Invite you and your colleagues to participate in a workshop on

CAE IN AUTOMOTIVE INDUSTRY
- A BROAD OVERVIEW

17th - 20th November, 2008

The Automotive Research Association of India

Pune, India
Virtual Product Development (VPD) in automotive industry is marching towards reality. In this decade, Computer Aided Engineering (CAE) has become the necessary first step in vehicle design from a fancy, modern tool. This workshop is intended to give a deep insight of involvement of CAE at various stages of vehicle development, introduction to various tools and methodologies available in analysis of automotive components, subsystem and complete vehicle level for structural strength, safety, NVH and durability. It will cover the practical aspects of pre and post processing of various analysis procedures and test correlation also. In addition, this will provide an opportunity to have hands on exercises on various model building and analysis setups and interact with experts from a variety of fields. This workshop is targeted to provide with an in-depth understanding of vehicle development cycle, various subsystems involved in the vehicle structure, regulatory requirements and their impact on vehicle design.

Who Should Attend

This seminar is intended for practicing engineers, analysts, project managers and engineering service providers working in any area of automotive design and its evaluation for structural strength, safety, NVH and durability. It is also intended for engineering students interested in pursuing a career in automotive design.

Seminar Content

Day 1: Vehicle Architecture

- Vehicle Development Life Cycle – Role of CAE
- Type of Analysis and Software - Crash, Durability, NVH, Heat Transfer, Linear, Nonlinear
- Nonlinear Analysis- Material, Geometric, Contact, Hyperelasticity
- Vehicle Architecture and Crash Related Areas-Functional Requirements and Load Cases
- Body-In-White- Architecture, Assembly and Welding

Day 2: Safety

- Various International Regulations and their comparison- US, EU, Indian, etc. - detailed discussion
- Full Vehicle Crashworthiness
- Passive Safety and Active Safety
- Model Building for various impact events
- Explicit Solvers (LS-DYNA, RADIOSS, etc.)- Code Capabilities, Brief Theory
- Input Deck Preparation, Quality Checklist and Debugging
- Post-Processing- Simulation Results Validity and Quality
- Observations and Inferences, Recommendations
- Test Correlation- Comparison, Source of Error, Modifications
- Seating System- Complete Design Validation
- Secondary Restraint System (SRS)- Seatbelt, Air Bag, Sensors, Occupant, Dummies
- Bumper System, Pedestrian Impact, Interior, Instrument Panel

Day 3: Durability and Powetrain

- Durability and NVH specific subsystem, load cases and performance targets
- Body-In-White, Chassis and Suspension
- Closures, Exterior, Instrument Panel
- Road Load from ADAMS Simulation, Proving Ground
- Fatigue analysis
- Power-train- Design overview, Head, Block, Exhaust and Intake Manifolds, Heat Transfer, Bore Distortion

Day 4: NVH and Optimization

- NVH Overview - Development Process, Role of Simulation
- NVH Analysis- Normal Mode, Frequency Response, Random Vibration with PSD Input, Point Mobility, Acoustic, Sound Pressure Levels, Case Studies, Test Correlation
- Silencer Design and Optimization
- Body/Engine Mount Design and Optimization
- Acoustic Materials – Prediction and Optimization
- Design Optimization - Topology, Shape, Sizing and Material Grade, DOE, Robust Design
- Multi-Disciplinary Optimization

Visit to various laboratories of ARAI

(Visit our websites for more details about seminar contents)
BHARAT GUPTA is Founder and Vice President of InDepth Engineering Solutions, LLC (2006), Troy, MI, USA, an international engineering consulting firm.

He completed his Masters in Mechanical Engineering from IIT-Kanpur in 1987. He worked for 6 years at Indian Space Research Organization (ISRO) on various projects viz. Design of Launch Vehicle and Satellite Structures, Light Weight Composite Structures, Development of General Purpose Finite Element Software etc.

He performed research at Michigan State University, MI, USA for a year.

He joined Quantech Global Services Detroit, MI, USA and managed and executed multi-million dollar projects for Detroit auto industries, and worked for most of the OEMs viz. General Motors, Chrysler, Ford, Nissan-Japan and NA, Toyota, Renault-France, JCI, Lear, Magna, etc. He was responsible for managing Full Vehicle Crashworthiness Program for US SUV. He headed two Offshore Delivery Centers in India with 400+ engineers.

He has published and presented more than a dozen papers.
REGISTRATION FORM

WORKSHOP ON

CAE IN AUTOMOTIVE INDUSTRY- A BROAD OVERVIEW

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We confirm the following will attend the above Seminar:

Name: ________________________________________________________________

Designation: ____________________________________________________________

Company: ______________________________________________________________

Email address: ___________________________________________________________

Please fax / email / post the registration form duly filled, on or before 15th November, 2008

Day 1 & Day 2 | Day 3 & Day 4 | Full Workshop (All 4 Days)
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Two and more registrations from same company | Rs.10,000/- per person | Rs.10,000/- per person | Rs.17,500/- per person

Only one Participant | Rs.15,000/- per person | Rs.15,000/- per person | Rs.25,000/- per person

Special discount of 20% for early registrations before 1 November, 2008

The service tax of 12.36% will be applicable on the registration fees

Registration fees include Breakfast, Lunch for four days and Delegate Kit

MODE OF PAYMENT

Demand Draft drawn in favor of “The Automotive Research Association of India (ARAI)”, payable at Pune.

Please contact below for registration or further information.

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