Vehicle Dynamics and Control

Overview

The use of feedback control systems on automobiles is growing rapidly. This course is intended to serve as a useful resource to researchers who work on the development of such control systems, both at academic institutions and in the automotive industry. The course focuses on vehicle control systems and the dynamic models used in the development of these control systems. The automotive control system topics covered include adaptive cruise control, automated lane keeping, automated highway systems, electronic stability control, active rollover prevention, and active and semi-active suspensions. In developing the dynamic model for each application, an effort is made to keep the model simple enough for control system design but at the same time rich enough to capture the essential features of the dynamics. The course also offers an opportunity to learn interesting applications of advanced control design techniques in automotive systems. Course participants will learn these topics through lectures and interactive simulations.

The objectives of the course are: 1.To introduce participants to interesting modern applications in vehicle dynamics that can benefit from the use of active control systems, 2. To develop and present the dynamic models used in these applications, 3. To design active control systems for challenging vehicle dynamic problems, and 4. To learn the application of advanced control design techniques in interesting automotive problems.

Dates for the Course	**30th May, 2016 to 3rd June, 2016**
Host Institute	**IIT Madras**
No. of Credits	**1**
Maximum No. of Participants	**60**
You Should Attend If…	▪ You are a student in an academic institution interested in learning about vehicle dynamics and ways to control a vehicle's dynamic response. ▪ You are a faculty in an academic institution associated with teaching and research in automotive engineering or control systems. ▪ You are involved with analyzing vehicle dynamics in an automotive industry.
Course Registration Fees	The participation fees for taking the course is as follows: **Student Participants:** Rs. 1000 **Faculty Participants:** Rs. 3000 **Government Research Organization Participants**: Rs. 5000 **Industry Participants:** Rs. 10000 The above fee is towards participation in the course, the course material, and equipment usage charges. **Mode of payment: Demand draft in favour of "Registrar, IIT Madras" payable at Chennai**
Accommodation	The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel

Course Faculty

Professor Rajesh Rajamani is currently a Professor in the Department of Mechanical Engineering, University of Minnesota, USA. He is a well-known expert in vehicle dynamics and the author of the popular book "Vehicle Dynamics and Control". He is a fellow of ASME and has served as Chair of the IEEE Technical Committee on Automotive Control. Please visit http://www.me.umn.edu/~rajamani/ for more details.

Course Coordinator

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