Online M. Tech. in Computational Mechanics

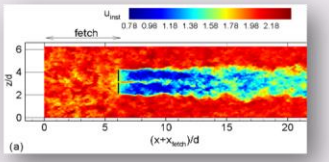
Department of Mechanical and Aerospace Engineering
Indian Institute of Technology, Hyderabad

Highlights

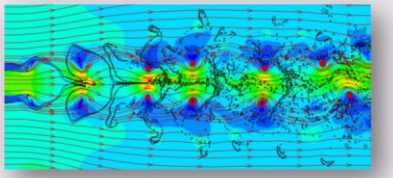
- **Industry-oriented learning.** Courses tailored for industry-working professionals.
- **Immense learning.** Hands-on learning with several state-of-the-art theory and lab courses to benefit their professional career.
- **Breadth.** Cover a broad range of topics on computational methods ranging from FEM, CFD, Optimization, Additive Manufacturing.
- **Immersive learning.** Live interactive sessions coupled with self-paced learning.
- **No GATE score required.** Selection based on an interview where the academic and professional background will be assessed.
- **Earn master's degree without leaving your job.** Learn while you earn, with the flexibility to complete the program between 2-4 years.
- **Learn from our expert faculty** from the Department of Mechanical and Aerospace Engineering, IIT Hyderabad.
- **Networking**. Opportunity to create a meaningful network with diverse professionals.

Program

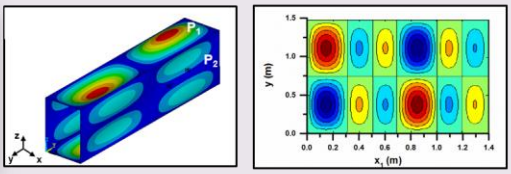
The online M. Tech. in Computational Mechanics is a unique program offered by the Department of Mechanical and Aerospace Engineering, started in August 2021, that will train students to solve multidisciplinary problems related to mechanical systems using computational techniques



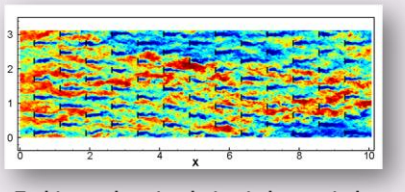
Large-eddy simulation of a multi-rotor wind turbine



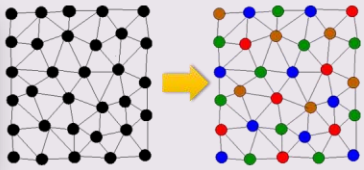
Computation of sprays and atomization



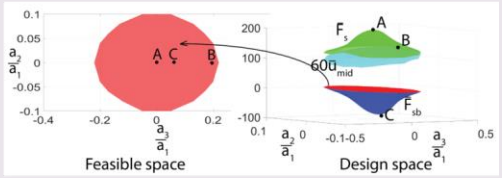
Duct and Equivalent Plate Mode Shapes



Turbine wakes simulation in large wind farms



CFD Solver Parallelization on CPU/GPU architectures



Design space and optimal profiles of bistable arches

Computational tools are ubiquitous in mechanical, aerospace and allied industries and form an integral part of the engineering design process today. Training in advanced computational techniques will greatly broaden the spectrum of opportunities available to graduates.

The program combines elements of numerical methods and scientific computing with fundamental principles in solid mechanics, fluid mechanics, design and vibrations. Courses covering fundamentals of numerical analysis will be complemented with hands-on training using wide-ranging examples drawn from various domains of engineering. The program will benefit industry professionals looking to build expertise in the area looking to address technological challenges in industries in the automotive, oil and natural gas, renewable energy, defense and manufacturing sectors.

Why choose this program?

> "I am extremely grateful for the opportunity provided by IIT Hyderabad's Computational Mechanics program. It has allowed me to enhance my technical skills significantly. As a working professional, the program's flexibility has been instrumental in effectively managing both my career and studies. The faculty has been exceptionally supportive, readily available to assist me with my academic endeavors at any time."
>
> **Ex-student, Scientist at a leading Govt. space agency. Graduated in 2023.**

Past and present students from leading government and private industries, R&D organizations. Some of these are:

1. Defence Research and Development Organization (DRDO)
2. Ford Motor Company, USA
3. Bharat Petroleum Corporation Limited (BPCL)
4. Collins Aerospace
5. Oil and Natural Gas Corporation (ONGC)
6. Safran Engineering Services
7. National thermal Power Corporation (NTPC)
8. Cyient
9. National Highways Authority India (NHAI)
10. Bosch
11. Telangana Power Generation Corporation (TSGENCO)
12. Honda R&D
13. MRF
14. Bajaj Auto
15. Certification Engineers Intl. Ltd.
16. LG Soft India
17. Siemens Gamesa Wind Energy
18. Triumph Motorcycles

Eligibility

- B. E./B. Tech. with first class (60%) in Mechanical, Aerospace, Civil or Chemical engineering or other equivalent degrees
- Should be currently working in industry with a minimum of 2 years of industry experience after B. Tech. **NOC can be submitted at the time of admission in July.**

The selection will be based on the candidates' background along with performance in a written test and/or interview, which will be conducted online between May-June 2026.

Duration and Structure

Option 1: M. Tech. (CM) with thesis - up to 4 years.

- Total 48 Credits (Course Credits: 24 + Thesis Credits: 24)
- Courses can be done over up to three years.
- Thesis will be done in the final year (maximum 4th year) after course work.

Option 2: Executive M. Tech. (CM) without thesis - up to 3 years.

- Total 24 Course Credits.
- Courses can be done over up to three years.

Thesis:

- Students will do their project in their own industry.
- The project can be started only after coursework worth 24 credits is completed.
- During the project, each candidate will have a guide from IITH and may have another from his/her industry.

Format

- Online live and self-paced sessions will be conducted.
- Classes will be separate from regular courses.
- Classes will be held in the evening and at weekends based on faculty availability.
- Examinations will be conducted online.
- Students will do their project in their own industry. The project can be started only after coursework worth 24 credits is completed. During the project, each candidate will have a guide from IITH and may have another from his/her industry.
- Opportunity to meet experts and experience IITH campus during campus visits.

Admission Process and Dates

Online test/interviews for selection into program.

Applications solicited starting	27 March 2026
Last date to apply	30 April 2026 (Check portal for changes, if any)
Selection process	May-June 2026
Classes start from	27 July 2026

Please check https://www.iith.ac.in/academics/post-graduate/ for applying

Fee Details

Category	Fee Details
Non-government organizations	• Semester Fee of Rs. 15,000/- per semester* • Rs 20,000/- per course credit • Rs 5,000/- per thesis credit
Governmental Organization & IITH alumni	• Semester Fee of Rs. 15,000/- per semester* • Rs 10,000/- per course credit • Rs 5,000/- per thesis credit

* Semester fee must be paid throughout the program until the program requirements are completed.

Please check https://iith.ac.in/academics/assets/files/fee/Online-Fee-Structure-July-2025.pdf for updates.

More Details

Contact Us:

Course coordinator:	Dr. Sai Sidhardh (ocm@mae.iith.ac.in)
Head, Mechanical and Aerospace Engineering, IIT Hyderabad:	Prof. Venkatesham B (head@mae.iith.ac.in)

Curriculum

Semester	Course	Credit	Course Title
Semester 1/3/5 (Total 13 credits)			
Odd	ME5139	3	Finite Element Method
Odd	ME5339	3	Computational Fluid Dynamics
Odd	ME5899	2	Structural Optimization
Odd	ME5769	1.5	Applied Solid Mechanics
Odd	ME5779	1.5	Applied Fluid Mechanics
Odd	ME5909	2	Additive Manufacturing Technology
Semester 2/4/6 (Total 11 credits)			
Even	ME5789	3	Computational Dynamics and Vibrations
Even	ME5819	3	Advanced Computational Fluid Dynamics
Even	ME5799	3	Topics in Computational Mechanics
Even	ME5429	1	FEM Lab
Even	ME5449	1	CFD Lab
Semester 3/5/7 (Total 12 credits in any one semester)			
Odd	ME6005	12	Project
Semester 4/6/8 (Total 12 credits in any one semester)			
Even	ME6505	12	Project

Total: 48 Credits