

Department of Chemical Engineering Indian Institute of Technology, Hyderabad

M.TECH. in AI/ML in Chemical Engineering

At the Department of Chemical Engineering @ IITH, we prepare the next generation of chemical engineers who can solve today's socio-technical problems with emphasis on sustainability



About the Program

- *The M. Tech program for AI/ML in Chemical Engineering is designed to provide rigorous training in the application of data-driven and AI methodologies to chemical engineering problems.*
- *The program builds a strong foundation in mathematics, statistics, optimization, and computational methods underlying modern AI/ML, with emphasis on the integration of first-principles chemical engineering knowledge and data-centric approaches.*
- *The program is oriented towards research and innovation, preparing graduates for industry-relevant skills for data-driven decision-making and intelligent system design while simultaneously equipping them with doctoral studies and advanced research roles in chemical and allied industries.*



Admission Process



ELIGIBILITY:

REGULAR MTECH (2 Years): The department offers a two-year regular MTech program in Chemical Engineering with teaching assistantship. Admission is based on a valid GATE score in Chemical, Electrical, Mechanical and Biotechnology . Students in their final semester of B.E./B.Tech. are eligible, subject to result declaration by July 15, 2026. IIT graduates with a minimum CGPA of 8.0 in Chemical Engineering or related disciplines can apply without a GATE score.

SELF-SPONSORED MTECH (2 Years): The department offers a two-year Self-Sponsored MTech program. Applicants must hold a B.E./B.Tech. from a government-recognized institution with a minimum CGPA of 7.0 (equivalent to 70% marks). A valid GATE score is not required.

*MSc in Mathematics, Chemistry or Physics with 1st division / 60% marks are also eligible

Selection Procedure:

- ✓ Regular MTech Program with a valid GATE Score: Admission is solely based on the GATE score.
- ✓ Self-Sponsored MTech Program: Selection is determined by performance in a written test and/or personal interview.
- ✓ Direct Admission: Graduates of IITs with a minimum CGPA of 8.0, without a GATE score, are eligible to apply. The department may conduct a written test or interview for their selection.



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M.TECH (AI/ML in CHEMICAL ENGINEERING) – COURSE DISTRIBUTION

SEMESTER-1

- Advanced Numerical Methods
- Machine Learning Fundamentals
- AI/ML Tool Chains for Chemical Engineers
- Computer Vision in Chemical and Life Sciences
- English Communication
- Electives

SEMESTER-2

- Advanced Transport Phenomena
- Optimization Techniques
- Machine Learning Lab
- Industry Lectures
- Thesis (Stage 1)
- Electives

M.TECH

SEMESTER-4

- Thesis (Stage 3)

SEMESTER-3

- Thesis (Stage 2)