineering, Biotechnology, Chemical Engineering, Design, or Material Science or similar subject areas.
- B Des
- MSc in any Discipline
- MBBS, BAMS, BHMS, BDS or any equivalent Clinical Degree

with a passion for improving the healthcare quality and conditions over the globe.

Candidates with a GATE Score only will be eligible for MOE Fellowship.

Candidates without a GATE Score can apply to the self-sponsored mode

Candidates sponsored through from Govt. Labs/ Public Sector and industry need not carry a GATE Score

Application Process & Fee Structure

The MTech program in Medical Device Innovation has two modes of Applications

MoE Fellowship Category

Self-Sponsored Category and Govt. Lab/ Public Sector/ Industry sponsored category

Candidates applying for the MoE Category will be shortlisted based on the GATE Score and final selection will be based on written test/interview.

The candidates applying for the Self-Sponsored and Govt. Lab/ Public Sector/ Industry sponsored category will be shortlisted based on their academic merit with CGPA of 7.0 or above or equivalent and shall be selected via written test/interview.

Fee Structure: The program under self sponsored mode has a fee structure of Rs 20,000/- per credit.

Course Curriculum

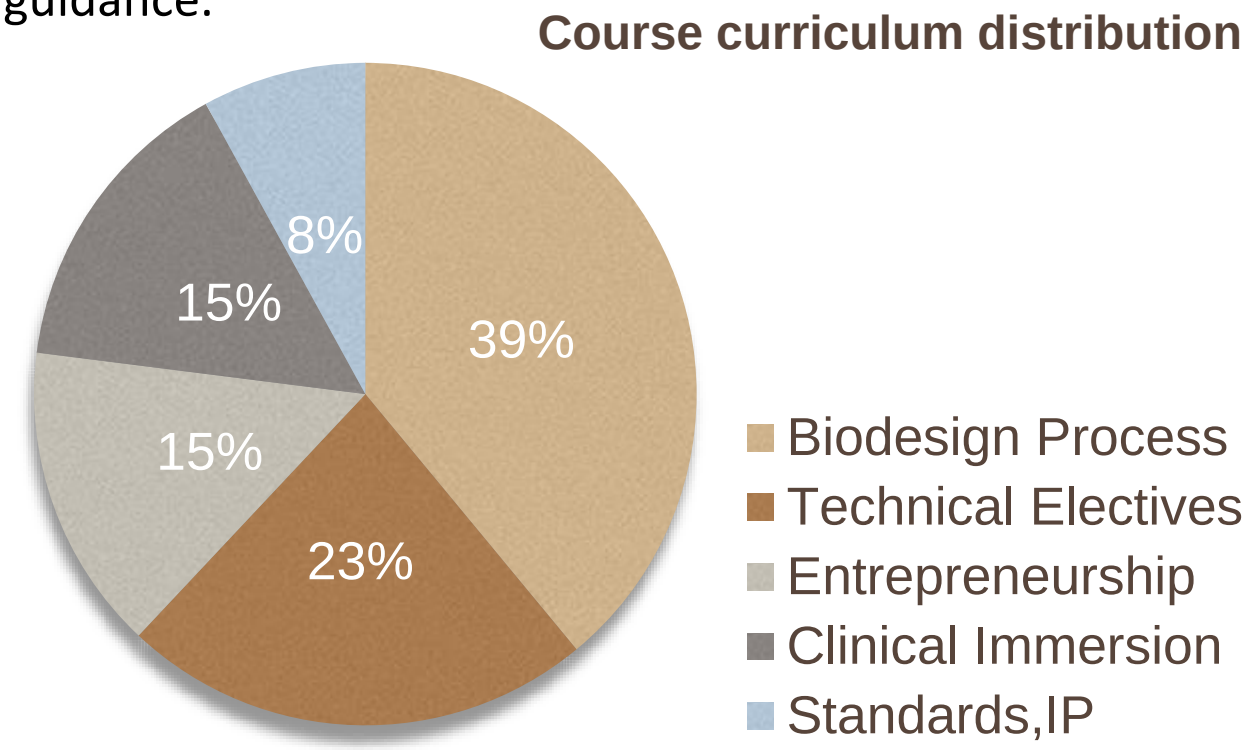
Duration: 2 years

For further details:
Email: renujohn@bme.iith.ac.in
Web: http://bme.iith.ac.in/

Credit requirements

50 credits of courses distributed over four semesters, namely,

- 24 credits of core and elective courses in 1st and 2nd semesters
- 24 credits of project components in 3rd and 4th semesters, 1 credit each for English communications and Industry lectures
- Candidates from Govt Labs/ industry will have provision to pursue their dissertation in their respective labs with joint guidance.



MTech in Medical Device Innovation

Dept. of Biomedical engineering, IIT Hyderabad

Asian Institute of Gastroenterology (AIG) Hyderabad

A structured hands-on project-based program, suitable for industry professionals or healthcare professionals.

Eligibility:

- Btech: Undergraduate Engineering Degree in any of the following Engineering Branches: Biomedical Engineering, Electrical Engineering, Engineering Physics, Instrumentation, Computer Science Engineering, AI, Mechanical Engineering, Biotechnology, Chemical Engineering, Design, or Material Science or similar subject areas.
- B Des
- MSc in any Discipline
- MBBS, BAMS, BHMS, BDS or any equivalent Clinical Degree

Duration: 2 years
Credit requirement: 50 credits over four semesters including:
24 credits of core and elective courses,
24 credits of project components

For further details:
Dr. Renu John
Email: renujohn@bme.iith.ac.in
Web: http://bme.iith.ac.in/

MTech in Medical Device Innovation
Offered by Department of Biomedical Engineering in partnership with Center for Healthcare Entrepreneurship, IIT Hyderabad and Asian Institute of Gastroenterology (AIG Hospitals) Hyderabad.

The Program:

This is a unique Master's Degree Program to foster development of world-class affordable medical devices to address the existing gap in the country. This program, M Tech in Medical Device Innovation shall be offered in association with a clinical partner, Asian Institute of Gastroenterology (AIG) Hyderabad and an Incubator partner, Center for Healthcare Entrepreneurship, IIT Hyderabad.

It shall add impetus for scaling up of Med Tech innovations by translating Academic Research and Clinical Needs Finding into downstream commercial design and development of medical devices
This program is for those for impact-driven students, committed to societal impact with an entrepreneurial and intrapreneurial mindset. The program enables a multifaceted experience from grass root innovation to product development, business plan and entrepreneurship. The program will be instructed in a structured and design-oriented manner with the help of experienced faculty, staff, and industry experts, serial entrepreneurs, and academic community.

Duration: 2 years with 48+2 credits (including 24 thesis credits in 3rd and 4th semester)
As part of their project credits, the teams made from the students, would undergo a complete design life cycle comprising of:

- Clinical immersions to identify problems,
- Validate the needs,
- Brainstorm on ways to address the needs
- Build technology prototypes
- Build business and IP management
- Deliver outcomes

There will be an option that after finishing one year of courses (24+2 credits), the working professionals from Industry and Hospitals can do the project components of 3rd and 4th semester in their respective working places. The capstone project component can be carried out by
1. Industry professionals in Industry;
2. Doctors in their working hospital;
3. Others at IITH

Eligibility:
A structured hands-on project-based program, suitable for industry professionals or healthcare professionals. The candidates will be shortlisted based on their academic merit with

- CGPA of 7.0 or above for all except medical subjects or equivalent and
- 55% for medical courses

  And then they will be selected via written test/interview.

Candidates with GATE score only will be eligible for MoE fellowship. Other candidates can join the program in self-sponsored Category.
The students should be eligible with a degree of:

- BTech in any of Biomedical, Engineering Physics, Biotechnology, Electrical, Computer Science, AI, Chemical, Design, Mechanical, or Material Science or similar subject areas
- B Des
- MSc in any discipline
- MBBS, BAMS, BHMS, BDS
- And with a passion for improving the healthcare quality and conditions over the globe.

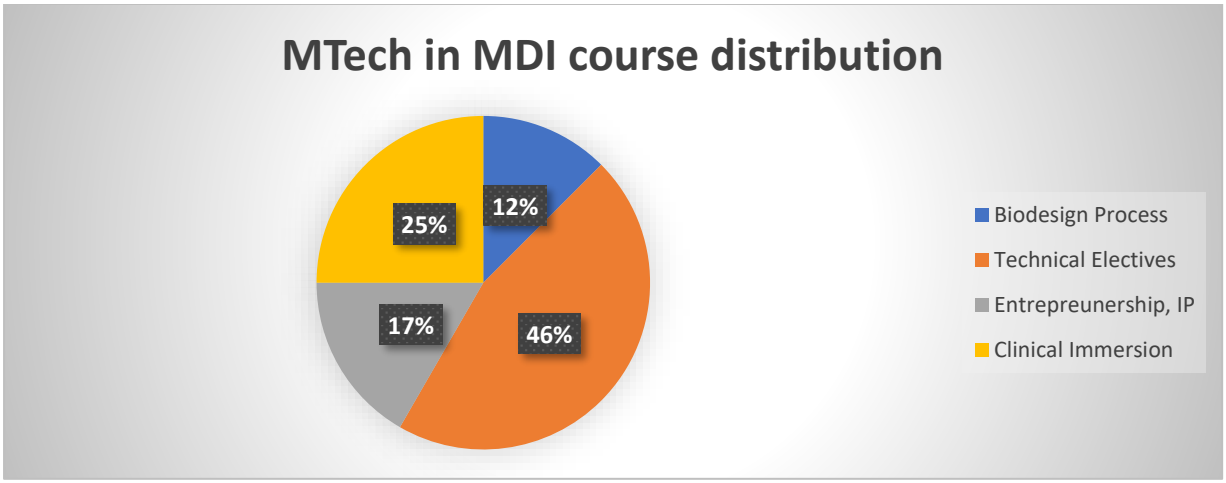
Candidates with industry experience of one year or more or with entrepreneurial inclination are encouraged to apply.

Fee structure:
The MTech program in Medical Device Innovation can be either of:

1. MoE Fellowship supported for candidates with GATE score
2. Self-sponsored with fees: ₹10 lacs INR approx., including the course fees for pedagogy (core and elective credits) and Project credits.
3. Govt. Lab/ Public Sector and Industry-Sponsored category

Candidates from industry will have the provision for carrying out their MTech Dissertation at their respective industry.

Course curriculum



S No	Semester	Courses	Credits
1	I	Design thinking	2
2	I	Anatomy and Physiology	3
3	I	Disease state Fundamentals	2
4	I	3-D Prototyping and Modeling	3
5	I	Biomedical Devices	2
6	II	Technology Elective	2
7	II	Bio design Process	2
8	II	Clinical immersion (Phase I,II)	4
9	II,III,IV	Capstone Project phase I & II& III (4,12,8)	24
9	IV	Intellectual property and Rights	1
10	IV	Biomedical Device Safety and regulations	1
11	IV	Biomedical Devices Standards	1
12	IV	Business Plan and Entrepreneurship	1
13	IV	English for communication	1
	IV	Research and technical skills	1
	IV	Industry Lectures	P/F
		Total	50

Elective courses for MTech in MDI

Course no.	Course name	Semester	Credits
	Flexible and Wearable Electronics	II	2
BM 5093	Biofabrication Technology	II	1
BM 6243	Neuromechanics	II	2
BM 6120	Tissue Engineering	II	2
BM 6070	Biomicrofluidics	II	2
BM 2023	Basic Bioinformatics	II	2
BM 6090	Biomedical imaging	II	2
	Any other elective courses after recommendation by the advisor and HOD to fill the student's knowledge gap		