

SPEAKERS



Speaker I: Mr. Chetan Kumar Maini, REVA Electric Car Company: He holds a Bachelors Degree in Mechanical Engineering from University of Michigan with focus on Solar Electric Vehicles and a Masters in Mechanical Engineering from Stanford University with focus on Hybrid Electric Vehicles. He is the co-founder and currently the Deputy Chairman and Chief Technical Officer of REVA. His prior experience includes working for Amerigon Inc. (USA) and General Motors (USA).



Speaker II: Mr. R. Prakash, REVA Electric Car Company: He holds a Master Degree in Industrial Electronics from the NIT, Surathkal. Presently, he is Senior G.M. – R&D at Reva. He has been involved in the development of all electrical/electronics systems and is currently working on new technologies for EVs and intellectual property initiatives at Reva.



Speaker III: Dr. Arun Jaura, Eaton Corporation: He did his BE from NIT-Srinagar, M.Tech from IIT-Chennai and Ph.D from Concordia University, Montreal. He has rich and varied experience of over 25 years in the Technology and Product Development, both in India as well as overseas. He has 5 patents registered in the US/Europe/Japan and has published several technical papers globally. He is Vice President of Technology, India Engineering Center – Eaton Corporation. Prior to this he held the position of Chief Technology Officer and Senior V. P. – R&D and Global Product Development of the Mahindra Group. Prior to joining Mahindra, he had worked at Ford, Detroit for 10 years, responsible for Vehicle Engineering of the Escape Hybrid Platform in Detroit. He had also worked for DRDO in Chennai.



Speaker IV: Dr. R. K. Malhotra, IOC R&D: He did his Mechanical Engineering from Institute of Technology, BHU and Ph.D. from the Centre of Energy Studies at IIT, Delhi. He has 30 years of research experience in downstream of petroleum sector particularly related to development, application and testing of Fuels & Lubricants. He is currently steering the alternative fuels programme related to biofuels and hydrogen at IOC R&D. He has published several research papers and holds 5 international patents to his credit. He has been member of several national committees responsible for formulation of fuel quality and emission standards in India. Presently he is Executive Director IOC R&D.



Speaker V: Dr. D. K. Tuli, IOC R&D: He holds Ph.D. in Synthetic Chemistry. He has over two decades of rich and varied experience in R&D in the hydrocarbon industry. He has to his credit, 12 U.S. patents, 2 European patents and over 20 Indian patents. He has published several research papers in professional journals. He was a SERC post-doctoral fellow at the University of Liverpool, England. He is currently General Manager, Alternate Energy, IOC R&D. He is also CEO, Indian Oil Technologies Limited, which markets IOC R&D technologies and services in India and abroad.



Speaker VI: Dr. S.S.Thipse, ARAI: He did his Masters in Thermal Sciences from Bradley University, USA and Ph.D. from New Jersey Institute of Technology in the field of Alternative Fuels Combustion. Presently he is Sr. Assistant Director at ARAI, working on the development of Hydrogen, CNG & LPG engines at Powertrain Engineering Laboratory. He is an active faculty at ARAI Academy and serves as a core member in the expert committee on Alternative fuels of DST as a nominee of Director, ARAI. He is a Governing Board member of SAEINDIA Western Section, life member of Combustion Institute, ISTD and member of ISO TC 22 & BIS TED-26.



**3 Day Proficiency Improvement Programme on
ALTERNATE FUELS & ALTERNATIVE POWERTRAINS
at ARAI Pune
(The Automotive Research Association of India)
from 28th to 30th June, 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 21st June 2010 to:
Mr. Milind Palse
 ARAI Academy
 ARAI Post Box 832,
 Pune 411004
 S.No.1 02, Vetel Hill, Off Paud Road, Kothrud, Pune.
 Tel: 020-3023 1241/1245/1111 ■ Fax: 020-25434190
 Email: palse.pga@araiindia.com ; patil.pga@araiindia.com

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**3 Day Proficiency Improvement Programme
on**



**ALTERNATE FUELS &
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Jointly Organized by



BACKGROUND & OBJECTIVES

With the ever increasing crude oil prices and the alarming environmental crisis, use of alternative fuels is no longer a matter of future; it is a realistic issue of present. Conventional fuel sources are getting a lot harder to extract and the environment is also being heavily polluted by emissions produced by burning petroleum products. It's time now to reduce degrading the environment further and the obvious way ahead is through use of alternative fuels and alternative power trains. Addressing these issues, this program is designed to give an in-depth analysis of the current scenario of alternative energy sources in India. The topics covered under this course would include presentations on alternative fuels, such as CNG, LPG, HCNG, Hydrogen, Ethanol, Biodiesel, Synthetic fuels and Alternative power trains such as Electric Vehicles, Hybrid Vehicles, and Fuel Cell Vehicles. Hands-on-Sessions from CMVR certification point of view are organized. This course is intended to benefit Industry and Academia.

INTENDED LEARNING OUTCOME:

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

- Understand issues on alternative fuel engine / vehicle development.
- Obtain information on alternative power train technologies.
- Evaluate possible kit components for various alternative fuels.
- Critically compare different alternative fuels.
- Understand the requirements of drive train & sources for alternative vehicles.
- Understand the requirements of cylinders and dispensers for alternate fuel applications.
- Obtain information on alternative fuel vehicle regulations.
- Discuss the latest trends in alternative fuel engines / vehicles.
- Lead multi-disciplinary teams.
- Demonstrate independent learning ability necessary for conducting professional development.
- Become self-disciplined, self-motivated, demonstrating personal responsibility in the pursuit of studies and professional practice.

PROGRAMME**Day One :**

- 08.30 hr - Registration
- 09.00 hr - Inauguration by the Chief Guest & Welcome Address
- 10.00 hr - Introduction to Sustainable Mobility
- 12.00 hr - Ethanol & Biodiesel Technology
- 14.00 hr - LUNCH
- 15.00 hr - Futuristic Technologies on Biofuels
- 17.00 hr - Practical on Alternate Fuel Engine test

Day Two :

- 08.30 hr - LPG, CNG & HCNG Technology
- 10.30 hr - CNG & Hydrogen Cylinder
- 11.30 hr - Synthetic Fuel Technology
- 13.00 hr - Hands on Session on Safety Inspection (Retrofit & OE fitment) on CNG / LPG Vehicles
- 14.00 hr - LUNCH
- 15.00 hr - Fuel Cells
- 16.30 hr - Hands on Session on Alternate Fuel Kit Test

Day Three :

- 09.00 hr - Electric Drive Train - Requirements and Characteristics
- 11.00 hr - Energy Sources for Electric Vehicles
- 12.00 hr - Electric & Hybrid Vehicles Certification Test
- 13.00 hr - Hands on Session on Electric Vehicle Testing
- 14.00 hr - LUNCH
- 15.00 hr - Hybrid Vehicles for Sustainable Personal & Mass Mobility
- 16.30 hr - Written Test
- 17.00 hr - Feedback & Valedictory Function



ARAI BIRD'S EYEVIEW

WHO SHOULD ATTEND?

- Organizations involved in Product Development and Testing of Alternative Fuel Vehicles / Kits.
- Vehicle / Engine Manufactures.
- Automotive Alternate Fuel Kit Manufactures & Dealers / Workshops.
- Regulatory Authorities (RTO), State Transport Corporations & Private Transport Operators.
- Fuel Refineries & associated Dealers.
- Fuel Testing Labs.
- Engineering / Consulting Companies
- Professors / Engineering Students
- Engineers interested in pursuing further studies on part time or full time basis.

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 is conducting Proficiency Improvement Programmes and domain programmes for the industry.

Please visit www.araiindia.com for more information.

Eaton Corporation, Pune develops market-moving innovations that deliver improved fuel economy, emissions, safety and performance. Eaton's automotive expertise spans a wide range of technologies, including engine air management, power train control and safety and security systems. In India, Eaton markets a variety of industrial clutches, brakes, and assemblies for heavy equipment.

Please visit www.eaton.com for more details.

REGISTRATION FEES

Rs. 15000 per delegate for Engineers & Professionals
 Rs. 10000 per delegate for Teaching Faculty
 Rs. 5000 per delegate for Engineering College Students
 Service Tax @ 10.30% extra
 (Includes Surcharge & Education Cess)

Registration Fees include

- Breakfast
- Lunch
- Delegate Kit

MODE OF PAYMENT

Demand Draft in favour of

**The Automotive Research Association
 of India**
 payable at Pune.

Indian Oil R&D Centre has state-of-the-art facilities and has delivered pioneering results in lubricants technology, refining process, pipeline transportation, bio-fuels and fuel-efficient appliances. Over the past three decades, it has developed over thousands of formulations of lubricating oils and greases responding to the needs of Indian industry and consuming sectors. The R&D Centre's activities in refining technology are targeted in the areas of fluid catalytic cracking (FCC), hydroprocessing, catalysis, resid upgradation, distillation simulation and modeling, lube processing, crude evaluation, process optimization, material failure analysis and remaining life assessment and technical services to operating units. Material failure analysis and remaining life assessment of refinery equipment and installations is a highly specialized service being provided by the R&D Centre to the refineries of Indian Oil as well as other companies.

Please visit www.iocl.com for more details.

REVA Electric Car Company, Bangalore, is a joint venture between Maini Group of India and AEV LLC of California. Acclaimed by Business World in 2006 as one of India's 'Cool Companies', REVA is a technology innovator and is the first company worldwide to successfully commercialize electric cars. In recognition of its technology leadership REVA is the recipient of the Frost & Sullivan 2008 Automotive Powertrain Company of the Year award.

Please visit www.reva-ev.com for more details.