MRA Vehicle Dynamics Training
Sample Agenda for One Day Lecture

Morning

1. Brief Introduction to Vehicle Dynamics

2. Elementary Vehicle Model
   - Forces acting on simplified car
   - Fundamentals of tires
   - Steer characteristics, low and high speed

3. Demos (with physical model on inclined board)

4. Video on Tire Behavior

5. Force/Moment Approach for Physical Understanding
   - Definitions of stability and control
   - Yaw damping and path curvature stiffness
   - Wheel pair analysis / lateral load transfer
   - Load transfer distribution / roll center model
   - MRA Moment Method discussion & examples
   - Friction Circles

6. Video on Vehicle Stability and Control

Afternoon

1. Introduction to Vehicle Modeling
   - Choice of model
   - Force and moment tire data & data processing
   - Suspension kinematics and compliances, data and processing
   - Drive effects (overview)

2. Vehicle Suspension
   - Introduction and history
   - Mechanical elements
   - Design, design constraints
   - Common suspension types

3. Video on simple vehicle statics analysis

4. Testing and Validation
   - Choice of instrumentation
   - Test types
   - Test data reduction

5. Discussion & Questions