

Applied Vehicle Dynamics Seminar

April 7-10, 2017

Sinhgad Technical Education Society • Pune, India

This training seminar will focus on applied vehicle dynamics to race car concept, simulation, manufacturing, testing, and development. All numerical examples will be based on Formula Student. We'll cover every aspect of vehicle dynamics and wrap up with data acquisition and analysis. Each participant will receive a binder with approximately 800 pages and several spreadsheets of exercises.



Photo credit FS Germany

Specifics:

- Seminar Hours: 8:00 a.m. - 8:00 p.m.
- Seminar is only open to students and Formula Bharat Design and Cost Judges. Students will be required to provide a current student ID.
- Registration opens February 13 and closes March 17.
- Registrations received after March 17 are accepted with a 150% fee.
- No registrations are accepted after March 31.
- Only one payment per university.
- Payments can be made by credit card or bank transfer only.
- Participants are responsible for their own transportation, lodging, and meals.

PRICING INFORMATION:

(Amounts shown in US dollars)

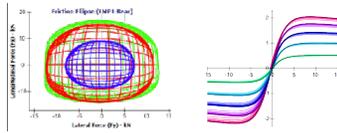
# Attendees	Amount
1	\$445.00/student
2-3	\$295.00/student
4-6	\$265.00/student
7-9	\$235.00/student
10-12	\$205.00/student
12-15	\$175.00/student
16+	\$150.00/student



*For more information or to register,
contact susanne.chastain@optimumg.com*

Covered Topics

Tires



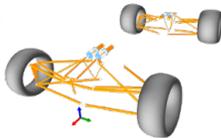
Understand how and why grip, balance, and driver feedback are influenced by the forces and moments generated by the tire contact patches. See how tire models can be used to develop car design and setup. Review and evaluate best practices for tire pressures, temperatures, and visual inspection.

Aerodynamics



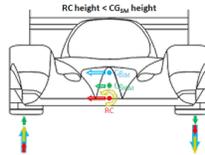
After a review of fundamental aerodynamics, this section will focus on the understanding of aero-maps, static and dynamic ride height settings, and how to integrate them into the design of a suspension.

Kinematics



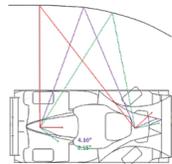
This part of the seminar explains why wrong kinematics cannot be “patched” by adjusting springs, antiroll bars, and dampers. Theories—as well as tips and tricks—on static and dynamic camber, toe, KPI, caster, Ackermann, roll, and pitch axis will be shared for racecar designers and race engineers. Then, see how to tune the suspension kinematics to get the most efficient use of the tires.

Steady State Weight Transfer



Understand how suspension kinematics, springs, antiroll bars, and tire vertical stiffness influence the tires’ vertical dynamic load, car grip, and balance with step-by-step theory and a guided exercise.

Understeer & Oversteer Definition



The knowledge acquired in previous chapters will be combined to define and predict the balance of the car. Understand and quantify the influence that car design and setup parameters have on the car understeer and oversteer characteristics, with numeric examples.

Damper, Ride & Transient Weight Transfers



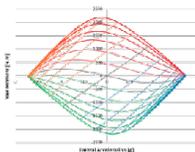
After a brief description of damper technology, this part of the seminar will focus on how damper settings have an influence on tire load, tire load consistency, racecar performance, and driver perception of the car performance.

Car Design, Tuning, Modification and Chassis Setup



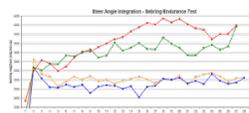
Several racecar engineers have confirmed this chapter gave them many new and useful ideas on car design and testing. A smart combination of vehicle dynamics theory and driver experimental feedback will help to successfully define parameters such as kinematics, springs, antiroll bars, and dampers. This knowledge will help to considerably diminish the amount of time spent in testing by making sense of simple simulation tools.

Simulation



Learn the methods that make OptimumG’s consulting customers win races and championships. The exclusive Yaw moment method will help race engineers close the loop between tire, car, and driver by qualifying and quantifying the essential parameters of grip, balance, control, and stability.

Data Acquisition



Learn the Key Performance Indicator (KPI) method used to make sense of large amounts of acquired data while quickly and efficiently measuring, comparing, and analyzing car and driver performance.

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