

## About Electronics & ICT Academy at PDPM IIITDM Jabalpur

The Ministry of Electronics and Information Technology, Government of India has instituted seven Electronics and ICT Academies with one academy at PDPM IIITDM Jabalpur. The primary objective of the Academy is to prepare manpower for two important missions - 'Digital India' and 'Make in India'. The Academy aims at scalable training programmes in niche areas of Electronics and ICT for the development of required knowledge base, skills and tools to unleash the talent of Indian population. In addition to the faculty development programmes on fundamental and advanced topics, the Academy conducts customized training programmes for corporate sector and research promotion workshops in emerging areas. The Academy is envisioned to become a central hub of activities on training, research, consultancy work and entrepreneurship programmes.

## About PDPM IIITDM Jabalpur

PDPM IIITDM Jabalpur was established in 2005 with a focus on education and research in IT enabled Design and Manufacturing. Since its inception, PDPM IIITDM Jabalpur has been playing a vital role in producing quality human resources for contribution in India's mission of inclusive and sustainable growth. The Institute offers undergraduate, post graduate and PhD programmes in Computer Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering, Design and PhD programmes in Mathematics, Physics and Literature. Under IIIT act, the Institute has been declared as an Institute of National Importance in January 2015. The Institute campus is being developed on 250 acres of land close to Dumna Airport, Jabalpur. The Institute is 10 kms from the main railway station and 5.5 kms from Dumna Airport, Jabalpur.

## Faculty Development Programme Finite Element Method and Applications

**Who can attend:** Programme is open to faculty from all the colleges and universities preferably from the states of M.P., Chhattisgarh, and Maharashtra. Industry personnel working in the concerned/allied discipline may also apply. **Limited seats are available for research scholars.**

### How to apply :

**Online:** The participants may log on to the website [ict.iiitdmj.ac.in](http://ict.iiitdmj.ac.in) and fill up the application form selecting the name of the course.

You may also send scanned copy of your completed application form to [academyiiitdmj@gmail.com](mailto:academyiiitdmj@gmail.com). Application format may be downloaded from the website (Also given in this brochure). Print out of the filled in application form duly endorsed by the forwarding authority and a demand draft of applicable amount (as given below) in favour of 'Electronics and ICT Academy, IIITDMJ' payable at Jabalpur may be sent to the address given below. No Travelling Allowance will be paid by the Academy.

### Important Dates:

**Last Date of Online Registration: October 13, 2017**

**Spot Registration also available if seats are available.**

**Course Dates: October 31- November 04, 2017**

### Registration Fee :

Academic: Rs. 1000/- (Gen/OBC) Rs. 500/- (SC/ST)

Industry: Rs. 5000/-

(includes course material + lunch + tea)

### Accommodation charges (if needed):

Rs. 1000/- (includes breakfast + dinner)

## Contact us

Electronics and ICT Academy  
PDPM Indian Institute of Information Technology,  
Design and Manufacturing, Jabalpur,  
Dumna Airport Road, Jabalpur 482005

Email: [academyiiitdmj@gmail.com](mailto:academyiiitdmj@gmail.com)

Website: [ict.iiitdmj.ac.in](http://ict.iiitdmj.ac.in)

## Faculty Development Programme

## Finite Element Practice and Applications

October 31-November 04, 2017



## Seamless Learning Opportunities

Electronics and ICT Academy  
An Initiative of  
Ministry of Electronics and Information  
Technology,  
Government of India



PDPM  
Indian Institute of Information  
Technology,  
Design and Manufacturing,  
Jabalpur,  
Dumna Airport Road,  
Jabalpur 482005



# Finite Element Practice and Applications

## October 31-November 04, 2017

### Course objectives:

This course is designed to provide training on basics of Finite Element Method (FEM) and its implementation using ANSYS and MATLAB. It is a practice oriented course where the participants will be exposed to case studies and some recent trends in applications of FEM.

Aim of the course is to enable the participants understand how to apply the FEM in obtaining approximate solutions to the boundary value problems. Starting with the basic principles of FEM, the course will cover finite element construction, convergence, and different types of finite elements suitable for a variety of applications.

Lab sessions will be conducted to train the participants on MATLAB PDE tool box and FEM software package ANSYS.

### Resource Persons (Tentative)

Prof. Puneet Mahajan  
Professor, IIT Delhi

Prof. Aparajita Ojha  
Professor, PDPM IITDM Jabalpur

Prof. Vijay Kumar Gupta  
Professor, PDPM IITDM Jabalpur

Dr. Gautam Dutta,  
Associate Professor, PDPM IITDM Jabalpur

Dr. Sundararajan, Natarajan  
Assistant Professor, IIT Madras

Dr. Shivdayal Patel  
Assistant Professor, PDPM IITDM Jabalpur

Mr. Kumar Kartikeya  
ANSYS India Ltd., Pune

## Course contents

**Finite Element for 1D:** Linear bar element, Quadratic bar element, Concept of stiffness matrix, Steps in finite element formulation: elements, assembly, boundary condition, solution, Need for higher order elements, Convergence through examples

**Finite Element for 2D:** Weighted residual method, Beam element, CST element, 4 and 8 noded quadrilateral element, Lagrangian and serendipity family, Isoparametric elements, Full, selective and reduced integration, Some case studies.

**3D solid element:** Tetrahedral and hexahedral elements, Some case studies.

**Thermal Analysis:** Transient Analysis, Solution of heat transfer problems, Some case studies.

**Dynamic Analysis:** Modal analysis, Eigen values and Eigen vectors, Practice sessions on modal, harmonic and transient analysis.

**Nonlinear and Multiphysics applications:** Nonlinear finite element and applications.

Lab sessions will be conducted for each of the units using industry standard FEA software Package ANSYS and MATLAB tool box.

### Course Coordinators

Prof. Vijay Kumar Gupta  
Email: [ykgupta@iitdmj.ac.in](mailto:ykgupta@iitdmj.ac.in)

Prof. Aparajita Ojha  
Email: [aojha@iitdmj.ac.in](mailto:aojha@iitdmj.ac.in)

Website: [ict.iitdmj.ac.in](http://ict.iitdmj.ac.in)

## Application Form

Name of the Course / Programme: **Finite Element Practice and Applications**

Name of the Applicant (first, last): .....

.....

Gender : M / F / T      Category: GEN/SC/ST/OBC

Designation: .....

Name and Address of the Organization/Institute/College:

.....

.....

City/town:..... Email: .....

Alternate email (if any): .....

Phone Number: .....

Mobile Number: .....

Do you need accommodation? (Yes/No):

**Note: Accommodation and meal facility will be available only from the evening of October 30 to the morning of November 05, 2017.**

DD Number: ..... Date: .....

Issuing Bank: ..... payable at: .....

Signature of the Applicant

I hereby agree to relieve Mr./ Ms./ Dr.....  
..... in case she/he is selected  
to attend the programme.

Signature and Seal of the Forwarding Authority

Name .....

Designation .....