



**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 future.
- To cater 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 a 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.

## Achievements

- Mr. Aayush Trivedi from M.Tech. (EEM) got fellowship from DAAD Germany under the scheme India IIT Master Sandwich program, 2018.
- Mr. Jaiprakash Anand from M.Tech. (MES) got fellowship from DAAD Germany under the scheme India IIT 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...

### ▪ **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...

### ▪ **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

### ▪ **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) and many more.

## Associated faculties

### Course Coordinator:

Dr. Atul Dhar  
Assistant Professor  
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### Faculty Advisor: MES

Dr. Rajesh Ghosh  
Assistant Professor  
[rajesh@iitmandi.ac.in](mailto:rajesh@iitmandi.ac.in)

### Faculty Advisor: EEM

Dr. Jaspreet K. Randhawa  
Assistant Professor  
[jaspreet@iitmandi.ac.in](mailto:jaspreet@iitmandi.ac.in)

## Previous Recruiters

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

## Contact us

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