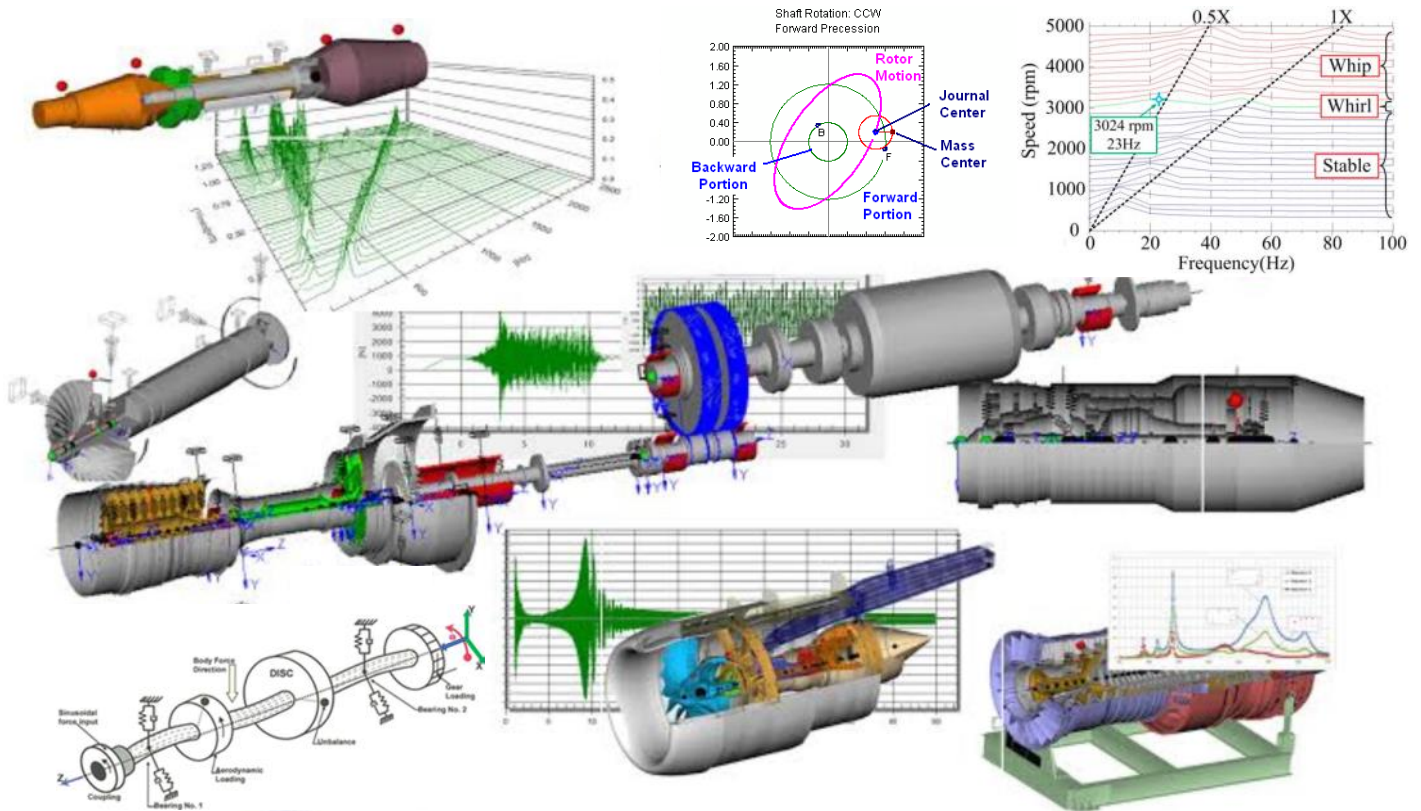




IIAS

Indian Institute for Autonomous Systems

ONE-DAY WORKSHOP ON ROTR DYNAMICS



Workshop Details

- Schedule and Type:** Apr. 26, 2026, Sunday; Instructor led interactive + demo + QA
- Workshop Duration:** 5 Hours, online, 1 day
- Conduction Mode:** Online:10:00 AM-5:00 PM with a half an hour break for each one hour session
- Attendee Background:** Mechanical, Automotive and Aerospace
- Instructors:** Dr. Prashanth Dalawai
- Registration Link:** www.iias-uv.in/services/training/workshops/
- Registration Deadline:** Apr. 26, 2026

Workshop Objective

The rotating equipment demands the understanding of its dynamics to improve the efficiency, performance, and manufacturability and cost goals of compressors, pumps, radial-inflow and axial turbines, fans, blowers, and turbochargers. Rotordynamics is the scientific study of vibrations in rotating machinery, focusing on the dynamic behavior of shafts, disks, and their support structures (bearings and seals). Its importance lies in ensuring the safety, reliability, and efficiency of high-speed equipment—such as turbines, compressors, motors, and aerospace engines—by managing vibration levels and preventing catastrophic failures.

IIAS training division offers an advanced training program and workshop by providing both theoretical, computational and hands-on testing foundations and real-world case studies on automotive, aerospace and heavy engineering and other rotating machinery. These programs concentrate more on the faster adaptation of technology to the respective industries and reduce the training curve. This workshop is designed carefully to give the essential fundamentals as well as practical implementation skills through real case studies. The instructor has decades of experience in designing a verity of products in industry and teaching design courses near a decade. Both the fresh engineers and practicing professionals can benefit from this workshop.

Workshop Content

Analysis of Rotor Dynamic Systems:

Duration (Hrs.):05

Sl.	Topic	Time
1	Introduction: Definition of essentials terms and influencing parameters of rotor dynamics, History and importance of rotordynamics in turbomachines, Torsional and bending vibrations of rotating machinery. Case studies.	10:00AM
2	Basics of rotor balancing: static and dynamic balancing of rigid rotors Analyze the effects of rotation speed on the dynamic behaviour of rotors Understand the differences between stationary and rotating reference frame. Case study: Dynamic balancing of a CAD model in 2 planes.	11:00AM
3	Run-up and coast down of rotors: Modeling unbalance in rotating systems: simplified vs. precise, Compute stationary unbalance response during run-up, Identify critical speeds in the run-up diagram, Case study: Determining the unbalance response of a gyroscope model.	12:00PM
4	Responses and diagrams of rotors: Modal analysis to describe rotating systems, forward and backward whirl and associated excitation mechanisms, influence of rotational speed on natural frequencies, Campbell diagrams, stability plots to evaluate the dynamic stability of rotors, Case study: Campbell diagram for a Laval rotor.	03:00PM
5	Transient responses in rotors: Simulate transient run-up of rotors, Assessing the passage of critical speeds, orbit plots for the analysis of transient behavior, modelling of bearings in rotordynamic simulations, Case study: Rotor run-up of a Jeffcott rotor.	04:00PM

Contact Us

Indian Institute for Autonomous Systems (IIAS)

36, 80 Feet Road, Hoysala Circle West, Kengeri Satellite Town,
Bengaluru, 560060, INDIA, Tel: +91-080-2974605,

Email: info@iias-uv.in, Web: www.iias-uv.in

