

PROFESSIONAL DEVELOPMENT PROGRAMME ON  
**'Vibration Acoustics and Control in Industrial Applications'** in an Online/offline Mode  
AT IIT(ISM)/DHANBAD

### BACKGROUND

Rotating components are indispensable elements in any modern Mechanical industry. Due to the presence of inherent unbalance, these rotating elements become a source of vibration and noise. This vibration not only reduces the life of the machine but also becomes a cause for annoyance due to noise emission. It is therefore necessary for the technical manpower to understand the basic concept in the field of vibration and acoustics in order to mitigate such problems. Basic of vibration and how it is related to acoustic emission needs a better understanding. There are well established methodologies available in order to monitor the health of machines having rotating parts. Apart from these there are control strategies to minimize such incidents. In addition to this, basic control theory along with modern applications will also be covered. This short course will address these issues in an easy possible way to bring awareness to the technical manpower/researchers in various industries/institutions.

### WHO SHOULD ATTEND

All application/Design/Manufacturing engineers / supervisors in Mechanical/ Mining/ Electrical/ Electronics/Maintenance Engineering. Also, cadres who need to know about the Maintenance & Troubleshooting aspects of rotating components of a machine.

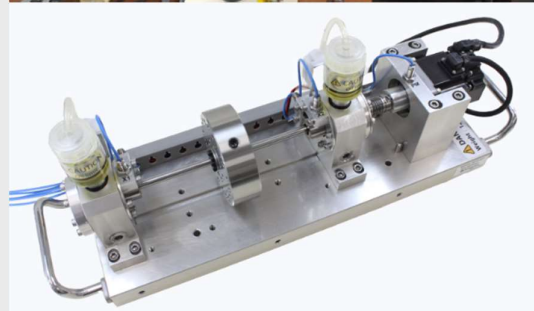
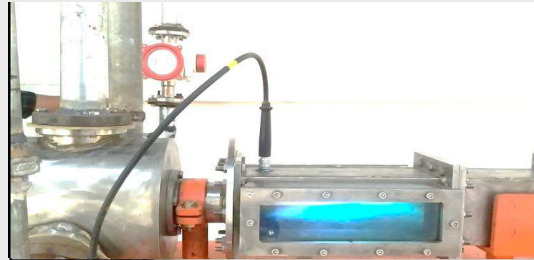
### OBJECTIVE

To provide:

- A basic knowledge of vibration, acoustics and noise
- Basics of Signal Processing/ Signal processing in Mechanical Systems
- Condition Monitoring of Bearings and Gearboxes
- Practical exposure to the robotic control systems in the laboratory
- Basic measurement of vibration and noise in the state of the art lab in the department

### COURSE CONTENTS

- Basics of Vibration and Acoustics.
- Introduction to Acoustic terminologies
- Duct acoustics and related measurements
- Introduction to aero-acoustics
- Vibration and Noise Control Strategies
- Industrial Noise Control
- Signal Processing Basics
- Application of Signal Processing
- Condition Monitoring Basics
- Condition monitoring of rotating machines
- Exposure to Vibration measurement
- Exposure to Acoustics measurements
- Various lab tours
- PID control of twin Rotor MIMO System (TRMS)
- Magnetic Levitation plant (MAGLEV)



### METHODOLOGY

The experienced faculty members of the Department of Mechanical Engg., IIT(ISM), Dhanbad will be delivering lectures in these topics. The experts from industries/Research Lab may also be hired. The practical classes will be on basic knowledge and will be conducted in the respective research laboratories of the Department live.

### DURATION

4 days, online mode, starting 9<sup>th</sup> April 2024

### COURSE CO-ORDINATOR AND CONTACT ADDRESS

All nominations should be addressed to:

#### **Dr. RABINDRA NATH HOTA (Coordinator)**

Associate Professor  
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#### **Dr. SANJOY GHOSHAL (Co- Coordinator)**

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Link to upload Registration Details:

[https://docs.google.com/forms/d/e/1FAIpQLSeT2ESieX\\_g5MnKgCluhwV32LRDReto7ydHuLwjp5F3iRuM9w/viewform?usp=pp\\_url](https://docs.google.com/forms/d/e/1FAIpQLSeT2ESieX_g5MnKgCluhwV32LRDReto7ydHuLwjp5F3iRuM9w/viewform?usp=pp_url)

## COURSE FEE

Rs. 10,000/- (+18% taxes) Industry delegates, per participant

Rs. 7,500/- (+18% taxes) Faculty/Researchers from academic background, per participant

Rs. 2,000/- (+18% taxes) students, research scholar per participant

The fee includes: Course material

**Note:** Accommodation inside the campus may be provided on payment basis based on availability if anyone is interested to attend experimental measurements in person.

## REGISTRATION

Candidates should enroll latest by 6<sup>th</sup> April, 2024 by sending the fee through the **net banking** transaction:

**Account Number : 0986101024892**

**Bank Name : Canara Bank**

**Branch : Seraidhela, Dhanbad**

**IFSC Code : CNRB0000986**

**MICR Code : 826015003**

**GSTIN : 20AAAAI0686DIZA**

**PAN : AAAAI0686D**

**LEGAL NAME : INDIAN SCHOOL OF MINES**

**SERVICE TAX REG. NO.: AAAAI0686DST001**

**Note:** After the successful transaction please send the details to the Coordinator by uploading the details in the link as given below:

[https://docs.google.com/forms/d/e/1FAIpQLSeT2ESieX\\_g5MnKgCluHwV32LRDReto7ydHuLwjp5F3iRuM9w/viewform?usp=pp\\_url](https://docs.google.com/forms/d/e/1FAIpQLSeT2ESieX_g5MnKgCluHwV32LRDReto7ydHuLwjp5F3iRuM9w/viewform?usp=pp_url)

## OTHER DETAILS

IIT(ISM) is an educational institution. It has Executive Development Center (EDC) where following facilities are available:

Double seated A/C furnished room, with television, computer with Internet facilities, indoor and outdoor games.

It has A/C class rooms with LCD projectors for power point presentation

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

DEPARTMENT OF MECHANICAL ENGINEERING

*Announces*

FOUR DAYS EXECUTIVE DEVELOPMENT PROGRAMME

ON

**Vibration Acoustics and Control in Industrial Applications**

(STARTING 9<sup>TH</sup> APRIL 2024)



AT

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