

Overview and Course Objectives

The Finite Element Method (FEM) / Finite Element Analysis (FEA) is a numerical and computer-based technique of solving a wide range of practical engineering problems that arise in different fields and which are otherwise difficult to solve analytically. The FEM associated with high computing facilities and available commercial packages such as Altair HyperWorks® has replaced the traditional method of validation of a design or theory and has drastically reduced the time and money spent on physical testing. FEA is now a vital and irreplaceable tool in almost all engineering industries including automotive, aerospace, defence and many others.

At the end of the course, the participants are expected to have fair understanding of:

- ✦ FEM and other numerical methods
- ✦ Basics of linear finite element analysis procedures.
- ✦ Modelling and analysis of engineering problems using FEM and Hypermesh.
- ✦ Computational and programming aspects of finite element analysis.

Course Contents

The short-term course aims to include the following themes:

- ✦ Background: Introduction to FEM and other Numerical Methods
- ✦ Basics of linear finite element analysis procedures.
- ✦ Variational and weighted residual formulations
- ✦ Finite element types (bars, beams, 2D, plate and shell elements) and their derivation via constant and higher order approximation functions.
- ✦ Assembly of stiffness matrices, application of loading and boundary conditions
- ✦ Applications of FEM to 1-D and 2-D Problems
- ✦ Computer Implementation of FEM
- ✦ Hands-on experience of FEM using Hypermesh

About MNIT



Malaviya National Institute of Technology (MNIT) Jaipur is one of the NITs established by Ministry of Human Resource Development (MHRD), Government of India (GOI). Earlier, the Institute, known as MREC Jaipur, was established in 1963 as a joint venture of the GOI and the Government of Rajasthan. Later in 2002, the college was given the status of National Institute of Technology, and on 15 August 2007, proclaimed Institute of National Importance through Act of Parliament. MNIT campus spreads over 325 acres of lush green area in the prime location of Jaipur city. At present, in addition to the research, consultancy and developmental activities, the Institute offers UG and PG level courses (M.Tech./M.Sc. & Ph.D.) to about 4500 students in almost all leading fields of engineering, technology, management and sciences.

About Mechanical Engg. Deptt.

Mechanical Engineering Department started functioning in 1963 at the start of the institute. The department offers a four-year course leading to the Bachelor's Degree in Mechanical Engineering. It also offers four full-time and/or part-time postgraduate programs in Industrial Engineering, Energy Engineering, Design Engineering & Production Engineering. Department also offers Ph.D programme in various specializations of the Mechanical Engineering.

Who Should Attend?

This course is aimed at faculty of engineering at Degree / Diploma levels, PG students, Research Scholars **only** from AICTE approved technical institutions from all over India, who intend to learn and/or teach FEM and use the commercially available FEA Packages to solve engineering problems. Persons from Mechanical, Production, Civil, Automobile, Bio-medical and Aerospace engineering are eligible to attend this course.

ATAL Academy

AICTE Training and Learning (ATAL) Academy is established with the vision "To empower faculty to achieve goals of Higher Education such as access, equity and quality". ATAL academy will conduct a series of workshops in thrust areas identified by AICTE.

Important dates

Registration before: 10th December 2019

Confirmation by Email: 11th December 2019

How to apply

Step 1: Participants are required to apply by filling ONLINE registration form available at the below URL:

<https://forms.gle/3YFMoHB5Y2zNEoaA7>

Step 2: Thereafter, the participants are required to send through email the scanned copy of the duly filled and signed registration form attached with this brochure.



Malaviya National Institute of Technology Jaipur- 302 017

AICTE Training and Learning (ATAL) Academies Programme

on

"Mathematical Modelling and Analysis of Basic Engineering Problems using FEM with Hands-on Hypermesh"

(16th- 20th December 2019)

Registration Form

Full Name: _____

Designation: _____

Qualification: _____

Specialization: _____

Organization: _____

Affiliation & Address: _____

Whether the Institute is AICTE approved ? **Yes / No**

Category: **UG/PG student/ Research Scholar/ Faculty**

Mobile: _____

Email: _____

Date: _____ Signature of the Applicant

The application is hereby recommended & permitted to attend the above ATAL Programme for the notified duration, if selected.

Signature and Seal of HOD/Head of Organization

Programme Coordinators:

Dr. Dinesh Kumar
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Dr. Amar Patnaik
apatnaik.mech@mnit.ac.in; 95496-57318

Key Points:

- ✚ There is no Registration fee from a participant from AICTE approved institutes.
- ✚ No TA/DA will be paid to any participant.
- ✚ Participants will have to make their own stay arrangement during the five days.
- ✚ During sessions tea and working lunch will be provided to the participants.
- ✚ On successful completion of the programme on all the days, participants will be awarded a certificate of participation by the respective ATAL Academy.

Address for Correspondence

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MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

ANNOUNCES

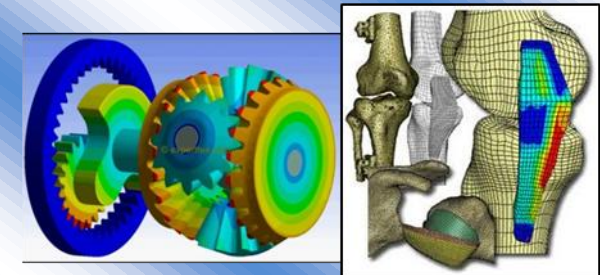
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Organized by
Mechanical Engineering Department



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<http://www.mnit.ac.in/>