

**SPEAKERS**



**Speaker I: Dr. Uday Vaidya**

Dr. Uday Vaidya is a Professor of Materials Science & Engineering, University of Alabama at Birmingham (UAB), USA. He received his Ph.D. in 1993 from Auburn University, USA. He has been working in the area of composite materials and structures for over 20 years. Dr. Vaidya is the Director of the Materials Application Research Center (MARC) and The Graduate Automotive Technology Education (GATE) at UAB.



**Speaker II: Dr. K. C. Vora:**

Dr. Vora has his Ph.D. from IIT-Bombay on the subject of Automotive Air Pollution Control. He has a vast industrial & academic experience of 23 years and has been associated with Walchand Nagar Industries, Emitec Emission Controls, Mahindra & Mahindra and ARAI. He has specialized in the field of Automotive Education, Technology Development, Knowledge Management, Engine R&D and Emission Controls. He is instrumental in starting ARAI Academy, which conducts Post Graduate Courses in Automotive Engineering. Presently he is Head of ARAI Academy and Knowledge Centre at ARAI.



**Speaker III: Mr. A. R. Arankalle :**

Mr. Arankalle has done his M.Tech in Metallurgical Engineering from IIT, Mumbai and his Post Graduate Diploma in Business Management. He possesses experience over 30 years in the field of material selection, testing characterization and failure analysis. Has an independent patent on Design of Fiber Reinforced Plastic, Leaf Spring and Propeller Shaft. He has prepared many BIS and AIS Standards. He is an active Member of CAR Group of Automotive Material, ELV. He is one of the founder members of ASM International, Pune Chapter and was Chairman, Education committee for 9 years. He is also one of the founder member of Plastic Wing of MCCI.



**Speaker IV: Mr. Dhiraj Surywanshi:**

Mr. Surywanshi has completed his graduation in the field of Production Engineering and post-graduation in the field of Process Metallurgy. Currently he is doing his Ph. D. at IIT-Bombay in the Department of Metallurgical Engineering and Material Science. He is Sr. Project Engineer at ARAI with an experience of 8 years, with specialization in Failure and Fatigue Analysis.



**5 Day Proficiency Improvement Programme on  
AUTOMOTIVE MATERIALS & FAILURE ANALYSIS  
at ARAI, Pune**

(The Automotive Research Association of India)  
**19<sup>th</sup> to 23<sup>rd</sup> April 2010**

We confirm the following will attend the above Course :

Name	Qualification	Designation

Signature:

Name & Designation:

Company:

Address:

Email ID:

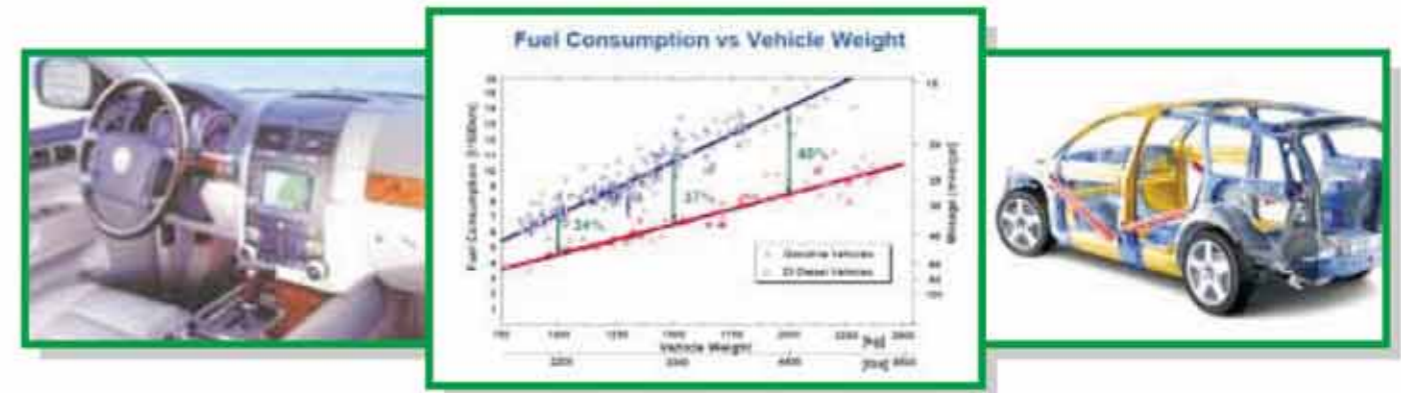
Please fax/email/post duly filled-in registration form on or before 12<sup>th</sup> April 2010 to:

**Mr. Milind Palse**  
ARAI Academy  
ARAI Post Box 832, Pune 411004  
S.No.1 02, Vetar Hill, Off Paud Road, Kothrud, Pune.  
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Jointly Organised by





**BACKGROUND & OBJECTIVES**

The aim of the module is to elaborate Automotive Materials with particular emphasis on weight, costs and performance. There are number of advances being made in the design, manufacturing and implementation of advanced materials like polymers, plastics, composites, ceramics, carbon fiber, rubber, elastomers, aluminum, magnesium, titanium, compacted graphite iron, chilled cast iron, micro alloyed steel and other alloys. These modules will consider both currently used and emerging material types and their applications.

**INTENDED LEARNING OUTCOME:**

On completion of the module, the delegates should be able to:

- Evaluate materials suitability for automotive application with emphasis on component weight, cost, finish, dimensional tolerances, loading conditions and service environment and performance.
- Evaluate possible materials and manufacturing methods for various components.
- Critically compare current generation materials with new and alternative materials.
- Understand the properties of modern engineering materials used in automotive engineering.
- Understand the processing routes used to manufacture automotive components from these materials.
- Understand the potential advantages and possible failure analysis associated with the use of these materials.
- Discuss the trends in material for automotive application and identify the factors which determine the materials for next generation of automobiles.
- Understand the need of lightweight material and its implications on vehicle design.
- Understand material characterization and testing methodologies.
- Support crashworthiness and impact resistance designs.
- Follow integrated process and product development approach.
- Demonstrate independent learning ability necessary for professional development.
- Become self-disciplined, self-motivated, demonstrating personal responsibility in the pursuit of studies and professional practice.



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**PROGRAMME****Day One**

- 08.30 hr - Registration
- 09.30 hr - Inauguration by the Chief Guest & Welcome Address
- 10.00 hr - Overview of Fuel Consumption, Needs and Status of Global Transportation
- 11.00 hr - Lightweight Material and its Implications on Vehicle Design
- 12.00 hr - Engineered Polymers and Plastics
- 14.00 hr - LUNCH
- 15.00 hr - Aluminum, Magnesium & Titanium Light Weight Alloys

**Day Two**

- 09.00 hr - Composites, SMC, GMT and BMC for Automotive Composites
- 11.00 hr - Carbon Fiber Technologies
- 13.00 hr - Crashworthiness and Impact Resistant Designs
- 14.00 hr - LUNCH
- 15.00 hr - Materials for Automotive Engines

**Day Three**

- 09.00 hr - Material Characterization & Testing Methodologies
- 10.30 hr - Advances in Joining and Adhesive Bonding Techniques
- 11.30 hr - Modeling Approach and Integrated Process & Product Development Approach
- 14.00 hr - LUNCH
- 15.00 hr - Rubber & Elastomers
- 16.00 hr - Steels and Alloys

**Day Four**

- 09.00 hr - Materials for After Treatment Devices
- 11.00 hr - Forging Technology
- 13.00 hr - Practical at FID Laboratory
- 14.00 - LUNCH
- 15.00 hr - Hands-on Metal Forming Simulation (FORGE 2008)

**Day Five**

- 09.00 hr - Failure Analysis
- 11.00 hr - Practical at Automotive Materials Laboratory
- 14.00 hr - LUNCH
- 15.00 hr - Written Test
- 16.00 hr - Valedictory Function

**WHO SHOULD ATTEND?**

- Vehicle / Engine manufacturers.
- Organizations involved in R&D, manufacturing and testing of Automotive Materials.
- Automotive components manufactures.
- Non-automotive manufacturers involved in development of advanced material/light weight components.
- Regulatory Authorities (RTO), State Transport Corporations and Private Transport Operators.
- Engineers interested in Failure Analysis.
- Engineering / Consulting companies.
- Aeronautical and Railway material experts.
- Professors / Engineering Students.
- Engineers interested in pursuing further studies on part time / full time basis.

**MODE OF PAYMENT**

Demand Draft in favour of  
**The Automotive Research Association  
of India**  
payable at Pune.

ARAI, over four decades, has provided its design and development expertise to the Indian automotive industry, focusing on the testing and evaluation of components and systems to meet national and international standards. ARAI strives to achieve international recognition in these areas. In keeping with the globalization of economy and business, ARAI continues to enlarge its scope of services to meet the requirements of automotive industries around the world.

In addition to utilizing state-of-the-art technology, laboratories and highly-trained personnel, ARAI recognizes the need to develop a new generation of engineers to meet the demands of the automotive industry, not just in India but across the globe.

It has embarked upon a programme of building up human resources by commencing educational programme (Masters & Doctoral) with specialization in Automotive Engineering. It has tied up with VIT University (Vellore), University of Alabama (USA), and Loughborough University (UK).

It has also started Proficiency Improvement Programme (PIP) and Domain Programmes for Industry.

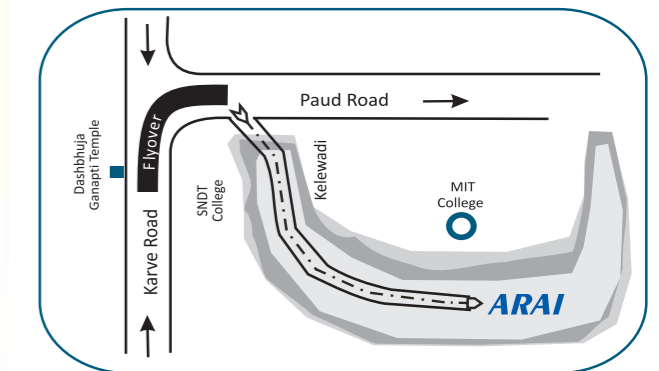
Please visit [www.araiindia.com](http://www.araiindia.com) for more information.

**REGISTRATION FEES**

Category	Registration Fees (Rs.)	Total Fees including Tax of 10.3% (Rs.)
Engineers & Professionals	15000.00	16545.00
Teaching Faculty	10000.00	11030.00
Engineering College Students	5000.00	5515.00

**Registration Fees include**

- Breakfast
- Lunch
- Delegate Kit

**Map to ARAI**

University of Alabama, at Birmingham (UAB) is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the baccalaureate, master's, specialist, and doctoral levels. Established as an extension center of the University of Alabama in the mid-1930s, UAB became an autonomous campus in 1969. In the four decades since, this young, dynamic university has driven the social, cultural, and economic revival of Birmingham and has evolved into a world-renowned research university and medical center.

The Department of Mechanical Engineering at UAB is strategically focused on High Fidelity Simulations and Associated Enabling Technologies with contributions in CFD, CSM, Mesh Generation & adaptation and HPC applicable to wide spectrum of multi-scale (micro/nano Macro Continuum) applications including Injury Biomechanics, structural dynamics, aerodynamics simulations associated with automotive engineering. It is specialized in automotive materials like polymers, plastics, composites, carbon fibers, etc.

Please visit [www.uab.edu](http://www.uab.edu) for more information.