



M.Tech.
**Mechanical Engineering with specialization in Energy
Systems (MES)**
and
**Energy Engineering with specialization in Materials
(EEM)**

Vision

- To develop sustainable energy systems and solutions for the future.
- To cater to the huge demand of energy professionals in India as well as overseas.
- To integrate the study of technology, business and science of mechanical engineering, focusing on the key area of energy.

Academic Curriculum and Courses

■ Curriculum:

The course curriculum consists of one-year course work followed by one year of dissertation. This curriculum has been designed to make the students able to take up a professional or research career either in industries or academia after the completion of the course.

Total Credits requirement: 72 (Minimum)

Dissertation: 32 Credits

Course work: 39 Credits

Industrial training: 4-6 weeks (1 Credit)

■ Courses:

Mechanical

- Design of Energy Systems
- Manufacturing of Energy Systems
- Mechanics for Energy Systems
- Heat Transfer and Fluid Flow in Energy Systems
- Energy Sources and Power Plants
- Advanced Fluid Mechanics
- Mechanics of Composite Materials
- Advance Convective Heat Transfer.

Energy

- Energy Storage Technologies
- Emerging Energy Sources
- Energy Systems Laboratory
- Energy: Environment Policy and Law
- Research Practicum (Minor Project Work)

Materials

- Structure-Property Correlations in materials for Energy Applications
- Photovoltaics Materials and Fabrication
- Durability Behavior of Energy Materials
- Creep-Fatigue Interaction

Computational

- Modeling and Simulation
- MATLAB, Simulink
- Computational Fluid Dynamics
- Advanced FEM

Mathematics

- Numerical Methods
- Financial Management.

Latest Achievements

- Mr. Yash Shekvani from M.Tech. (MES) got fellowship from DAAD Germany under the scheme India IIT Master Sandwich Program, 2020.
- Mr. Vikram Bisht from M.Tech. (EEM) got sponsorship under PMRF 2019.
- Mr. Jaiprakash Anand, Mr. Vagish Kumar and Mr. Abhishek Goyal also got fellowship from DAAD Germany under Master Sandwich Program, 2019.

Labs and Facilities Available

▪ AMRC (Advanced Materials Research Centre)

Webpage: <http://www.iitmandi.ac.in/research/amrc/>

Facilities:

- Optical Microscope
- Gas Chromatography
- High Performance Liquid Chromatography and many more...

▪ Nanoscale Materials and Devices Lab

Webpage: <http://nanoscalelab.in/>

Facilities:

- Nano Indentation
- Thermal Chemical Vapour Deposition
- DC/RF magnetron sputtering
- Atomic Layer Deposition
- Smart Materials and Structures Laboratory (SMSL)
- Multi scale fabrication and Nanotechnology lab

▪ Vibration Acoustic Lab

Facilities:

- Inch and 0.25-inch Microphone and speakers
- Impedance tube
- NI C-DAQ

▪ Internal Combustion Engine lab

Facilities:

- Fourier Transform Infrared Spectroscopy (FTIR)
- Engine Exhaust Particle Sizer Spectrometer (EEPS)
- BS-IV Dual Fuel Engine

▪ Energy lab

Facilities:

- Parabolic Trough Collector
 - Electrochemical workstation for characterization of Battery, Supercapacitor, fuel cell etc.
 - 1KW On-grid and 1KW Off-grid Solar Photovoltaic Installation
- and many more...**

Associated faculties

Course Coordinator:

Dr. Pradeep Kumar
(MES)

Dr. Sumit Sinha Ray
(EEM)

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Previous Recruiters

- KPIT
- SENTISS Pharma
- Tejas
- Byju's
- P2 Power
- FRESENIUS KABI
- Truring
- Capital Dynamics
- DOVER India
- Maruti Suzuki
- Wipro
- Flow Trader

Contact us

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