M.Tech Brochure (July 2023)

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 in creating 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 on 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 have a sound understanding of the fundamentals of the theory and practise of Artificial Intelligence and Machine Learning.
- Enable students to become leaders in the industry and academia nationally and internationally.
- Meet the pressing demands of the nation in the areas of Artificial Intelligence and Machine Learning.

The Department of Artificial Intelligence has a sizeable number of highly dedicated and dynamic faculty members, with a wide variety of expertise. Currently there are a total of 32 faculty members affiliated with the AI department including 3 core faculty members. Candidates can discover the profiles and teaching/research areas of different faculty members 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 and cutting edge research and industrial demand in AI. The M-Tech students will provided with excellent laboratory facilities that they can access at any time. 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
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 the following MTech programs in the coming academic year:

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

Please see the subsequent sections for details.

M-Tech (2 yr) Program

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

- Coursework (24+2 credits)
  The AI curriculum is designed to a be well rounded and holistic introduction to both the theory and practice of machine learning. Students can do a wide variety of courses, ranging from fundamental theoretical courses to more advanced application based courses. 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 (2yr) program has the following options

Mtech (2 yr, TA)

Students who join the MTech (2 yr) TA program will be paid a stipend (as per the MHRD norm) 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, and so on. Typically, 8 hours of TA service per week is expected from a student.

Modes of Admission to the M-Tech (2 yr, TA) Program

There are two modes via which a candidate can take admission to a MTech (2 yr, TA) program.
• Mode TA1: With a GATE score.
• Mode TA2: With a B-Tech degree / MSc (Math/Applied Math) degree from any IIT.
The candidate should satisfy the following eligibility criteria:
• The candidate must have earned BTech/BE/MSc/Equivalent Degree in any discipline. The applicant must have already earned BTech/BE/MSc or, at least, should be in the final year of the respective studies. In the latter case, it would be assumed that the candidate will be able to complete the degree by the time of M-Tech admission.
• For admission via Mode TA1, the candidate should also have a valid GATE score from CS/EC/EE/MA/ST. For having complete eligibility to apply for admission via Mode TA2, the candidate must have a CGPA score no lower than 8.

Selection Process

• For admission to the the program via Mode TA1 is typically based on GATE score. However, depending on the circumstances, there may be a preliminary shortlisting

depending upon the GATE score and/or the academic background.
• For admission to the program via mode TA2, there will be a preliminary shortlisting depending upon 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 the shortlisting of 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.

MTech (2 yr, self sponsored) program

In view of the high demand in industries and research organisations for the highly skilled professionals and experts in specific domains, IITH had started All course MTech program (ACM). After the success of ACM program, the institute has further revamped it to Self-sponsored MTech program to bring it to at par with regular MTech Program, to benefit the students. The Department of AI started offering the ACM program in 2019-20, and the revamped self sponsored M.Tech program in Artificial intelligence and Machine Learning in the session 2020-21. The key features of the program are summarised below.
• Opportunity for full-time MTech program via written test and interview.
• Duration of the course: 2 years
• No difference in curriculum and degree to be awarded between MHRD funded and Self-sponsored MTech candidates
• Eligibility for On-Campus Placement on successful completion of the program
• Non subsidised Program - No fellowship (even for GATE qualified students)
• Open for degree holders having a first class with CGPA of 7.0 or above.
• No mandatory requirement for GATE
• Admission based on thorough scrutiny process comprising written test and interview
• Non-Residential Program - Hostel accommodation not guaranteed

- Consideration for hostel accommodation (chargeable) based on room availability
- Conversion to M.Tech (TA)/ M.Tech (RA) or vice versa not possible

Fee Structure

- Refer https://www.iith.ac.in/academics/fee-structure/ for program fee structure
- Eligibility
    - B.Tech/B.E/M.Sc/Equivalent degree in any discipline

      The department will do a preliminary shortlisting depending upon the academic background. Candidates who satisfy the shortlisting criteria will need to appear for a written test and/or an interview. The department reserves the right to set any cutoff for the shortlisting of 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.

- Syllabus for Written Test
    - Basics of programming, linear algebra, probability, calculus, algorithms and data structures.

MTech (2 yr, 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 written test/interview.

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 more spread out to enable the student to focus more on research.

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 both the theory and practice of machine learning. Students can do a wide variety of courses, ranging from fundamental theoretical courses to more advanced application based courses. 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.
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-years program are responsible to provide research and teaching assistance to the supervisor. The advantage of the regular 3-years 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-yr MTech students.

Eligibility Criteria for Application

The applicant must have already earned BTech/BE/MSc in any discipline or, at least, should be in the final year of the respective studies. In the latter case, it would be assumed that the candidate will be able to complete the degree by the time of M-Tech admission. There are three modes of admission to the MTech (3 yr, RA) program.

- Mode RA1: In addition to the degree requirement, the candidate must have a valid GATE score in CS/EC/EE/MA/ST.
- Mode RA2: Candidate must have a B-Tech / MSc (Math/Applied Math) degree from any IIT.
- Mode RA3: In addition to the degree requirement, the candidate must have 6 months project experience in IITH.

Selection Process

For admission to the program through any of the modes, there will be a preliminary shortlisting depending upon 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 will be communicated to the candidates at appropriate time. In addition, the department reserves the right to set any cutoff for the shortlisting of M-Tech applications. 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 shortlisted or called for the written test/interview.

Application Process

IIT Hyderabad has a centralised online application portal for the 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