

**SPEAKERS**



**Dr. S. Manivasgam:** He is the Chief Delivery Officer for Onward Technologies Limited, Pune. He is responsible for Engineering Design and CAE Simulations projects in addition to a few other organizational responsibilities at the senior management level. Past 25 years, Dr. Mani has been working on New Product Development with an integrated Simulation Driven Design approach. His vast experience includes power train, compressor, automotive and HVAC domains. He started his career as a user of Finite Element Analysis in 1989. He served as national Technical Support Head for ANSYS Finite Element

Analysis Simulation SW for India during 1995-98 periods. Dr. Manivasgam received PhD in 1994, for his research work on Damage Progression Studies in Composite Materials and ME from Anna University, Chennai. He holds Master's Degree in Engineering Design from University of Madras.



**Priyank Jain:** He is Sr. Technology Specialist in Support & Services organization at ANSYS FLUENT India Pvt Ltd. He holds a Dual degree in Chemical Engineering from IIT Chennai. His primary area of focus has been in-cylinder combustion simulation. He possesses vast experience in combustion system optimization for a range of engine platforms and emission norms.



**Jayesh Mutyal:** He is Senior Technology Specialist in the Support & Services organization at ANSYS FLUENT India Pvt Ltd. He has been with FLUENT and ANSYS for about 9 years. He did M.Tech in Mechanical Engineering (Thermal and Fluids Engineering) from IIT Bombay. He has worked extensively in the field of CFD in Automotive Industry. He has worked closely with many US Auto majors based in North-America. His focus areas have been After-treatment, In-Cylinder Modeling, Powertrain, Discrete phase modeling, Wall-film modeling & Positive displacement pumps. He has delivered presentations on automotive CFD at several platforms during national and International ANSYS conferences.



**Padmesh Mandloi:** He has been with ANSYS for more than 11 years and has extensive experience in engineering simulation for automotive applications, especially engine and powertrain. He holds Masters in Mechanical Engineering from IIT Bombay and has close to dozen papers in international conferences and several technical articles in international automotive magazines, particularly Engine Technology International.



**Mr. Sanjeev Bedekar:** He is TSFE (Thermal Science Functional Excellence) leader at Cummins Research and Technology India (CRTI) and has over 18 years of industry experience. Prior to CRTI, Sanjeev has been associated with Mahindra tractor R & D team (FES Mumbai) at start of his carrier from 1996 to 2002 working in Engine design, CFD simulations & Cooling system Design & Optimization groups. After that, he was associated with "Finite to Infinite" having a experience as partner in business for FEA/Thermal domain. Later to this, Sanjeev had diversified his profile in HVAC & Crash analysis simulation through

association with organization Tata Faurecia. Later on, Sanjeev was associated with Mahindra Engineering services working closely with Navistar USA Engine Analysis team, Before joining CRTI, he was associated with Altair Engineering Pune as a Technical Manager for CFD Solver technical support role for India & Asian market. Sanjeev holds a Bachelors Degree in Automobile Engineering from Pune University and a Master's Degree in "Heat Transfer & Thermal Power engineering" from IIT Madras.



**Mr. M. A. Patwardhan:** Dy. General Manager at Computer Aided Engineering Laboratory at ARAI, Pune. His domain expertise includes CAE, NVH analysis, Non-linear simulation for predicting bore distortion and gasket degree of sealing of powertrain assembly and experimental validation. He has successfully executed number of developmental projects in automotive fields using CAE analysis software like HYPERWORKS, ABAQUS, NASTRAN, ADAMS, LMS and FE Fatigue etc. He was also involved in methodology development of Virtual validation for Powertrain assemblies in the areas of NVH & durability at ARAI.



**Sandeep Shetty:** He is Sr. Technology Specialist at ANSYS India. He has more than 8 years of Industrial experience working with Indian and Global customers. His expertise is in simulation techniques of Automotive applications like Aerodynamics, Underhood thermal management, Aeroacoustics and Powertrain thermal management.



**Mahendra Joshi:** He is a Technology Specialist at ANSYS. He holds a Master's Degree in Thermal Engineering from Indian Institute of Technology Madras. He has over 8 years of experience out of total 10 years in Thermal and Fluid simulation. Mahendra has vast experience on CFD simulation of variety of automotive applications, particularly powertrain components.



**Santosh Kotalgi:** He is Senior Technology Specialist in the Support & Services organization at ANSYS FLUENT India Pvt Ltd. He has been with FLUENT and ANSYS for more than 9 years. Santosh has worked extensively in the field of Mechanical analysis using FEA in Automotive Industry. He has worked closely with many US Auto majors based in North-America. His focus areas have been Powertrain, Brakes NVH, Muffler Acoustics, Chassis Dynamics, L-ion Battery Simulations etc. Santosh has delivered presentations on automotive FEA at several platforms during national and International ANSYS conferences.



**Rahul Phadke:** He is a Technology Specialist with ANSYS India. He has Ph.D. in Mechanical Engineering from the University of Virginia, USA where he worked on friction modeling for microslip damping estimations in turbine blades vibrations. He has been associated with ANSYS for the last 2 years. He primarily works on Structural Mechanics and Customization Toolkit. He has been providing technical support, presales activities and trainings on the above applications for clients across India.



3 Day Workshop on  
**CAE for Powertrain Application**  
7<sup>th</sup> to 9<sup>th</sup> July 2014 at ARAI, Pune

REGISTRATION FORM

Name, Designation, Dept., Office No., Mobile No. & Email ID :	
Delegate - 1	
Delegate - 2	
Delegate - 3	
Company Name & Address	
Co-ordinator's Name, Designation, Contact No., Email ID	
100% Advance Payment Details	

Please fax/email/post duly filled-in registration form on or before 3rd July 2014 to :  
Dr. K. C. Vora, Dy. Director & Head, ARAI Academy  
ARAI Post Box 832, Pune 411004 / S. No. 102, Vetel Hill, Off Paud Road, Kothrud, Pune 411 038  
Tel: 020-3023 1248/ 1245 /1111, Fax: 020-3023 1104  
Email: [training.pga@araiindia.com](mailto:training.pga@araiindia.com); [morgaonkar.pga@araiindia.com](mailto:morgaonkar.pga@araiindia.com); [patil.pga@araiindia.com](mailto:patil.pga@araiindia.com)

Excellence in Education...  
The Drive continues...

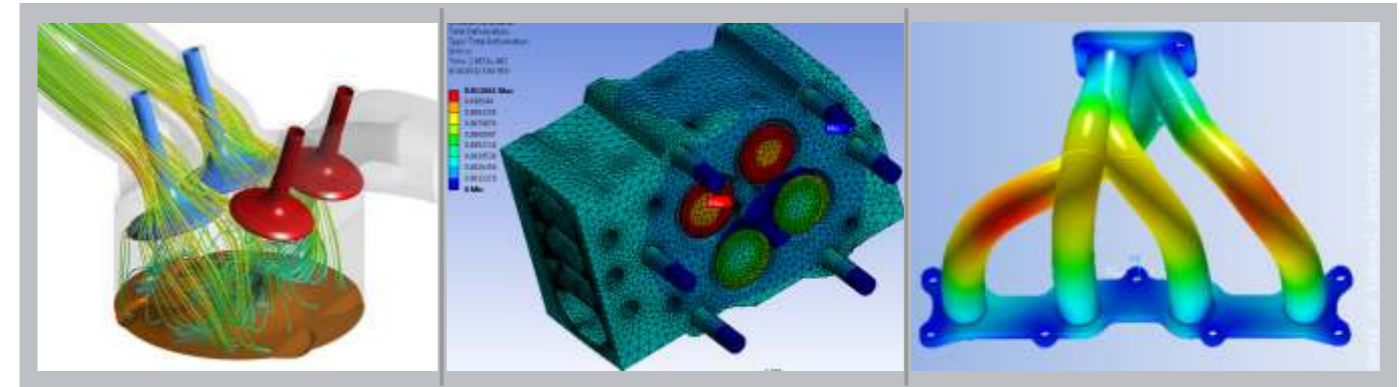


**Symposium on International Automotive Technology 2015**  
Towards Safer, Cleaner & Quieter World...  
21-24 January 2015, ARAI, Pune, India



BEST LEARNING CENTRE AWARD TO  
ARAI ACADEMY & KNOWLEDGE CENTRE BY ISTD

3 Day Workshop on



**CAE for Powertrain Application**

at

**ARAI, Pune**  
(The Automotive Research Association of India)

7<sup>th</sup> to 9<sup>th</sup> July 2014

Jointly Organized by



**BACKGROUND & OBJECTIVES**

CAE has been widely used in automotive domain to analyze the robustness and the performance of individual components as well as systems. In addition to the basic concept of Power Train Engineering, the participants will be exposed to various CAE tool sets on stimulation, validation and optimization.

The instructional methods include extensive use of examples & case studies. Participants will get a chance to learn the latest technologies of CAE.

**INTENDED LEARNING OUTCOMES**

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

- Match the characteristics of the customer, the vehicle and the safety requirements.
- Understand the basics of CAE.
- Understand the CFD simulation of airflow and fuel system.
- Understand the CFD stimulation of lube, coolant and transmission system.
- Understand FEA simulation of powertrain components.
- Understand application of CAE in real life design/development of powertrain system.
- Maintain a sound theoretical approach, informed by the latest professional practice, to facilitate the introduction of new and advancing technologies.
- Demonstrate independent learning ability necessary for conducting professional development.
- Become self-disciplined and self-motivated, demonstrating personal responsibility in the pursuit of studies and Professional practice.



**PROGRAMME**

**Day One**

- 08.30 - Registration
- 09.30 - Inauguration & Welcome Address
- 09.45 - Importance of CAE in Powertrain Development.
- 11.30 - CFD Primer.
- 12.15 - FEA Primer
- 13.00 - Lunch
- 13.45 - CFD Simulation of Airflow Systems.
- 15.30 - CFD Simulation of Fuel Systems.
- 17.00 - Conclusion

**Day Two**

- 09.00 - CFD Simulation of Lub and Transmission Systems.
- 11.00 - CFD Simulation of Coolant Systems
- 13.00 - Lunch
- 13.45 - Modeling Internal Combustion Engine.
- 15.15 - FEA Simulation of Powertrain Systems-1.
- 16.45 - FEA Simulation of Powertrain Systems-2
- 18.15 - Conclusion

**Day Three**

- 09.30 - Applied CAE in Powertrain Design/Development-1
- 11.30 - Applied CAE in Powertrain Design/Development-2.
- 13.00 - Lunch
- 13.45 - CFD/FEA Workshop.
- 16.45 - Valedictory & feedback session
- 17.00 - Conclusion.

Note : ARAI reserves the right to change the dates, schedule, contents, speakers, venue etc. for the programme without any notice.

**WHO SHOULD ATTEND ?**

- Engineers and designers involved in Modelling, Mesh generation, CFD, CSM, CAE, Simulation, etc.
- Organizations involved in Automotive & Aerospace Engineering.
- Vehicle Manufacturers
- Engine Manufacturers
- Automotive Component Manufacturers
- Engineering / Consulting Companies
- professors / Engineering Students
- Engineers who are interested in pursuing further studies on part time / full time basis.

**REGISTRATION FEES**

Category	Registration Fees (Rs.) (per participant)	Total Fees including Tax of 12.36% (RS.) (per participant)
Non SAE Members	15000	16854
SAE Members	12000	13484
SAE Faculty Members	9000	10113
SAE Students	5000	5618
ARAI Academy Student	1000	1124

Registration fees include :

- Breakfast
- Lunch
- Delegate kit

**MODE OF PAYMENT**

At Par / Multicity cheque or demand draft in favour of  
**The Automotive Research Association of India**  
 payable at Pune.

ARAI, over four & half 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.

ARAI ACADEMY is classified into three divisions:  
**LEARNING CENTRE** has embarked upon a programme of building up human resources by commencing educational programme (Graduate Post graduate & Doctoral) with specialization in Automotive Engineering. It has tied up with VIT University (Vellore), Veltech University (Chennai), College of Engineering (Pune), University of Alabama (USA), Loughborough University (UK) and University of Braunschweig (Germany).

**KNOWLEDGE CENTRE** has collection of around 13,000 books & standards, 50,000 technical papers and numerous journals, technical reports and seminar / conference proceedings. It publishes monthly magazine 'Automotive Abstracts' and supplies CDs of CMVR Type Approval Handbook and Automotive Industry Standards (AIS).

**TRAINING CENTRE**, In line with Post Graduate and Doctoral Programs conducted by various universities abroad, ARAI Academy has devised various Proficiency Improvement Programmes (PIPs), to be taught by ARAI, Academia & Industry Experts. PIP gives engineers, faculty and student's knowledge and technical expertise in a wide range of automotive disciplines. It helps in understanding system's view point for automotive design and manufacture, with specific skills in formulating automotive engineering solutions in terms of their function and performance, through optional modules.

Based on the present system in Universities, credits are proposed for each module, so that the graduate engineers can attend various modules and sum-up the credits required for Master's or Doctoral Programs. Participants also get chance to visit related laboratories of ARAI and get hands on experience. Certificates are issued on the basis of written test conducted at the end of the programme. We also conduct Training Programmes through WEBEX and Domain Training Programmes for Automotive Industry.

The Society of Automotive Engineers India (SAEINDIA), Western Section, Pune, is a vibrant premier professional society, having substantial following in the Indian automobile industry, involved in serving the Mobility Engineering Community engaged in design, manufacture and service of self-propelled vehicles and systems that move in land, sea, air and space. Its vision is to continuously enrich knowledge base of practitioners in mobility industry and institutions in the service of humanity.

SAEINDIA is India's leading resource for mobility technology. As an individual member driven society of mobility practitioners, the ownership of SAEINDIA wrests with its members who are Individuals from the mobility community, which includes Engineers Executives from Industry, Government Officials, Academics and Students.

Following are the current activities of SAEINDIA for different categories of members:

1. Engineers & Business Executives: Mobility Congress, SIAT, Workshops, Seminars, Conferences, Eminent Speakers Series, Tech-Talk series etc.
2. Engineering Student Members: BAJA, SUPRA, Effi-cycle, Annual Socials, Project Competition, Collegiate Club Activities, etc..
3. School Children: AWIM (A World In Motion)

SAEINDIA is a Platform where all Engineers & Officers from Automotive Industries network with each other, share their ideas, improving technical knowledge and thereby build strong relations. This also helps them in their managerial roles in their respective fields and industry.

Please visit [www.saeindiaws.org](http://www.saeindiaws.org) for more information.

ANSYS is world's leading simulation software provider and has been around for over 40 years now. ANSYS offers simulation based solution to engineers, designers, researchers and students in aerospace, automotive, process, electronics, biomedical, energy and defense industries. Customers use ANSYS' fluid dynamics, structural, electromagnetic, high-frequency and system level software to design and develop their products. Simulation technology aids physical testing and sometimes completely eradicates the need for physical prototyping. It also gives detailed insight into the product you are developing thereby increasing your confidence in the design.

ANSYS today has over 2500 employees with over 600 developers and operates from over 75 locations across 40 countries. ANSYS has significant presence in India. It has 5 offices (in Pune, Bangalore, Chennai, Hyderabad and Delhi) and has close to 400 employees. ANSYS' second largest development center is in Pune.

Specifically talking about Automotive industry, ANSYS products are used today by OEMs, tier-1, 2 and 3 suppliers, sports and recreational vehicles as well as other ground transportation systems.

In almost every aspect of an automotive design simulation technology is used today; from body to interior, conventional engine powertrain to hybrid and electric powertrain and from chassis to all the electronic components that are using in modern vehicles