

# WORKSHOP on “CONDITION MONITORING OF MACHINES”

## BACKGROUND

The occurrence of vibration on industrial machines is widespread. Excessive vibration causes premature failure of machine components. With the advent of cost-intensive equipment, it has become imperative to understand machine vibrations, measurement aspects, data processing, analysis and diagnosis techniques. This training program aims to emphasise a hands-on approach backed up with lectures and a demonstration of the basic concepts in vibration analysis and machine fault diagnosis.

## WHO SHOULD ATTEND

Participation in the short-term course is open to research scholars, UG/PG students, faculty members, researchers from the laboratories, industrial personnel, engineers, and other interested persons. The successful participants will be given a participation certificate.

## OBJECTIVE

To provide:

- A basic knowledge of various existing maintenance approaches
- Exposure to various vibration and acoustic sensors and their working principles and applications
- Exposure to FFT analysers and signal-processing software

## COURSE CONTENTS

Different maintenance techniques and condition monitoring of machines

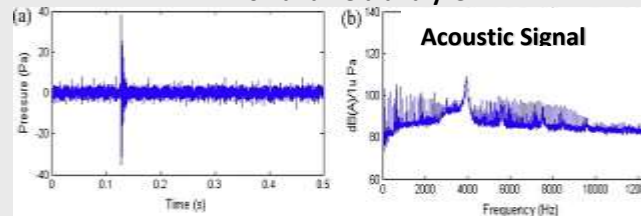
Familiarization with vibration measuring instruments: sensors, dynamic signal analyser (DSA), tachometer, impact hammer, function generator, shaker, machine fault simulator (MFS), handheld noise analyser and shock pulse meter

Basics of signal processing techniques

Hands-on experiments: Demonstration of vibration measurement, modal testing, machine fault simulator and the analysis of acquired vibration data in the laboratory



2270 hand held analyzer



4 channel FFT analyser

## METHODOLOGY

The experienced faculty members from the Department of Mechanical Engineering, IIT(ISM) Dhanbad will deliver lectures on the proposed topics. On the first day of workshop, maintenance techniques and the importance of condition monitoring will be explained, followed by familiarisation with the instruments and signal processing techniques. On the second day, experiments with various measuring instruments will be conducted. Data acquisition, storage and post-processing of the vibration data will be demonstrated.

## DURATION

Two days (20<sup>th</sup> and 21<sup>st</sup> of April 2024), Hybrid mode

## CONTACT ADDRESS

All nominations should be addressed to:

➤ **Dr. Madan Lal Chandravanshi (COORDINATOR)**

Assistant Professor

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IIT(ISM) Dhanbad

Jharkhand– 826004

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Email: [madan@iitism.ac.in](mailto:madan@iitism.ac.in)

➤ **Dr. Sachin Kumar Singh (Co-COORDINATOR)**

Associate Professor

Dept. of Mechanical Engineering

IIT(ISM) Dhanbad

Jharkhand– 826004

Mob: +91 9102991041

Email: [sachinks@iitism.ac.in](mailto:sachinks@iitism.ac.in)

**FOR FURTHER ASSISTANCE**

Kindly reach out to us on: -

[madan@iitism.ac.in](mailto:madan@iitism.ac.in)

**FOR PROGRAM-RELATED QUERIES**

Student coordinators:

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Email: [mrityunjay.monu@gmail.com](mailto:mrityunjay.monu@gmail.com)

**Paresh Kumar** (+91 9556459447)

Email: [paresh.20dr0092@mech.iitism.ac.in](mailto:paresh.20dr0092@mech.iitism.ac.in)

### COURSE FEE

#### For Online mode:

Students: Rs. 1000/-

Faculty Members and Industry Professionals: Rs. 2000/-

#### For Offline (Physical) mode

Students: Rs. 2000/-

Academic Faculties and Industry Professional: Rs. 3000/-

#### Inclusive of GST

#### Note

- No TA/DA will be provided to the participants
- Accommodation inside the campus will be provided on a payment basis based on the availability
- Working lunch and Dinner will be arranged

For online mode, the applicants will be provided with a secured meeting code for the web platform one day before the commencement of the course.

### REGISTRATION FORM

Link: <https://forms.gle/QBdY5J4dwrWxvD9g8>

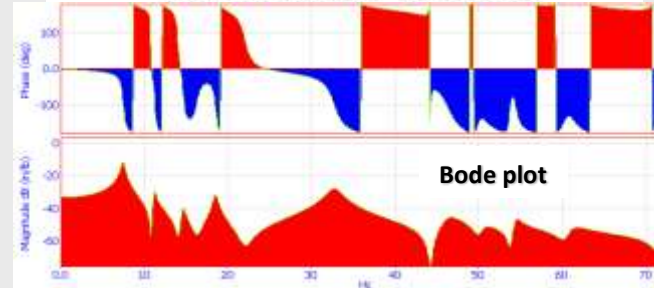
### REGISTRATION

Please transfer the registration fee amount to the following bank account (details given below) and attach the payment receipt along with the Google form for registration.

**Account Number** : 0986101024892  
**Bank Name** : CANARA BANK  
**Branch** : SARAIHELIA, DHANBAD  
**IFSC Code** : CNRB0000986  
**MICR Code** : 826015003  
**GSTIN** : 20AAAAI0686D1ZA  
**PAN** : AAAAI0686D  
**LEGAL NAME** : IIT (ISM) SPECIAL FUND

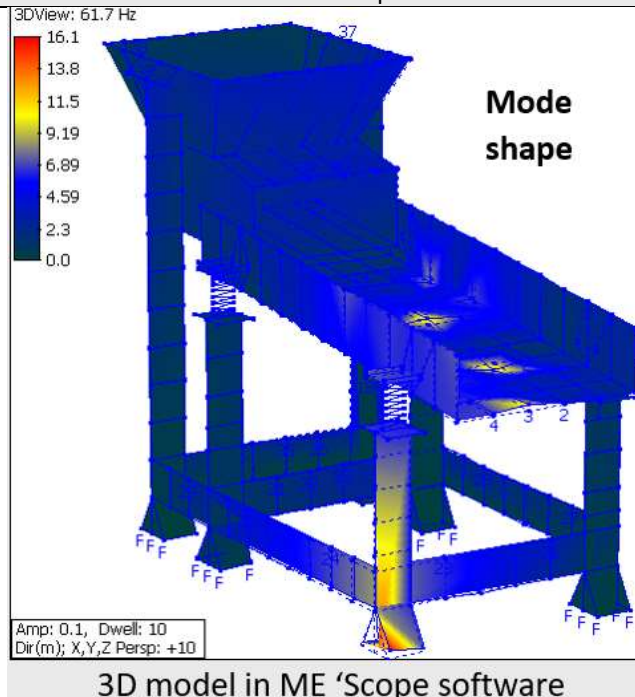


Force and tri-axial transducers



Bode plot

3D model in ME 'Scope software



3D model in ME 'Scope software

### OTHER DETAILS

IIT(ISM) Dhanbad is an institute of national importance situated at the heart of the country's coking coal belt, 260 kms from Kolkata, with a campus spread over 393 acres. The Mechanical Engineering Department of IIT(ISM) comprises design, manufacturing, and thermal engineering divisions. The department is known for research in a variety of fields that include Vibrations, Mechanical Design, Condition Monitoring, Heat Transfer, Fluid Surface Interaction, Microfluidics, Aeroacoustics, Refrigeration & Air Conditioning, Energy Storage, Robotics, CAD/CAM, Manufacturing, CFD, Aerodynamics, Turbulence Modelling, Tribology, Water Jet Machining, Fluid Power etc.

## INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES)

DEPARTMENT OF MECHANICAL ENGINEERING

*Announces*  
**WORKSHOP**

on  
**“CONDITION MONITORING OF MACHINES”**  
(20<sup>TH</sup> & 21<sup>ST</sup> APRIL 2024)



AT  
**INDIAN INSTITUTE OF TECHNOLOGY  
(INDIAN SCHOOL OF MINES) – DHANBAD**

**A Workshop on  
CONDITION MONITORING OF MACHINES  
20<sup>th</sup> -21<sup>st</sup> April, 2024**

**REGISTRATION FORM**

**Name:** .....

**Designation:** .....

**Organization:**.....

.....

**Gender:** .....

**Educational Qualification:** .....

**Address for Correspondence:** .....

.....

**Mobile No:** .....

**E-mail ID:** .....

**Mode of participation (Online/Physical):** .....

**Payment Amount:** .....

**Payment Ref. Number:** .....

**Date:** .....

**Signature of Applicant:**

**(Please send the scanned copy to [madan@iitism.ac.in](mailto:madan@iitism.ac.in))**