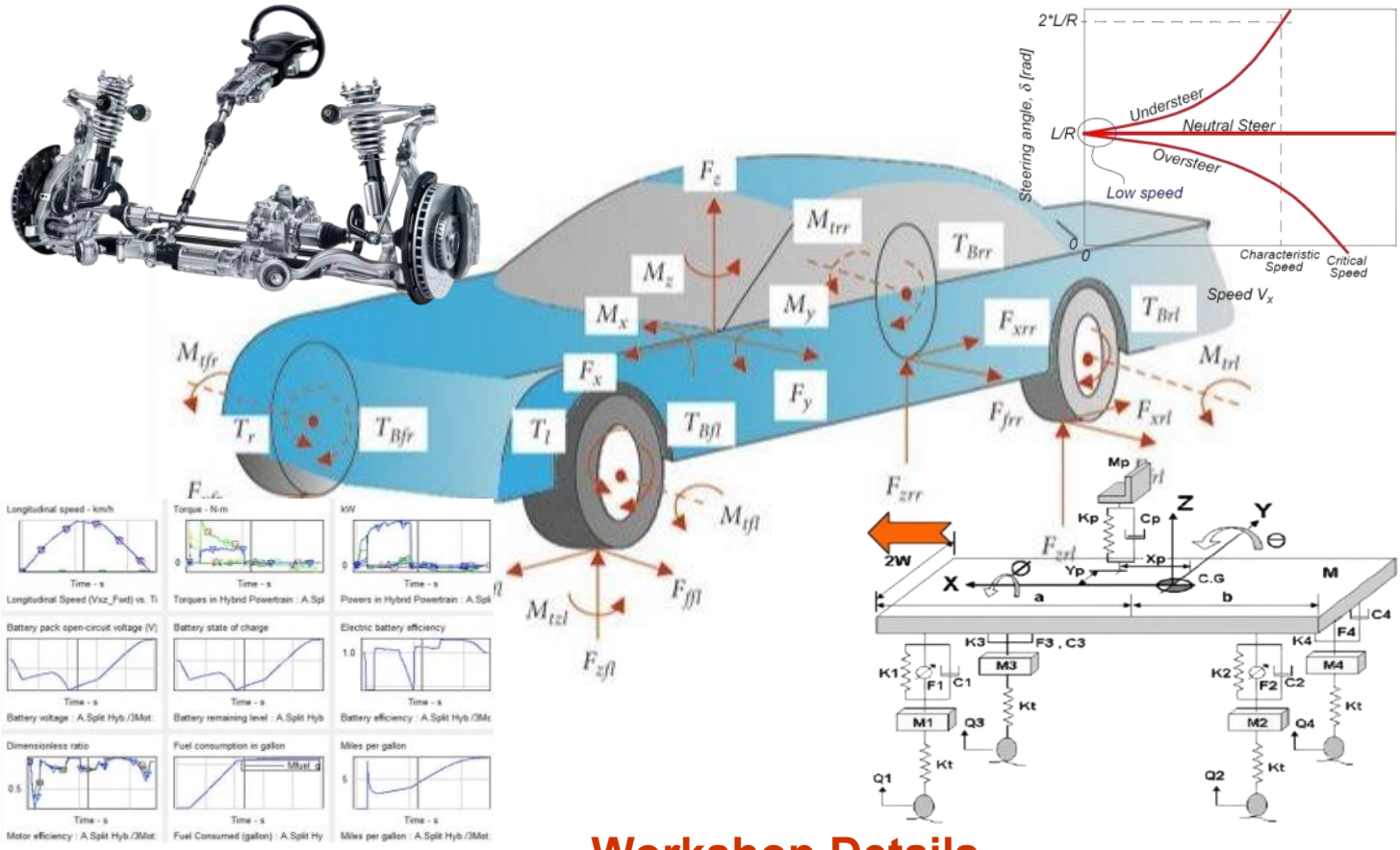
IIAS Indian Institute for Autonomous Systems

ONE-DAY WORKSHOP ON VEHICLE DYNAMICS



Workshop Details

Schedule and Type:	Apr. 12, 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. 12, 2026

Workshop Objective

Every vehicle demands the understanding of its dynamics for designing safe, stable, and comfortable vehicles by controlling motion, handling, and braking performance through tire-road interaction. Vehicle dynamics is the study of how a vehicle behaves in motion, analyzing acceleration, braking, handling, and ride comfort by applying physics to tire forces, suspension systems, and aerodynamics. It focuses on controlling longitudinal (front/back), lateral (side-to-side), and vertical motions, ensuring stability, performance, and safety under various driving conditions and enables engineers to optimize suspension, steering, and stability systems, ensuring the vehicle responds predictably to driver inputs while maximizing safety and passenger comfort.

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

Workshop Content

Analysis of Vehicle Dynamic Systems: Duration (Hrs.):05

Sl.	Topic	Time
1	**Introduction to Vehicle Dynamics:** Basics of vehicle motion, Longitudinal, lateral, and vertical dynamics, Key parameters affecting vehicle behavior, Overview of automotive systems, Full vehicle dynamics, steering performance and ride analysis. Case studies.	10:00AM
2	**Vehicle Longitudinal Dynamics:** Acceleration and braking forces, Traction and tire grip, Engine power vs vehicle resistance, Steady state functions, larger and shorter events. Case studies.	11:00AM
3	**Vehicle Lateral Dynamics:** Cornering forces and tire behavior, Understeer vs oversteer, Steering geometry and handling, Steady state cornering, stationary oscillating steering, transient handling and lateral control. Case studies.	12:00PM
4	**Vehicle Vertical Dynamics:** Suspension systems and types, Spring and damper characteristics, Ride comfort vs handling trade-off, Stationary oscillations, road models, vehicle models, ride parameters. Case studies.	03:00PM
5	**Simulation and Demonstration:** Vehicle dynamics simulation demo, Case study of car setup, General load transfer information, Handling analysis using software tools,	04:00PM

Contact Us

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