



**MAY 2021**

# MTech in Medical Device Innovation

Dept. of Biomedical engineering, IIT  
Hyderabad

Center for Healthcare Entrepreneurship, IIT  
Hyderabad

Asian Institute of Gastroenterology (AIG)  
Hyderabad

# 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](mailto:renujohn@bme.iith.ac.in)

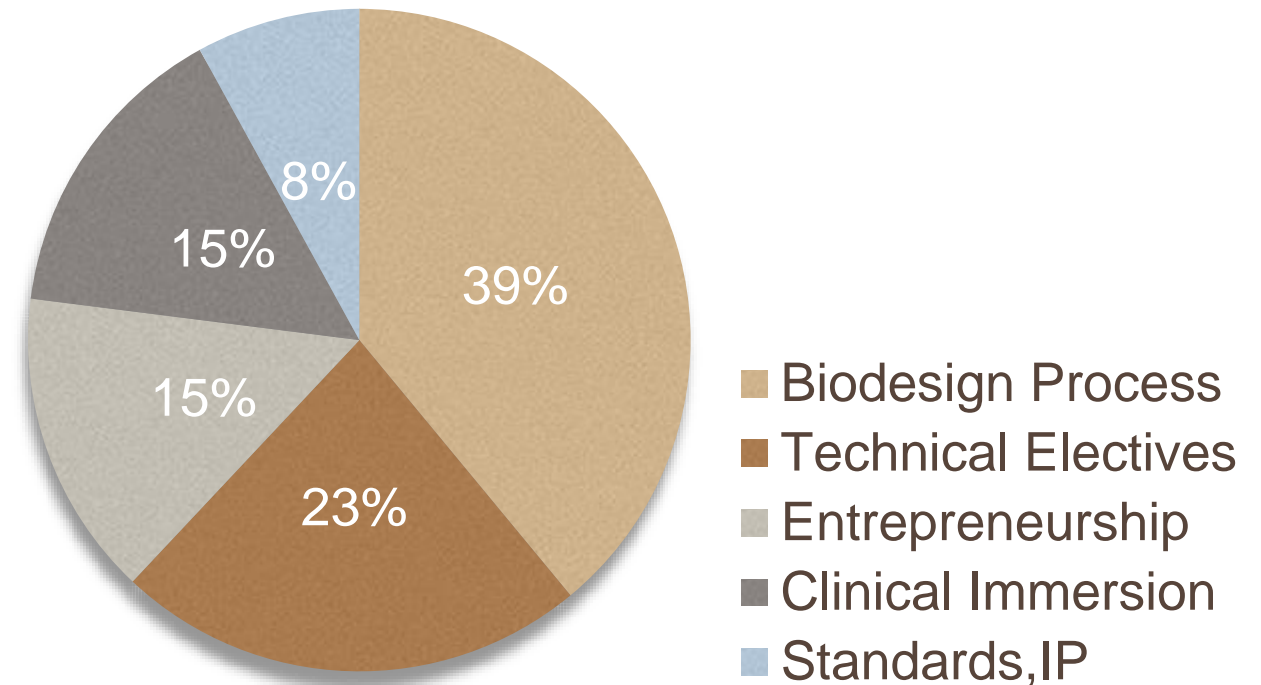
**Web:** <http://bme.iith.ac.in/>

## Credit requirements

50 credits of courses distributed over four semesters, namely,

- 24 credits of core and elective courses in 1<sup>st</sup> and 2<sup>nd</sup> semesters
- 24 credits of project components in 3<sup>rd</sup> and 4<sup>th</sup> 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.

**Course curriculum distribution**



# MTech in Medical Device Innovation



Dept. of Biomedical  
engineering, IIT Hyderabad

Asian Institute of  
Gastroenterology (AIG)  
Hyderabad



Center for Healthcare  
Entrepreneurship

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

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Web: <http://bme.iith.ac.in/>



## M.Tech in Medical Device Innovation

**Program Coordinator: Renu John (BME)**

### Partnering Centers/Institute

1. Foundation for Center for Healthcare Entrepreneurship (CfHE)
2. Asian Institute of Gastroenterology (AIG) Hospitals

**Participating Departments:** BME, EE

### Curriculum

	Core Courses		Credit
	Semester 1 (12 Credits)		
<b>BM 6246</b>	Design thinking		2
<b>BM 5520</b>	Physio-Anatomy and Patho-physiology of Diseases		3
<b>BM 6193</b>	3-D Rapid Prototyping and modelling		3
<b>BM 5023</b>	Biomedical Devices		2
<b>BM 6258</b>	Clinical Immersion		2
	Semester 2 (12 Credits)		
	Technical Electives		4
<b>BM 6256</b>	Biodesign Process		2
<b>BM 6268</b>	Clinical immersion (Phase II)		4
<b>BM 6345</b>	Capstone Project Phase I		4
	Semester 3 (12 Credits)		
<b>BM 6355</b>	Capstone Project Phase II		12
	Semester 4 (12 Credits)		
<b>Bm 6365</b>	Capstone Project Phase III		8
<b>BM 6311</b>	Intellectual property and Rights		1
<b>BM 6321</b>	Biomedical Devices Safety and regulations		1
<b>BM 6440</b>	Biomedical Devices Standards		1
<b>BM 6316</b>	Business Plan and Entrepreneurship		1
	English for communications		1
	Research and technical skills		1
	Industry Lectures		P/F
	Total		50

**Preamble:**

IIT Hyderabad along with the Center for Healthcare Entrepreneurship (CfHE) and Asian Institute of Gastroenterology (AIG) Hyderabad is introducing a course specifically considering the need of innovative medical devices for patients and the need of Indian industry orientation to medical devices. The Program, **MTech in Medical Device Innovation (MDI)**, is intended for candidates, who passionately feel for finding innovative solutions for the problems faced by current health industry. The enrolled students will be trained for finding problem statements in health industry; discuss the solutions among engineers, doctors and designers; and come up with a solution to fulfill the degree requirements.

**Eligibility:**

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

- BTech in any Engineering stream Eg. Biomedical, Electrical, Instrumentation, computer science, Biotechnology, Chemical, Mechanical, or Material Science or similar subject areas
- Undergraduate degree in Design (BDes or equivalent), Architecture Eng,
- MSc in any discipline
- MBBS, BAMS, BHMS, BDS

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 will be preferred and are encouraged to apply. MoE Fellowship is applicable only through GATE.

**The Program:**

This is 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 50 credits

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 working proof of concept prototypes of their ideas

The working professionals from Industry and Hospitals can do the project components of 3<sup>rd</sup> and 4<sup>th</sup> 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 hospitals;
3. Others at IITH