

Fundamentals of Applied Vehicle Dynamics

Overview

With the advent of the use of a variety of automotive vehicles in India, there is an urgent need to improve the infrastructure on the roads and the highways that these vehicles ride. Equally important is a good understanding of how a vehicle and the driver interact to improve the performance on a given road profile. Two main performance measures in this context are the ride comfort and vehicle handling. Together, these form in to a course discipline called Vehicle Dynamics and Chassis System Design.

This proposed course has been developed for engineering professors, engineers and technical personnel involved in all fields related to the automotive vehicle design or development. These include, powertrain systems, braking systems, vehicle dynamics, chassis system design, or suspension systems. Additionally, this course can be valuable to those with component design responsibilities in the above areas. The course topics will be covered by a group of qualified faculty and possibly by the CSM Software Company representative. Many of the concepts covered in the lectures are planned to be complimented by hands-on ADAMS Car simulation package and constant interaction through Q&A, which further enhances learner interactivity.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

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| Modules | A: Acceleration and Brake Performance : January 12 – January 17 B: Tire Dynamics, Ride and Steering/Cornering : January 19 – January 23 Number of participants for the course will be limited to fifty. |
| You Should Attend If... | <ul style="list-style-type: none"> ▪ you are a practicing mechanical engineer or research scientist interested in understanding basic principles of vehicle dynamics, or involved in various components or subsystems of powertrain, wheels, steering or chassis systems. ▪ you are test engineer interested to learn the principles of vehicle dynamics ride and handling conditions and the parameters that affect these. ▪ you are a student or faculty from academic institution interested in teaching/learning the several design and dynamics topics related to automotive vehicles and how to do research in the vehicle dynamics and chassis systems. |
| Fees | The participation fees for taking the course is as follows: Participants from abroad : US \$500 Industry/ Research Organizations: Rs. 10000 for one module Academic Institutions: Rs. 1000 for one module The above fee includes all instructional materials. |

The Faculty



Prof. Raghu Echempati is in the faculty of Mechanical Engineering at Kettering University, Flint, MI (USA). His research interests include Automotive Machine & Mechanisms Design, Vibrations, Modeling and Study of Automotive Vehicle and Train Dynamics, Applied Finite Element Modeling & Analysis, and Sheet Metal Forming Simulation Technologies.



B. Ravindra is the Associate Professor of Mechanical Engineering, Indian Institute of Technology, Jodhpur, RJ (INDIA). His area of expertise includes Vibrations and modeling of smart actuators.

Course Co-ordinator

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