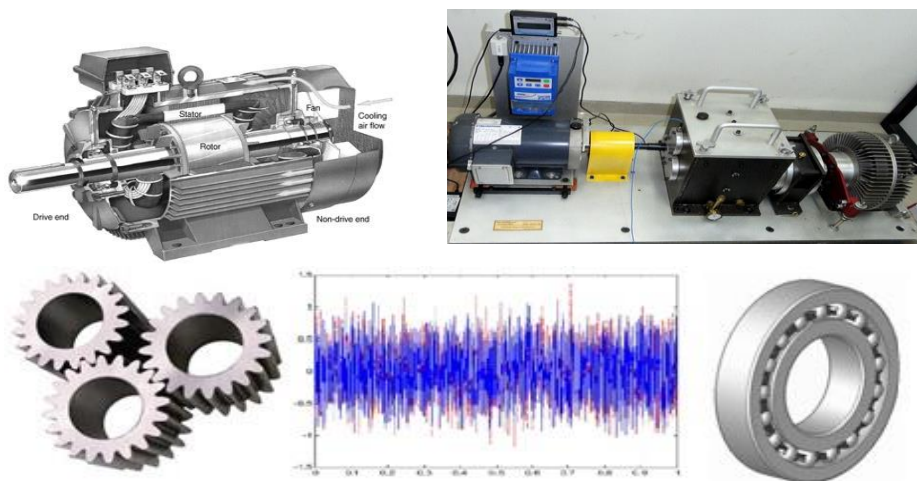AN ONLINE SHORT TERM COURSE
ON
Signal Processing and Machine Learning Techniques for Automated Fault Detection of Mechanical Systems
(16-17 June 2020)

Course Coordinators
Dr. Anand Parey
Dr. Ram Bilas Pachori

Indian Institute of Technology Indore

About this Course

The demand is increasing day by day for increasing the load carrying capacity, enhancing the performance and service life of mechanical systems. Failure of machines causes huge monitory losses. Fault diagnosis of mechanical systems can help in preventing the catastrophic failure thereby saving down-time and monitory losses. Various techniques are available for fault diagnosis of mechanical systems e.g. acoustic emission, wear debris analysis, thermography etc. Vibration monitoring is one of the most successful techniques used for fault detection of mechanical systems. Advanced signal processing and machine learning algorithms based analysis and classification of vibration signals is very important for fault diagnosis of machines. This short-term course is aimed at providing the sound fundamental knowledge to the participants on various signal processing aspects like time domain, frequency domain, time-frequency domain analysis of vibration signals. The various machine learning algorithms which are useful for developing automated systems, expert systems, intelligent systems for identification of normal and abnormal machine conditions will be covered.

Course Contents:

The **lectures** will cover following topics:

- Basics of fault diagnosis techniques like vibration, noise, acoustic emission, wear debris analysis and thermography.
- Fault diagnosis of various mechanical and electrical systems like gearbox, bearings, motors etc.
- Time, frequency and time-frequency domain based analysis
- Advanced signal processing techniques
- Detection and classification of faults
- Machine learning algorithms

PROFILE OF THE SPEAKERS:

FACULTY	AREA OF EXPERTISE
Dr Anand Parey Professor, Discipline of Mechanical Engineering IIT Indore	Gear fault diagnosis, dynamic modelling of gear boxes, signal processing of gear vibrations.
Dr Ram Bilas Pachori Professor, Discipline of Electrical Engineering IIT Indore	Signal processing, Time-frequency analysis, Non-stationary signal processing, MATLAB implementation for signal processing

WHO SHOULD ATTEND?

- Condition monitoring Engineer/ Manager/ Supervisors.
- Maintenance Engineer/Manager/Supervisor.
- Electrical Engineer/Manager/Supervisor.
- Professionals working in R & D organizations.
- Faculty from Engineering/Polytechnic colleges.
- Research scholars, post graduate and undergraduate students working in the field of noise, vibration and condition monitoring.

COURSE FEE:

Rs. 1,000 (for industry personnel)
Rs. 800 (for faculty members)
Rs. 5,00 (for students)

For Online payment/ Bank Transfer
Bank Name: Canara bank
Branch: IIT Indore, Khandwa Road,Simrol, Indore
Account number: 1476101027440
IFS Code: CNRB0006223

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All participants will be provided an e-certificate.

REGISTRATION FORM

(Please fill and send through e-mail)

Name :

Designation:

Institution/Organization:

Address:

E-mail id:

Phone/Mobile No.:

Online payment details

Bank_____Amount in Rs.   _____

Transaction date and number: