Key Events of July’14

On 18th, 19th, 20th July’14
SUPRA SAE INDIA 2014, Student FORMULA Competition at MMRT, Chennai
as Dr.S.Thirumalini, Chairman, Engineering Educational Board, SAEIndia as Convener of the Event

On 25th July’14
- Visit of Mr. Dan Hancock, SAE International President, Mr. Murli Iyer, Executive Global Advisor, SAE International to Chennai
- Launch of SAEINDIA Knowledge Round table at Mahindra Research Valley with the presence of Dr. Aravind Bharadwaj, President SAE India

On 18th, 19th, 20th July’14
SUPRA SAE INDIA 2014, Student FORMULA Competition at MMRT, Chennai
as Dr.S.Thirumalini, Chairman, Engineering Educational Board, SAEIndia as Convener of the Event

On 25th & 26th July’14
SAEINDIA SS & PMI Jointly organized 3rd Tamilnadu Conference on Project Management the Engine to Drive Transformation in Chennai.

On 28th July’14
AWIM Kick off at Maharishi Vidya Mandir School, Chetpet by Mr. Dan HanCock, SAE International President with presence of Mr. Murli Iyer and Dr. Govindarajan, Advisor UCAL Fuel Systems and SAEINDIA SS Management Committee

Details to be Captured in August Newsletter
SAEINDIA Southern Section is a premier society that serves the cause of mobility engineering. It is a unique society that includes professional engineers who serve different OEMS and Suppliers, academia as well as budding engineers (students) who aspire to be part of the professionally attractive field of mobility engineers. We believe that Mobility Engineering is a knowledge rich field and that learning and sharing can be fun and rewarding. To this end, SAEISS organizes several events throughout the year, runs programmes that enrich and engage and conducts lectures and symposia. It is a part of SAEINDIA.

SAEINDIA is an affiliate society of SAE International which is head quartered in USA and has a glorious record of over 100 years of service to the mobility community.

This newsletter is brought for Information Cascading among SAEINDIA members

Editorial Team:

Patron: Balasubramanian N
Editor : Mr. Vijayaragavan N- RNTBCI
Industry members: M/s Padmesh sewda (RNTBCI), Sivashankar S (RNTBCI), Vinothkumar B (RNTBCI), Sanjeev Bhushan (Daimler), Venkatesan (Royal Enfield), Sreevalsan (UCAL fuel)
Student executive council members (SEC): M/s Shankara narayanan P, Pulkit goel, Venkata raghav, Md. Sibghathullah, Ms. Sanjana
SAEISS office: M/s S. Ilangovan, Hari prasan dash

Your Feedback & Queries are welcome at admin@saeiss.org
On behalf of SAEINDIA Southern Section Management Committee (MC), I am happy to bring this renewed Newsletter covering all the happenings in SAEINDIA Southern Section & Connecting Mobility practitioners, Students and all relevant people together. After the new MC took over, we felt the need of effective communication among the members as an important tool to achieve our goal. We have rapid growth of student members over the period with many activities. While the focus is now on fine tuning student programs, We have fixed aggressive target for the increase of professional Members.

*KRT (Knowledge Round Table)* is one such initiative to add value to the Professional Members and also provide the platform for many technical initiatives and activities at the Industry level with the support of SAEISS. We have revamped the Top Tech programs where in the experts speak about different technology topics. SAE SKIP (Student Knowledge Improvement Program), SAE Techno-ledge series is another initiative where Industry and Institute are getting connected. I appreciate the whole MC & the editorial Team for their efforts to make this newsletter. I wish the readers to share their views to improve further.

Thank you for your support.

Warm Regards,

N. Balasubramanian
Chairman-SAEINDIA Southern section

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**Our Vision**

To continuously enrich knowledge base of practitioners in mobility industry and institution in the service of Humanity

**Our Mission**

- To enhance the knowledgebase of the members who are mobility practitioners in India
- To provide to its members access to SAEINDIA’s programs and services globally enabling them to practice world class standards in productivity and quality.
- To develop technical and scientific reports for the benefit of mankind.
- To provide a forum for members to informally exchange ideas and views.
House of Management Committee

House of MC
Governance Committee

Communication & Branding Committee

Student Members Development Committee
Professional Members Development Committee
Strategies & New Initiatives Committee

Membership base / Finance Committee / Executive Council

Vision ‘16

Vision of MC - 2016
Governance Committee

Communication & Branding Committee
Reach to Min 80% membership / All South India OEM’s

Student Members Development
35% Increase from present membership base

Professional Members Development
50% Increase from Present Membership base

Society Contribution Initiatives
2 New initiatives Impact to Society & 2 new Partnerships

Membership satisfaction score ➔ 85% (min)
Finances ➔ 20% surplus (min)
Mission ‘16

Mission of MC - 2016

Governance Committee

Communication & Branding Committee
Ramp up Website / Effective Communication on all events / Monthly Newsletter

Student Members Development
- Improvements over existing events/
- Minimum one Lecture meet per Club / Student Practical knowledge improvement series

Professional Members Development
- (Design Edu council/Top tech revamp/regular member meetings at Industries/new venues for lecture meetings/South Awards)

Society Contribution Initiatives
- (KRT/ SOLS/org with FICCI, CII, British Dy High commission/Road safety initiatives)

Value Proposition ➔ 90% (min)
Membership satisfaction score ➔ 85% (min)
Finances ➔ 20% surplus (min)

Policy Frame Work & Process

PLAN
- Identify each Program/Event to increase value & improve engagement

DO
- Execution of the programs/policies
- Check Feedback & improvements required

CHECK
- Champion from Management Committee
- Champion within Committee
- SAEISS Office
- SAEINDIA Members

SAEINDIA SOUTHERN SECTION

SAEINDIA South Mag

July 2014
Seminar on Sustainable Motorsports

- SAE India southern section and WMG, the University of Warwick, UK, in partnership with The British Deputy High Commission, Chennai conducted a special seminar on “Sustainable Motor Sports”
- **Date & Venue**: 1st May 2014 & Hotel TAJ Connemara

- Mr. K. Krishnamurthy briefed the gathering on the growth of Motorsports in India especially in Tamilnadu in 70’s & 80’s. Challenges faced in Design & building stage. He also explained the improvements required in the current academic curriculum to encourage young Engineers in Motorsports.

- Dr. Steve Maggs explained the various aspects on Sustainable Motorsport, His examples & case studies were really interesting. He focussed on Environmental friendly Formula car during his presentation
This is new initiative from SAEISS to bring all SAE members working in an industry in a single fold for multiple benefits

KRT - Objective: A group of SAE members working in a company forms the Knowledge Round Table and conduct activities within the company, like Technical seminars, Guest lectures, Competitions, & Treks, etc.

First KRT Chapter was launched at UCAL Fuel Systems on 5th July, 2014.
Lecture meeting

Lecture meeting is focused to amplify the thought process of Engineers on their particular fields. This brief session has proved to satisfy the participants to a higher degree in a given time frame.

SAEISS conducted lecture meeting on 21st March’14 on Autonomous emergency braking by Mr. Dinesh Shyam Sundar, Head of Software Design Centre, WABCO and explained the advancement and importance of Autonomous Emergency Braking System. There were many active participants for this program.

Mr. T. Kasiraja SAEISS managing committee member presided the program.

SAEISS conducted lecture meeting on 25th July’14 on “Basics of Clutch” by Mr. Vallabha Rao, Head – Brakes & Clutch, Mahindra & Mahindra explained about the working principle of Clutch. Clutch types with merits & demerits. The video presentation made the participants understand the performance of Clutch. There were many active participants for this program.

Mr. S. Selvamani, WABCO & Mr. Meenakshi Sundaram SAEISS managing committee member presided the program.
A TopTech program is an intensive session of two days which is anchored by an eminent subject matter expert. It deals with one technical problem or process and the participants get to understand and discuss the subject threadbare. The expert also brings up the best practices on this subject with relevant examples.

**Topic:** Application of Design of Experiments, Date & Venue: 20 & 21 February 2014 & SAEISS Office  
**Faculty:** Mr. S. Selvamani / Engineering Director, WABCO INDIA LTD  
Glimpses of Toptech on Application of Design of Experiments

**Topic:** Automatic Transmission, Date & Venue: 28th & 29th March 2014 SAEISS Office  
**Faculty:** Mr. R. Venugopal, Mr. S. Srinivasa Rao, Mr. M. Khader Basha & Mrs. V. Uma from CVRDE  
Glimpses of Toptech on Automatic Transmission

**Topic:** Steering Systems and Vehicle Handling,  
Date & Venue: 25th & 26th April, Radha Regent Hotel, Chennai. Faculty: Shri. S. Radhakrishnan  
Glimpses of Toptech on Steering systems and Vehicle Handling
**Glimpses of Geometric Dimensioning and Tolerancing**

Top tech event

**Topic:** ‘Geometric Dimensioning and Tolerancing’  
**Date and venue:** 13th & 14th May at SAEISS office  
**Faculty:** Shri. R. Natarajan/ Director of EGS Computers India Pvt Ltd

![Image of an event for Geometric Dimensioning and Tolerancing]

**Snaps from** Geometric Dimensioning and Tolerancing top tech event

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**Topic:** Reverse Engineering Technology for Domain Knowledge

**Date & Venue:** 19th, 20th & 21st June 2014 at SAEISS office,  
**Faculty:** Shri. S. Shanmugam / Managing Director Design Desk (India) Pvt Ltd

![Image of an event for Reverse Engineering Technology]

**Snapshots from** Reverse Engineering Technology for Domain Knowledge top tech event

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**Topic:** Fuel cell technology - Power source for automobile application

**Date and Venue:** 18th & 19th July 2014 at SAEISS office.  
**Faculty:** Dr. P. Karthikeyan, Professor in the Dept. of Automobile Engineering at PSG College of Technology.

![Image of an event for Fuel cell technology]

**Snaps from** Fuel cell technology - Power source for automobile application top tech event
Objective: This training mainly focuses on enhancing leadership, to indulge networking skills, importance of effective communication & co-ordination, etc., to purse all the activities of SAEISS effectively in their collegiate club. The COLT was conducted on 1st and 2nd March ‘14 hosted by Sri Krishna college of Engineering. 100 club office bearers from 70 collegiate clubs participated in the event.

Student Convention

SAEINDIA Southern Section Annual Student Convention is an opportunity for students to showcase their skills & ideas to the industry and to the student community as well as to share, compete and learn in the process. It is the festival of technology for students and all different forms of technical skill and knowledge pertaining to basic concepts of mobility engineering, engineering design challenges, and technical theatres are all present in one roof during these two days. It is SAEINDIA Southern Section’s flagship event for students. Preparation for Student Convention 2014 is in progress.

Snaps from Student convention 2013

Industrial Visits

Every student of engineering aspires to visit world class manufacturing facilities and be exposed to best in class engineering and manufacturing facilities. Besides the industrial exposure, such visits also help in nurturing newer ideas and reinforce the theoretical and practical knowledge acquired by students at the academic level with practical examples.
Background:
ASOP foundation is a comprehensive program developed by SAEINDIA to effectively prepare students for the industry. The program was first started in 2007 in a few colleges at a research level. With 7 years of experience, SAEINDIA has developed a mature curriculum and delivery mechanism that would enable it to extend the program to a large number of colleges. Consequently, SAEINDIA is formally launching this program. Now we have reached a level of maturity in course content and delivery mechanism that enables us to scale up this program. The aSOP curriculum is fully developed now and the course will be delivered through a well-established learning management system (LMS). LMS enables us to deliver a significant portion of the program online. Online delivery improves the learning experience of the students and minimize the workload of the colleges and SAEINDIA in addition to improving the reach.

Objective:
- Appreciation of automotive domain
- Making students industry ready
- Improving employment potential

Value to the students:
- Students get familiar with automotive domain which is a major industry throughout the world.
- The fundamentals are most required in industry are refreshed
- Students acquire self learning skills which is necessary in the real world
- Students learn communication and documentation tools
- Students acquire communication skills with experts and other students
- Students acquire confidence to face interviews and group discussions thus enhancing their potential for placement

Value to Hosting Institutions:
- Creating a window for the industry
- Enhancing the student placement
- Developing faculty members.

aSOP Yelagiri event happened on 14 - 16 June 2014
**SAE Trek**

Objective: It is a unique two day programme which is a blend of adventure and learning. SAEISS Trek programmes are highly popular. They are held at scenic trekking locations which provide for great sense of adventure and bonding while providing some instructional learning pertaining to mobility engineering on the way. The trekking team is accompanied by a highly experienced engineering mentor, who blends learning in the process.


*Snaps from SAEISS trek Yercaud*

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**Other Events**

**Faculty Advisor Forum (FA - Forum)**

One day program’s objective:

To bring together Institute & Industry to understand needs and gaps of both sides. Industry Based Curriculum development, University facility sharing / New facility creation with Industry, Specific Conference, as Industry & Institute collaboration are part of discussion.

In line with COLT, the Faculty Advisor Forum was conducted on 1st and 2nd March’14 at SKCET, Coimbatore

*Snapshot of FA FORUM conducted in 2013*
ABSTRACT
The invention relates to non-asbestos organic brake pad with organic ingredients including hemp fiber and composite materials which are subjected to natural process involving mixing of hemp fibre with other composite materials, compacting the mixture at a pressure, using hand-press machine, further compacting and curing using a hot press at high temperature with different processing pressures in compression molding machine and then removing brake pads from the mold, allowing to cool and curing at a constant temperature to provide environmental friendly and cost effective brake pads and also to provide for reducing (i) stopping distance of the vehicle and (ii) noise level and increasing (i) heat resistance, (ii) strength, (iii) flexibility,(iv) utility,(v) coefficient of friction and (vi) wear resistance. The invention also relates to the process for preparing brake pads for motor vehicles.

Patent filing Receipt
**DRY COCONUT DEHUSKER**

**Viveak V & Srinivasan B , III year /Mech**
**Sri Krishna Coll Of Engg & Tech ,Coimbatore**

**Theme:**
To remove the husk of a dried coconut, several systems has been innovated and developed till date. But every system has a demerit in terms of cost or efficiency. Here the following system gives an efficient peel of the dry coconut husk with a comparatively low cost. The traditional dehusking involves risk due to injury and consumes more time to dehusk (peel) the coconut shell and labour fatigue.

**Working:**
(1) The dry coconut’s top side is pressed against the spiked end of the turner setup horizontally. This is to hold the coconut firmly without slipping when pressurized from top for every downward motion of coconut. 
(2) The crank is rotated clockwise, starting from zero degree. This makes the oscillating end to split the coconut husk for a certain extent. 
(3) The coconut is pressurized from the top automatically during the down stroke of the crank, from the top surface and accordingly the pressure is altered, to enhance the easy splitting of husk. This is done using the spring-loaded mould.
(4) The fixed knife edge and the oscillating knife edge, for every 1 rotation of crank separates the husk of coconut

**Cost Estimation:**

<table>
<thead>
<tr>
<th>METHOD</th>
<th>COCONUT O/P PER hr.</th>
<th>RISK FACTOR</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>100</td>
<td>High</td>
<td>20paise*/coconut</td>
</tr>
<tr>
<td>Imported machine</td>
<td>350</td>
<td>–</td>
<td>$500,000 USD</td>
</tr>
<tr>
<td>Our machine</td>
<td>180</td>
<td>Nil</td>
<td>15paise/coconut Coconut</td>
</tr>
</tbody>
</table>

**VLC IN CARS, “A CERTAIN POSSIBILITY”**

- **Sanjana Govind , II year/EEE**
- **Sri Krishna Coll Of Engg & Tech ,Coimbatore**

**Introduction:**
In the recent past, there is a phenomenal development in the field of lighting and illumination especially in automobiles. VLC (Visible light Communication) is one such method of encoding data with light from an LED that switches on and off faster than what can be seen with the human eye. It works in a similar way to optical fibers but transmits the signals through the air to a sensor.

**VLC and its factors:**
It is a known fact that, as the efficiency of these devices increases and their cost decreases there is a certain opportunity that they will become the dominant source for general illumination in the near future. With Research work being undertaken on to find more applications of this technology in today’s automobiles, the researchers want to focus on how to transmit the beams of light around corners keeping into consideration, how the materials inside the car can affect the signals as they are transmitted. According to Prof Roger Green from the Warwick University, There is a lot of weight and a lot of work required to transfer signals around a vehicle, but there are also lots of spaces that light signals could be sent through: air-conditioning ducts, hollow doors and engine compartments that could be illuminated.

**Our proposal:**
With research work already being undertaken with regard to VLC in automobiles, another possibility according to us, that could be researched upon may be on car safety and traffic efficiency. These two fields tend to get a lot of attention today. VLC can be a very helpful solution for both the issues. By using the cars feedback lights as emitters and by placing receptors at car fronts, cars on the roads can communicate forward and backward with other cars road signals and traffic lights, to create a mobile photon network that will enable travel alerts and navigation services, rush hour management and many other applications.

**Conclusion:**
Thus, this superior technology in the form of VLC in automobiles cannot be emphasized too greatly, but certainly has the capacity of being the future of automotive electronics. Don’t be surprised, to see VLC bring a leap to the automotive industry in the near future!!
FLOW ANALYSIS OF VANE PUMP

- PROJECT GUIDE: Mr. B. Prabakaran, Mr. A. Muthuvel
- PRESENTER: Abhishek Mehta , Siddhartha Sharma, Final Year / Auto, Hindustan University, Chennai.

Abstract:

Hydrostatic pumps are used to supply oil to Engine, Gearbox and steering system. The phenomenon of Cavitations during the flow sets a natural limit to the amount of suction flow available from the pump and is the major problem with these pumps. Since Cavitations produced during the pumping action decreases the efficiency with which the pumping action can happen. Hence to check the pressure drops in the flow this is the major cause for the formation of cavities.

A 3D simulation and analysis will be done using Star CCM+ .Using this simulation we can estimate the pressure drop regions inside the vane pump that are the major areas for cavity formation. Using the result we will be able to correlate the pressure and the flow rate inside the Vane pump.

Concept:

Our paper is a product of combined concepts of the Diesel Engine and the Steam engine. The working of the engine is based on the principle that “When finely atomized water is injected into a chamber at a very high temperature will expand explosively when injected at 1/2000th of a second. This is used to attain full steam pressure necessary enough to operate the engine with the horsepower and torque equal to current gasoline and diesel internal combustion engines. The pressure in the combustion chamber of a conventional diesel engine is around 40 bar producing a temperature of around 1500F.

Working Theory:

Considering the fact that diesel undergoes combustion at this temperature and pressure , when atomized water molecules are injected into the chamber at this temperature it can expand nearly 2000 times its initial volume...This expansion will result in the production of the necessary power to drive the flywheel. As mentioned earlier, atomized water cannot be directly replaced in a conventional diesel engine.

This can be achieved by introducing two cylinders as in the working of a Sterling engine. The first cylinder is used to generate the necessary heat by compressing air. This heat can be transferred instantly and continuously to an adjacent paired second cylinder via heat pipes. In the second cylinder, finely atomized water is injected at 1/2000th of a second, same timing as a diesel engine. This enables each water molecule to instantly expand 1600 times of its initial volume. This creates abundant pressure to push the piston in power stroke. The cylinder temperature control is made possible by computer controlled cylinder head intake and exhaust valves.

Conclusion:

Today, atmospheric CO2 is rising above the values considered to be safe for the planet. Due to harmful CO2, our oceans are becoming more acidic, which kills oxygen producing algae. If the earth’s oxygen falls below 17%, there would be no oxygen to breathe. This usage of atomized water as a propellant gives a solution for a green environment. Thus it is high time we evolve from the burning of fossil fuel to a new level to have a greener, cleaner and a certain future tomorrow.
**AWIM – (A World In Motion)**

**Objective:**
Helping Today's Students  
Become Tomorrow's Engineers and Scientists

**The program:**

A World In Motion (AWIM) program is a teacher-administered, industry volunteer-assisted program that brings science, technology, engineering and math (STEM) education to life in the classroom for students. Benchmarked to the national standards, the AWIM program incorporates the laws of physics, motion, flight and electronics into age-appropriate hands on activities that reinforce classroom STEM curriculum.

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**Forthcoming Events**  
**July/Aug’14**

<table>
<thead>
<tr>
<th><strong>Professional Member programs</strong></th>
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<tbody>
<tr>
<td>Toptech - Automotive Acoustics</td>
<td>August 1st &amp; 2nd</td>
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<tr>
<td>Toptech - Brake system Engineering</td>
<td>August 8th &amp; 9th</td>
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<tr>
<td>Toptech - Surface Engineering</td>
<td>August 22nd &amp; 23rd</td>
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<tr>
<td>Lecture meeting</td>
<td>August</td>
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<tr>
<td>Faculty Advisor Forum</td>
<td>August 23rd &amp; 24th</td>
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<tr>
<td>SAE KRT Launch at Mahindra</td>
<td>25th July</td>
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<tr>
<td>SAE KRT Launch at WABCO</td>
<td>August</td>
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<tr>
<td>SAE KRT Trek</td>
<td>August 2nd &amp; 3rd</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Student Member programs</strong></th>
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<tbody>
<tr>
<td>SAE SKIP</td>
<td>Last Week August</td>
</tr>
<tr>
<td>Student Convention Tier 1</td>
<td>August</td>
</tr>
</tbody>
</table>
| COLT – Hyderabad  
Venue will be announced shortly | August 30th & 31st |

<table>
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<tr>
<th><strong>Other Programs</strong></th>
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<tbody>
<tr>
<td>AWIM Kick Off - 2014 (with SAE International President)</td>
<td>28th July</td>
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<tr>
<td>AWIM Teachers Training</td>
<td>July/Aug</td>
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</table>
Introduction of Management Committee

Two Members of our Management Committee with this Newsletter

Dr. P Sivakumar,
Vice Chairman - SAEISS
Director, CVRDE


Professional Experience:
He worked as Engineer in M/s Southern Structural Ltd, Pattabiram for one year and M/s Teclemet India Ltd., Chennai for more than two years before joining DRDO. He started his career at CVRDE as Scientist ‘B’ in 1984. More than two decades in Design and Development of Transmission systems for tracked and wheeled vehicles application. During this period, he developed 800 hp automatic transmission, 150 hp automatic transmission, mechanical steering system for indigenous 1500 hp automatic transmission, compact transmission system for 1400 hp power pack, many sub systems for ARJUN MBT transmission.

Professional Highlights:
- “National Design Award” in Mechanical Engineering from the Institute of Engineers (India) through National Design Research Forum in 2002 for his outstanding contribution in the field of Engineering Design.
- “Defence Technology Spin off Award” of DRDO from Hon’ble Prime Minister of India for the development of 150 hp automatic transmission for wheeled vehicles in 2005.
- As Director, CVRDE received the ‘Silicon Trophy-2009’ for the best system laboratory in the field of combat vehicle technologies, from Hon’ble Prime Minister of India.

MR. R R Sankarasubramanian
Rtd. Executive Director, SAEINDIA

B.Sc.(Mathematics); D.M.I.T (Automobile Engg) .(a post graduate diploma of MIT Chennai)

Professional Experience:
42 years of experience in the field of Automobile Industry covering Two wheeler and Four Wheeler Industries and worked in various capacities from Service Engineer to Vice-President, 5 years with SAEINDIA in the capacity of Executive Director and Presently working as Process Consultant in his Family Company - Antworks, a workflow management company covering ISO ready workflows, Order management, Customer services and Sales & Distribution.

Professional Highlights:
- 400% Income improvement shown in Madras Motors Ltd ( Enfield India ) within 3 years
- Stream lining Service Activities and Service Manuals in UCAL Group
- Achieved ISO 9002 Certification for UNIPRO
- Huge increase in SAE membership base

Others areas:
- Scrutinier ( for Racing & Rallying cars before & after the events ) in Madras Motor Sports Club Activities and Himalayan Rally for 5 years

Interests:
Automotive, Contribution to Society, continuous Learning