A Five Day
KARYASHALA
(High-End International Workshop)

On

Vibration Condition Monitoring and Control for Automobile and Industrial Applications

(through Virtual Mode)

20-24 December 2021

Organized by

Department of Mechanical Engineering
National Institute of Technology Rourkela

Sponsored by

NIT ROURKELA

National Institute of Technology Rourkela is an institute of national importance created under the act of parliament. NIT Rourkela has been ranked at 215 and 27th position in QS Asia University Ranking, and QS Indian University Ranking 2019 respectively. It has also been ranked in 121th position in the QS BRICS category, 2019. Times Higher Education has figured NIT Rourkela in the group of 601-800 in World University Ranking 2019. The Institute provides quality education in diverse and multi-cultural environment. The mission of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and graduate studies. The institute is offering Ph.D. and Masters in 21 branches of Engineering. The institute research centers are engaged in consultancy and research activities of several bodies such as DST, DAE, CSIR, DRDO, BARC, ISRO and private industries.

NITR RANKINGS

- THE World University Ranking by Subject (Engineering) 2021 — RANK : 601-800
- THE World University Ranking by Subject (Physical Sciences) 2021 — RANK : 601-800
- NIRF Overall 2020 — RANK : 32
- NIRF Engineering 2020 — RANK : 16
- THE World University 2020 — RANK : 801-1000
- THE World Engg. & Technology 2020 — RANK : 601-800
- QS Asian University 2021 — RANK : 250
- QS India University 2020 — RANK : 29
- ARIIA Atal Ranking of Institutions on Innovation Achievements (ARIIA) 2020 — RANK : Band A (11th – 25th)
- THE Asia University 2020 — RANK : 190
- THE Emerging Economies 2021 — RANK : 201–250

DEPARTMENT OF MECHANICAL ENGINEERING

The Mechanical Engineering Department of NIT, Rourkela is known for research in most of these fields. The main foci of research are on mechanical vibration, robotics, CAD/CAM, precision engineering, Metal forming, manufacturing, CFD, Industrial refrigeration and Cryogenics. The academic programme of the department reflects not only the core areas of Mechanical Engineer but also the research specialization of the faculty. The department at present has over one hundred research scholars pursuing projects on diverse fields. The faculty is organized under three divisions and six groups. All the groups are working in close co-operation while retaining individual identities. Many Research and Development projects being pursued by the faculty are sponsored by Government agencies and private industries. Some of the major sponsors are BRNS, DST, DAE, CSIR, DRDO, BARC, ISRO and private industries.

ABOUT THE COURSE

The faults and failures in mechanical systems before any catastrophic accidents can be predicted by analysing the vibration signals obtained during their operations. Industries also understand the importance of vibration condition monitoring and have included these procedures as a part of their normal operations. Further, there is also a requirement of establishing vibration control techniques to the vibrations from the operation of heavy machineries, to prevent this disturbance affecting the functionality of surrounding equipment.

Vibration based condition monitoring and control become two pillars of industrial operations. Condition monitoring predicts the faults in the machinery before catastrophic failure and control is used to mitigate the harmful effects of the vibration. The underlying concept in both the concept are similar. This workshop is aimed at providing a fundamental understanding of the vibration condition monitoring and control, and to impart the essential knowledge in health prediction and control techniques.

COURSE CONTENT

The course will cover the following topics

Condition monitoring:

1. Fundamentals of vibration based condition monitoring
2. Basics of Fault diagnostics
3. Signal processing techniques in time and frequency domain
4. Case studies on fault diagnosis of mechanical components
5. Training session in MATLAB

Vibration control:

1. Fundamentals of vibration control
2. Design of passive linear vibration control devices
3. Design of passive nonlinear vibration control devices
4. Training session in MATLAB

ELIGIBILITY

The course is open to faculty members, research scholars and students from universities and educational institutions. and scientists and engineers from research organizations and industries. There is no registration fee for the course.

IMPORTANT DATES

Last date for registration: 15 December 2021

Announcement of selected participants: 18 December 2021

Workshop dates: 20-24 December 2021

Registration link: https://forms.gle/tW9MshZVayPmrHas7

There is no registration fee.

E-certificate will be issued to the participants

NOTE: Certificates will be issued to only those participants who will have a minimum of 90% attendance.

TARGET AUDIENCE

Maximum number of applicants is limited to 100. The selected applicants will be provided a secured meeting code of the web platform one day before the commencement of course.

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List of International Speakers

- Prof.Tim Waters, University of Southampton, UK
- Prof. Minvydas Ragulskis, Kaunas University of Technology, US
- Prof. Moussa Leblouba, University of Sharjah, UAE
- Prof. M.E.Rahman Northumbria University UK
- Dr Balakrishnan, Researcher at SUSTech China
- Dr Vivek.Ravisankar, Research Manager, University of Western Australia

Eminent national speakers from reputed institutes and industries will also deliver the lecture.

Student Coordinators

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