



PRESS RELEASE

IIT Mandi invites applications for short term course on Finite Element Method for Engineers and Researchers

Course will help participating Engineers and Researchers in writing their own codes and implement novel methods to solve FEA numeric simulations; Last date to apply is 30th May 2019

MANDI, 15th April 2019: Indian Institute of Technology Mandi has called for applications for a short-term course on 'Finite Element Method for Engineers and Researchers (FEMER) 2019.' The course is being offered from 24th to 28th June 2019.

Interested persons can apply by submitting a registration form to the coordinator on or before 30th May 2019 through the course website:

<http://iitmandi.ac.in/stc/femer2019/index.php>.

Designed especially for engineers and researchers, the objective of the one-week course is to introduce the participants to Finite Element Analysis (FEA) based numeric simulations using commercial software packages such as ANSYS, LS-DYNA and ABAQUS.

The subject experts delivering lectures in this course are:

- Prof. Indira Vir Singh, IIT Roorkee
- Dr. Rajeev Kumar, IIT Mandi
- Dr. Himanshu Pathak, IIT Mandi
- Dr. Subhamoy Sen, IIT Mandi
- Dr. Pramod Kumar, IIT Mandi
- Dr. Arpan Gupta, IIT Mandi
- Dr. Gaurav Bhutani, IIT Mandi

Speaking about the importance of this course, Dr. Himanshu Pathak, Course Coordinator and Assistant Professor, School of Engineering, IIT Mandi, said, “Finite Element Method (FEM) is a numerical and computer-based technique for solving a variety of practical engineering problems that arise in different domain namely structural analysis, fluid flow, heat transfer, vibrations, electrical and magnetic fields, etc. The course will have detailed discussion on finite element methodology for different engineering problem domains. 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.”

This course is open to the faculty members, students from Engineering Institutes/ Colleges/ Polytechnics and Practicing Engineers and Researchers from Industries and R&D institutions. The course will also provide a thorough idea of the Finite Element Method (FEM) from the



fundamental concepts to more advanced topics to the participants which will help them to write their own codes and implement these novel methods to solve numeric simulations. At the end of this course, the participants will be in a position to identify and select appropriate finite element methodologies for specific conditions.

The primary objective of this course includes:

- Exposing the participants to need of computational approach and scope of FEM solutions
- Fundamental implementation concepts in FEM, Weighted residual methods/ weak form formulations, application in structural and thermal problems
- Explore non – linear FEM, solution methodology by non – linear FEM and case study
- Limitations of FEM, Extension of a partition of unity framework and enrichment technique for novel computational methodology like XFEM
- Train the participants with the implementation of FEM, Non-linear FEM and XFEM and discuss convergence and effectiveness of the method through the solution of a wide range of realistic engineering problems
- Detailed programming and implementation sessions of FEM and XFEM; where participants will gain an understanding of MATLAB code for these computational techniques.

Base program for the computational methods will be given to understand the working of codes. Intimation of selection will be communicated to the participants by 10th June 2019.

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About Finite Element Method

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 used 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 FEM.

About IIT Mandi (<http://www.iitmandi.ac.in/>)

IIT Mandi is fast emerging as a leader in science and technology education, knowledge creation and innovation. Since the first batch of 97 students joined in July 2009, IIT Mandi has grown to host 1,300 students including 274 PhD, 46 MS and 17 I-Ph.D. research scholars, besides 110 Faculty and 150 staff. The Institute has a growing body of alumni, nearly 850 in number. The Institute aims to grow to host 5,000 B.Tech, M.Tech/M.Sc. and M.S./Ph.D. students and research scholars by 2029. With 1.5 lakh sq.m. Currently under construction, IIT Mandi has a fully residential campus, in Kamand, with all students and 95 percent of the faculty residing within it now. IIT Mandi has been ranked No. 20 in the Engineering Institutions Category in India Rankings 2019 released by National Institutional Ranking Framework, Ministry of Human Resources Development, Govt. of India (<https://www.nirfindia.org/>).



Since 2010, IIT Mandi's faculty has bagged nearly 180 projects worth more than Rs. 85 crore. A notable mention is the Advanced Materials Research Centre (AMRC), created in 2013 with an investment of about Rs. 50 crore, housing advanced instruments for characterization of materials. It has contributed to more than 200 research publications. The Institute also hosts the 'Class 100 Clean Room' facility, a world-class research center that is first-of-its-kind in India. In 2017, Department of Biotechnology, Government of India, selected IIT Mandi to lead the prestigious Rs. 10 crore FarmerZone Project.

The Institute has an Interdisciplinary Academic Culture which is design-oriented. The unique, project-oriented B.Tech curriculum is centred on its 4-year long Design and Innovation stream. It is poised to become the first IIT to offer a B.Tech in Data Science & Engineering. Backed by a strong humanities component, IIT Mandi has brought globally state-of-the-art science and technologies to and consciously served the Kamand Valley, Himachal and the Himalayan region. There are many active MoUs with TU9 in Germany since May 2011. More than 22 students from the Worcester Polytechnic Institute, U.S., have been visiting IIT Mandi every year since 2013.

Launched in 2016, IIT Mandi's Catalyst is the first Technology Business Incubator in Himachal Pradesh. EWOK (Enabling Women of Kamand Valley) is another innovative program run by IIT Mandi, which focuses on imparting Skills training to village-scale businesses by village women.

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