

# M.Tech Brochure (July 2024)

## Department of Artificial Intelligence

### IIT Hyderabad



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

**Contact:** [AI M.Tech admissions](#)

## Overview

The Department of AI is a recently launched department at IIT Hyderabad. Considering the interdisciplinary nature of AI, a separate department helps create a complete ecosystem for AI Academics and Research at IIT Hyderabad. The department offers B.Tech. and M.Tech. programs, and a variety of Minor Programs in AI. The emergence of the department is the consequence of the heavy demand from the industry for data analytics and the need to tackle the many fundamental and foundational research problems arising in a rapidly evolving field. The department's mission is to

- Train students to understand the fundamentals of Artificial Intelligence and Machine Learning theory and practice.
- Enable students to become leaders in the industry and academia globally.
- Meet the nation's pressing demands regarding trained Artificial Intelligence and Machine Learning professionals.

The Department of Artificial Intelligence has many highly dedicated and dynamic faculty members with various expertise. Currently, there are about 30 faculty members affiliated with the AI department, including four core faculty members. Candidates can discover faculty members' profiles and teaching/research areas by visiting the department web page.

The Department of AI seeks talented and dedicated M-Tech students to develop highly skilled human resources who can contribute to modern, cutting-edge research and industrial demand in AI. The M-Tech students will have excellent laboratory facilities they can access anytime. The laboratories are equipped with state-of-the-art facilities, including software and hardware. All the laboratories are provided with internet connectivity.

#### Research areas

Deep Learning

Fair and Explainable Machine Learning

Research areas	
Autonomous vehicles	Computer vision
Generative Models	Video quality assessment
Speech systems	AI for agriculture
Bayesian learning	Social media and text analysis
Robotics	Recommendation systems and data mining
ML in astronomy	Inference algorithms
Graphical models	Big data analysis
Game Theory and Mechanism Design	AI and Internet of Things
Computer Architectures for AI	Natural Language Processing
AI and High-Performance Computing	Neuromorphic AI

The Department of AI accepts applications for the following MTech programs in the July 2024 admission cycle.

- MTech (2-year)
- MTech (3-year)

Please see the following sections for more details.

## MTech (3 yr) program

The 3-year MTech program at IITH has the same number of credits as the 2-year program (See the department website for more details), but it is more spread out to enable the students to focus more on research. The program has the following two components in the course curriculum.

- Coursework (24+2 credits)
- Thesis (24 credits)

**Coursework:** The AI curriculum is a well-rounded and holistic introduction to machine learning theory and practice. Students can take various courses, from fundamental theoretical courses to more advanced application-based ones. A course on English communication is also included, in addition to industry lectures.

**Thesis:** Students will work with supervisor(s) to contribute to high-quality research in AI. Students who join the 3-year program will be assigned a supervisor at the time of joining. Students admitted to the regular M-Tech 3-year program are responsible for providing research and teaching assistance to the supervisor. The advantage of the regular 3-year MTech

program is that the students can get better exposure to research under the particular program. Students may be paid a stipend similar to (or higher) than the 2-year MTech students.

### Eligibility Criteria for Application

The applicant must have earned (at least, should be in the final year of the respective studies) a BTech/BE/Equivalent degree in CS/EC/EE/AI/DS or MSc (Math/Stats/Applied Math). Note that AI refers to the “Artificial Intelligence” branch, and DS refers to the “Data Science” branch. In the latter case, it would be assumed that the candidate can complete the degree by the time of MTech admission. There are three modes of admission to the MTech (3-year, RA) program.

- Mode RA1: The candidate must have a valid GATE score in CS/EC/EE/DA besides the degree requirement. Note that DA refers to “Data Science and Artificial Intelligence.”
- Mode RA2: Candidate must have a BE/B-Tech (CS/EC/EE/AI/DS) or MSc (Math/Stats/Applied Math) degree from any IIT with a CGPA of 8 and above.
- Mode RA3: Besides the BE/B-Tech (CS/EC/EE/AI/DS) or MSc (Math/Stats/Applied Math) degree requirement, the candidate must have 6 months of project experience in IITH (in this case, a valid GATE score is not mandatory).

### Selection Process

For admission to the program through any mode, there will be a preliminary shortlisting depending on the academic background and/or GATE score. Candidates who satisfy the shortlisting cutoff may need to appear for a written test and/or an interview. The decision to hold the test/interview will be taken based on the number of applications and communicated to the candidates at the appropriate time. In addition, the department reserves the right to set any cutoff for the shortlisting of MTech applications. The department cannot select anybody if no appropriate candidates are found. Note that mere eligibility does not imply that the candidate will be shortlisted or called for the written test/interview.

## MTech (2-year) program

The Department of AI at IIT Hyderabad offers a 2-year M-Tech program for the forthcoming session. The program has the following two components in the course curriculum

- Coursework (24+2 credits) - The AI curriculum is designed to be a well-rounded and holistic introduction to machine learning theory and practice. Students can do various

courses, from fundamental theoretical courses to more advanced application-based ones. A course on English communication is also included, in addition to industry lectures.

- MTech thesis (24 credits) Students will work with supervisor(s) to contribute to high-quality research in AI.

The MTech (2-year) program has the following three options:

### 1. **MTech (2-year, TA)**

Students who join the M.Tech (2-year) TA program will be paid a stipend (as per the MoE norms) against their service as teaching assistants (TA) to different course instructors. The typical TA tasks include exam invigilation, supervising undergraduate lab experiments, helping with course-related activities, etc. Typically, 8 hours of TA service per week is expected from a student.

### Modes of Admission to the M.Tech (2-year, TA) Program

There are two modes a candidate can gain admission to an M.Tech (2-year, TA) program.

1. Mode TA1 (COAP): With a valid GATE score in (CS/EC/EE/AI/DS). The candidate must have earned a BTech/BE/Equivalent Degree or MSc (Math/Stats/Applied Math) in any discipline. The applicant must have already earned BTech/BE/ MSc (Math/Stats/Applied Math) or, at least, should be in the final year of the respective studies. In the latter case, it would be assumed that the candidate can complete the degree by the time of M-Tech admission.
2. Mode TA2: With BE/BTech (CS/EC/EE/AI/DS) or MSc (Math/Stats/Applied Math) degree from any IIT. To be eligible to apply for admission via Mode TA2, the candidate must have a CGPA score no lower than 8.

### Selection Process

- Admission to the program via Mode TA1 is typically based on GATE score. However, depending on the circumstances, there may be a preliminary shortlisting depending on the GATE score and/or the academic background.
- For admission to the program via mode TA2, there will be a preliminary shortlisting depending on the academic background. Candidates who satisfy the shortlisting cutoff may need to appear for a written test and/or an interview. The department reserves the right to set any cutoff for shortlisting M-Tech applications. In addition, the department

has the right not to select anybody if no appropriate candidates are found. Note that mere eligibility does not imply that the candidate will be called for the written test/interview.

Offers will be given through COAP 2022.

For up-to-date details, see <https://ai.iith.ac.in/mtech-admissions.html>.

For any query, kindly write to ai\_grad\_admissions@iith.ac.in.

## 2. MTech (2-year, self-sponsored) program

Given the high demand in industries and research organizations for highly skilled professionals and experts in specific domains, IITH started the All Course M.Tech program (ACM). After the success of the ACM program, the institute has further revamped it to a Self-sponsored M.Tech program to bring it to par with the regular M.Tech Program to benefit the students. The Department of AI started offering the ACM program in 2019-20 and is offering the revamped self-sponsored M.Tech program in Artificial intelligence and Machine Learning for the session 2020-21. The key features of the program are summarised below.

- Opportunity for full-time M.Tech program via written test and interview.
- Duration of the course: 2 years
- No difference in curriculum and degree to be awarded between MoE-funded and Self-sponsored M.Tech candidates
- Eligibility for On-Campus Placement on successful completion of the program
- Non-subsidized Program - No fellowship (even for GATE-qualified students)
- Open for degree holders having a first class with a CGPA of 7.0 or above.
- No mandatory requirement for GATE
- Admission is based on a thorough scrutiny process comprising a written test and interview
- Non-Residential Program - Hostel accommodation is not guaranteed
- Consideration for hostel accommodation (chargeable) based on room availability
- Conversion to MTech (TA)/ MTech (RA) or vice versa is not possible

### Fee Structure

- Refer to the [academic page](#) for the program fee structure

### Eligibility:

B.Tech/B.E/Equivalent degree in (CS/EC/EE/AI/DS) or MSc (Math/Stats/Applied Math). The department will do a preliminary shortlisting depending on the academic background.

Candidates who satisfy the shortlisting criteria must appear for a written test and/or an interview. The department reserves the right to set any cutoff for shortlisting MTech applications. In addition, the department has the right not to select anybody if no appropriate candidates are found. Note that mere eligibility does not imply that the candidate will be called for the written test/interview.

Syllabus for Written Test - Basic programming, data structures, linear algebra, probability, and calculus.

### 3. MTech (2-year, Govt lab/Public sector sponsored)

Please see <https://ai.iith.ac.in/mtech-admissions.html> and <https://iith.ac.in/mtechadmissions/home.jsp> for details.

- GATE is not mandatory.
- There will be a shortlisting followed by a written test/interview.

## Application Process

IIT Hyderabad has a centralized online application portal for M-Tech admission. Candidates are requested to visit <https://iith.ac.in/mtechadmissions/home.jsp> for the application format and the submission link. Applications will be accepted through this portal only.

*For up-to-date information, please visit <https://ai.iith.ac.in/mtech-admissions.html>*

*For any query, kindly write to [ai\\_grad\\_admissions@iith.ac.in](mailto:ai_grad_admissions@iith.ac.in)*