



భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Admission
2026-2027

M. Tech. in Industrial Metallurgy

(Regular program

&

fully online program for the working professionals)



Department of Materials Science and
Metallurgical Engineering

INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD



About The Program

- ❑ This program is offered by the Department of Materials Science and Metallurgical Engineering
- ❑ This M.Tech program is specially designed for regular students and working professionals to help them master the essentials of industrial metallurgy.
- ❑ The regular M.Tech program caters to the needs of metallurgical, materials, and manufacturing industries by producing industry-ready, employable human resources.
- ❑ The program covers both fundamental scientific principles and applied engineering aspects. The program offers great flexibility in course selection. It includes a wide range of elective courses spanning fundamental metallurgical principles, materials processing, materials testing and characterization, new-generation high-performance alloys, and computational materials engineering.

Features of the Online M.Tech Program

- ❑ The online M.Tech program caters to the needs of working professionals in metallurgical, materials, and manufacturing industries who wish to upskill or reskill themselves.
- ❑ There is no residential requirement at IIT Hyderabad. All courses will be taught in a hybrid mode during office hours, i.e., 9.00 to 19:30 hrs. However, online students avail a 1-hour/week doubt-clearing session at a mutually convenient time, especially on the weekends.
- ❑ The course faculty may share recorded lectures/tutorials. Students can learn at their own pace and complete the program in 4 years from the date of admission.
- ❑ This online M.Tech program is equivalent, in all respects, to the regular M.Tech programs offered by IIT Hyderabad.

Eligibility and Admission: Regular M.Tech

MoE Fellowship

- ❖ Candidates having B.E./B.Tech. or equivalent in Metallurgy/Ceramics/Mechanical/Chemical/Production/Industrial/Plastics/Polymer/or related discipline, or M.Sc. in Materials Science/Physics/Chemistry.
- ❖ Valid GATE score required in MT/ME/CH/PI/PH/CY/XE.

Self-sponsored Category

- ❖ Candidates having B.E./B.Tech. or equivalent in Metallurgy/Ceramics/Mechanical/Chemical/Production/Industrial/Plastics/Polymer/or related discipline, or M.Sc. in Materials Science/Physics/Chemistry.
- ❖ Written test and/or interview (GATE Score is not Mandatory).

Eligibility and Admission: Online M.Tech

- ❖ Working professionals in public- and private-sector industries, R&D labs, and academic institutions with more than two years of work experience and a first-class bachelor's degree (BTech, BE or equivalent) in metallurgical engineering, metallurgical and materials engineering, materials science and engineering, mechanical engineering, manufacturing engineering, production engineering, industrial engineering, chemical engineering, and allied disciplines are eligible to apply.
- ❖ BE/B Tech/4-year BS with First Class in Metallurgy/Ceramics/Mechanical/Chemical/Production/Industrial/Plastics/Polymer/or related discipline or M.Sc. in Materials Science/Physics/Chemistry + GATE qualification (NOC is not required)
- ❖ Admission will be based on satisfactory performance in written test/interview.
- ❖ GATE score is not required.
- ❖ Applicants are required to submit experience and no-objection certificates at the time of written test/interview.

Courses & Thesis Requirements for Regular M.Tech

- ❑ *Credit requirement:* Candidates shall earn a total of 52 credits within 2 years from the date of admission into the program. Candidates shall complete the course credits (24 credits) in the first year.
- ❑ A full semester course is for 3 credits. We also offer some shorter courses for 1 and 2 credits.
- ❑ *Thesis work:* Candidates shall complete the coursework in full (24 credits) to start the thesis work in the 2nd year. The thesis will have 24 credits, consisting of three stages: a) Thesis Stage-I: 2 Credits, Thesis Stage-II: 10 Credits, and b) Thesis Stage-III: 12 Credits.
- ❑ Candidates are required to carry out their dissertation work using the infrastructure at IIT Hyderabad.

Courses & Thesis Requirements for Online M.Tech

- ❑ *Credit requirement:* Candidates shall earn a total of 48 credits within 4 years from the date of admission into the program. Candidates shall complete the course credits (24 credits) within the first 3 years.
- ❑ *Thesis work:* Candidates shall complete the coursework in full (24 credits) to start the thesis work. The thesis will have 24 credits, consisting of two stages: a) Thesis Stage-I: 12 Credits, and b) Thesis Stage-II: 12 Credits.
- ❑ Candidates are required to carry out their dissertation work using the available facilities/infrastructure in their parent organizations. Every candidate is required to identify a guide from IITH and preferably a co-guide from his/her parent organization.
- ❑ *Exit option:* After successful completion of the coursework in full (24 credits), candidates may opt to leave the program and obtain an Executive MTech Degree.
- ❑ A full semester course is for 3 credits. We also offer some shorter courses for 1 and 2 credits.

Regular M.Tech - Curriculum

Semester 1

Core course	: 9 credits
Elective courses	: 4 credits
English Communication	: 1 credit

Semester 2

Core course credits	: 3 credits
Elective courses	: 10 credits
Industry lecture	: 1 credit

Thesis Evaluation

Stage 1 (May-July)	: 2 Credits
Stage 2 (Aug-Dec)	: 10 credits
Stage 3 (Jan-June)	: 12 credits

Total program credits : 52 credits

Core courses

Materials Thermodynamics and Kinetics

Physical Metallurgy

Sustainable Chemical Metallurgy

Imaging in Materials Science

Mechanical Behavior of Materials

List of elective courses

Introduction to Materials Science and Engineering
Role of Microstructure in Materials Selection
Fundamentals of Scientific Computing #
Metal Additive Manufacturing
Powder Metallurgy of Nano, Micro, and Additive Manufacturing
Kinetics of Metallurgical Processes
Electrometallurgy
Elements of Metallurgy and Manufacturing of Superalloys and Refractory Metals
High Entropy Materials
Computational Methods in Materials Science
Computational Thermodynamics and Kinetics
Mesoscale Microstructural Modeling
Clean-Steel Making: Theory, Practice and Modeling
Metallurgy of Welding and Additive Manufacturing
Corrosion science and engineering
Metallurgical Failure Analysis
Diffusion Analysis in Materials Engineering
High Entropy Materials
Thermomechanical Processing of Materials
Industrial Metallurgy Lab
Fundamentals of Lightweight Alloys
Composite Materials

A glimpse of the courses offered to Online M.Tech

Metal Additive Manufacturing

Welding Processes

Casting and Solidification

Structure and Characterization of Materials

Thermomechanical Processing of Materials

Modeling & Simulation of Metallurgical Processes

Clean Steel Practices & Technologies

Powder Metallurgy of Nano, Micro, and Additive Manufacturing

Electron Microscopy

Wear and Tribology of Materials

Role of Microstructure in Materials Selection and Design

Metallurgy of Welding and Additive Manufacturing

Non-Destructive Testing of Materials

Metallurgical Failure Analysis

Composite Materials

High Entropy Materials

Introduction to Computational Methods in Materials Science

Machine Learning and Data Analytics in Materials Science

Advanced Physical Metallurgy

Deformation Behaviour of Materials

Corrosion Science and Engineering

Applied Phase Equilibria and Phase Transformations

Diffusion Analysis in Materials Engineering



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How to apply

- ❑ Applications shall be submitted online.
- ❑ Please visit the IITH website (www.iith.ac.in) for complete information on how to apply

Fee Structure (follow the link given below)

<https://www.iith.ac.in/academics/fee-structure/>

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