Course description:

1. This course builds on and introduces concepts in dynamics, system dynamics, and controls applied to ground vehicle systems.

2. Vehicle dynamics in the performance, handling, and ride modes will be reviewed.

3. Concepts in vehicle control will be introduced relating to traction/braking, handling/steering, and suspension in vehicle systems, with technological concepts (electronic controls, sensors and actuators) introduced as needed.

4. Key aspects of running gear (tires, tracks, etc.) will be introduced when relevant.

5. Computer-based models and simulation will be used throughout the course, and an introduction to multibody vehicle system modeling using MSC.ADAMS will be provided.

Prerequisites: For undergraduates (ME 360), upper-division standing, admission to an appropriate major sequence in engineering, and ME 344 with a grade of at least C-; for others, upper-division standing and written consent of instructor. Familiarity with Matlab programming will be expected and thus is required.

Textbook: No textbook is required, and notes and readings will be provided. However, it is highly recommended that you adopt a dynamics textbook/reference such as: a) Dynamics, Meriam and Kraige, Wiley (any edition), b) Dynamics, Hibbeler, Prentice-Hall (any edition), or c) Engineering Applications of Dynamics, Karnopp and Margolis, Wiley, 2007. For vehicle dynamics, material is adopted for this course from: a) J.Y. Wong, Theory of Ground Vehicles, John Wiley and Sons (any edition), and b) T.D. Gillespie, Fundamentals of vehicle dynamics, Society of Automotive Engineers, Warrendale, PA, 1992

Online course materials: The course contents and schedule will be posted on the course log, found on the course website:
http://www.me.utexas.edu/~longoria/VSDC/clog.html

Additional reference and reading materials will also be posted on the UT Canvas page for this course:
https://utexas.instructure.com

Grading: Homework (50%), 3 Projects (50%). Strict due dates will be enforced on all assignments and projects.

UT-Austin Support: The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD.