

## Course Fee

Participants		Course Fee ( in Rs.)
PG Students	Internal	Rs. 500/-
	External	Rs. 8260/-
Research Scholars	Internal	Rs. 500/-
	External	Rs. 8850/-
Post-Doctoral Fellow/ Research Associates	Internal	Rs. 500/-
	External	Rs. 9440/-
Faculty Members		Rs. 9912/-
Personnel/Scientists from Industry, R&D Organization and other non-academic Govt/Private Organizations		Rs. 19942/-

**Note:** The Course fee includes charges for both meals and accommodation (in IIT(ISM) Hostel). However, external participant may be accommodated at EDC on request on payment basis depending upon the availability.

Registration will be on first come first served basis due to the availability of limited number of seats. Please fill-up the registration form and deposit the registration fee online to A/C No. **0986101009746** of Canara Bank, IFSC Code: **CNRB0000986**, Name of A/C holder: Registrar, IIT (ISM), Dhanbad and email the filled up registration form to the course coordinator by **25 July, 2017**. Participants can also send the hard copy of the registration form along with the Demand Draft (DD) drawn in favor of “Registrar, IIT(ISM) Dhanbad”, payable at Dhanbad.

## Contact Details:

**Dr. Abhishek Kumar Singh,**  
Course Coordinator  
Dept. of Applied Mathematics  
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## Short-Term Course On “Mathematical Modelling of Elastodynamic Problems” ( 3-7 August, 2017)

### APPLICATION FORM

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Organization: \_\_\_\_\_

Gender: \_\_\_\_\_

Educational Qualification: \_\_\_\_\_

Address for Correspondence: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Mobile No: \_\_\_\_\_

E-mail ID: \_\_\_\_\_

Experience: \_\_\_\_\_

Teaching: \_\_\_\_\_

Others(Specify): \_\_\_\_\_

Details of Payment of Registration fees:

Amount: \_\_\_\_\_

DD Number/Reference number: \_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_

Soft copy of the DD/Receipt of online transfer should also be sent to the Email: abhi.5700@gmail.com

Date: \_\_\_\_\_ Signature of Applicant

INDIAN INSTITUTE OF  
TECHNOLOGY (ISM)

## Short -Term Course on

# Mathematical Modelling of Elastodynamic Problems

*3-7 August, 2017*



Organized by

Department of Applied  
Mathematics

INDIAN INSTITUTE OF  
TECHNOLOGY (ISM), DHANBAD

www.iitism.ac.in

## Importance and Scope

Elastodynamics deals with the propagation of progressive elastic waves in layered media. The study consists of formulation of mathematical models of such geophysical phenomena and use of distinct methods of Applied Mathematics for solution treatment. Numerical methods may be used to interpret the obtained results graphically and physically using primary or secondary data. Use of relevant software's viz. MATLAB, MATHEMATICA, MAPLE, etc. proves advantageous in such cases. The analysis of elastic wave propagation through different layers of Earth structure with the help of mathematical techniques and real data from physics, geology and seismology depicts a remarkable sharp picture of the Earth's interior. On the other hand, in most of the engineering fields including architectural, aeronautical, marine, mechanical, and civil engineering, the study of Elastodynamics plays a great role in constructing different structures that needs to be accurately analyzed in view of propagation of waves and vibrations through it.

In this short term course on Mathematical Modelling of Elastodynamic Problems, hands on training will be given where the main focus is on participants become capable enough to develop mathematical models for elastic wave propagation through distinct composite structures and obtain results using various analytical treatments and/or numerical methods.

## Course Contents:

**The short term course aims to include the following topics:**

- Introduction to elasticity, elastic waves and its propagation in different media

- Propagation of surface waves (Love, Rayleigh, Torsional, Stonely and G-type waves) in composite structures
- Reflection/refraction of body waves (qP/qSV/ qSH) in layered media
- Dynamic response due to load moving on different types of substrates
- Modelling of elastodynamic problems including the presence of anisotropy/ initial stress/ heterogeneity/ gravity/ corrugation/ loose bonding of layers/ irregularity in composite structures.
- Surface wave propagation in Multilayered composite structure using analytical and/or numerical method

## About IIT(ISM) Dhanbad



IIT(ISM) Dhanbad, a fully residential institute is situated in Jharkhand, India and it was established in 1926 on the model of Royal School of Mines, London. Apart from earth and mineral science departments of national and international reputation, the institute has expanded with diverse branches in science and engineering including Applied Mathematics, Applied physics, Applied Chemistry, Computer Science and Engineering, Electronics Engineering, Electrical Engineering, Mechanical Engineering, and also Master of Business Administration. To know about the institute, please visit at:

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

## About Department



The Department of Applied Mathematics is a highly reputed Department which functions with excellence as its motto. The Department was started in the year 1926 along with other Engineering and Science Departments of the institute and has established itself as a dynamic centre for academic and research activities. In addition to the teaching of courses in Mathematics for B.Tech and M.Tech Programmes, the Department offers two P.G. Programs, M.Sc (Mathematics & Computing) and 5 Yr. Int. M.Tech (Mathematics and Computing). The faculty is actively engaged in research in diverse fields such as Analysis, Algebra, Topology Operations Research, Cryptography, Graph theory, Solid Mechanics, Fluid Dynamics and Mathematical Modelling. At present, there are 22 members on the Teaching Faculty in the Department and more than 100 Research Scholars are working for their Ph.D. At regular basis, department conducts workshops/seminars in the field of Applied Mathematics. To know more about the department, please visit at

<http://iitism.ac.in/index.php/mathematics>

## About Location

IIT(ISM) is well connected by rail and road. The institute is located at a distance of about 3 KMs from Dhanbad Railway Station in Jharkhand State. Dhanbad station is on grand chord of Eastern Railways and well connected with Howrah, Delhi, Lucknow, Aligarh, Mumbai, Tata Nagar and Ranchi etc.