Introduction

Finite Element Method (FEM) is the most powerful method for the analysis of engineering problems. It is capable of handling geometry complicated domains, a variety of boundary conditions, non-linearity and coupled phenomenon those are common in real life problems. The physical knowledge of method enhances the analysis skill and provides a greater understanding of the problems being solved. Commercial software packages based on the finite element method are often use in industrial, research and academic institutions for the solution of engineering and scientific problems related to solid mechanics, fluid mechanics, heat transfer, electromagnetics and structural dynamics. The intelligent use of these software packages and correct interpretation of the output is often predicted on knowledge of the basic concept of the FEM.

This one week course has been designed to introduce FEM to engineers and researchers so that they will be equipped to solve scientific problems. This course will be particularly beneficial for engineering students, engineers and scientists working in various institutions. At the end of the course, participants may be in position to identify and select appropriate finite element methodologies for specific conditions.

Objective

- To apply FEM for solving problems related to stress analysis, fluid flow, heat transfer, manufacturing, electromagnetic and vibrations.
- To familiarize participants with advancement of FEM (i.e. XFEM, iso-geometric FEM etc.).
- To Implement FEM with MATLAB programming.
- To perform case study using software package.

Eligibility

The course is open to Faculty Members, Students from Engineering Institutes / Colleges / Polytechnics and Practicing Engineers and Researchers from Industries and R&D Institutions. ***Number of participants for the course will be limited to thirty***.

Course Content

- Introduction to finite element methods: basics and fundamentals.
- FEM for solid mechanics problems.
- FEM for heat transfer problems.
- FEM for electro-dynamic problems.
- FEM for dynamic problems.
- FEM for composite structure problems
- Introduction to mesh free method, Isogeometric FEM and extended finite element method (XFEM)
- MATLAB programming for FEM & Case Studies**.**

Subject Experts

The resource persons for this course are experts from IITs having rich experience in FEM modeling and their applications.

Prof. B.K. Mishra, IIT Roorkee
Dr. Indra Vir Singh, IIT Roorkee
Prof. S. C. Jain, IIT Mandi
Dr. Rajeev Kumar, IIT Mandi
Dr. Himanshu Pathak, IIT Mandi
Dr. Vishal Singh Chauhan, IIT Mandi
Dr. P. Anil Kishan, IIT Mandi
Dr. Arpan Gupta, IIT Mandi

Registration Fee

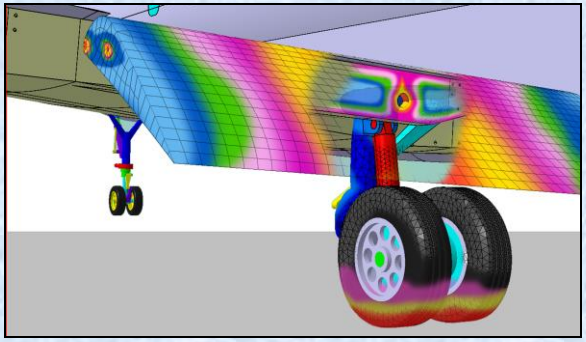
- Practicing Engineers: ₹ 8,000/-
- Faculty Members: ₹ 6,000/-
- Students: ₹ 3,000/-

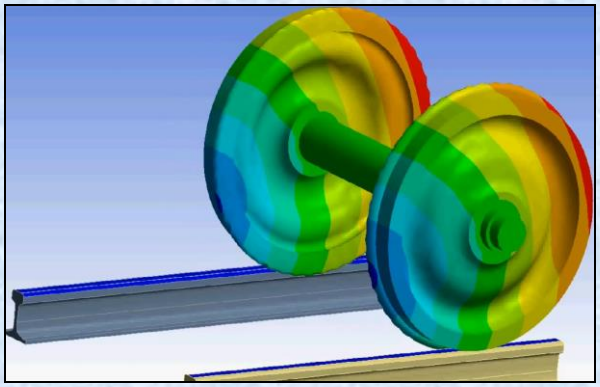
Registration fee includes course material, working lunch, refreshments and accommodation (sharing basis in hostel).

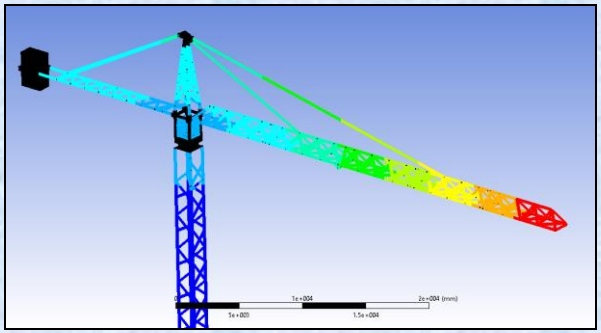
How to Apply

The duly filled Registration Form along with the Registration Fees should reach to the coordinator on or before 10th June 2018. Intimation of selection will be communicated to the participants by 10st June 2018. Fee is payable in advance by Demand Draft in favour of "The Registrar, IIT Mandi" payable at Mandi, Himachal Pradesh or electronic transfer through NEFT.

Date & Time of Registration: 18th June 2018, 9AM at Academic block IIT Mandi, Kamand Campus, Mandi, Himachal Pradesh.







General Information about Institute

Nestled in the Sivalik Range of the Himalayas, away from the bustle of the metropolis, a new abode of learning has germinated. A few hours before the Himalayan resort Kullu in Himachal Pradesh, IIT Mandi has been established with the vision to be a leader in science and technology education, knowledge creation and innovation, in an India marching towards a just, inclusive and sustainable society. IIT Mandi is an autonomous premier engineering and technology institute located in Mandi, Himachal Pradesh. It was established in 2009 by the Ministry of Human Resource Development, Government of India.

The focus of IIT Mandi is to spearhead cutting edge research and development of technologies needed by the world in the years to come. Research groups work together in creating and harnessing the newest technologies needed to serve the people of the region and the country, and to tackle problems of global importance. In order to achieve excellence and high impact locally and globally, IIT Mandi focuses on strongly foster inter-disciplinary R&D. With a view to innovating sustainable technologies for widespread use, IIT Mandi encourages strong Humanities and Social Sciences participation in technology R&D.

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Short term Course on Finite Element Method for Engineers and Researchers

(18-22 June 2018)

Indian Institute of Technology Mandi

Coordinators

Dr. Himanshu Pathak
Dr. Rajeev Kumar
Dr. Vishal Singh Chauhan

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Indian Institute of Technology Mandi,
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