



First Gear



Department of Automobile Engineering, Kumaraguru College of Technology, Coimbatore

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Editor: Prof. C. Vasantharaj, Dr. S. John Alexis, C. Naveen Kumar

Automobile engineering or automotive engineering is the branch of engineering which deals with the study as how to design, manufacture and operate automobiles like buses, trucks, cars etc. and also their respective engineering subsystems. This can also be a grouped under vehicle engineering.

Automobile engineers further can specialize in the areas such as aerodynamics, alternative fuels, chassis, electronics, emissions, ergonomics, manufacturing, materials, motorsport, power train, rapid prototyping, vehicle and pedestrian safety or supply chain management etc.

The responsibility of automobile engineer is always in maintaining the high standard of vehicle by the use of traditional methods and state-of-the-art technology.

KCT Automobile engineering Department aims in maintaining such high standards. This Newsletter provides the information regarding the activities that has been organised, participated by students and faculty members in the period between June 2016 to April 2017 to **improve the skill level and standards of Automobile Engineering professionals from KCT.**

Highlights

- Racing Teams in KCT
- Achievements
- Industry connect
- International Collaboration
- Societal outreach
- Awareness programs for students
- Faculty Development
- Research
- Facilities Upgradation
- Tech news
- Upcoming Events



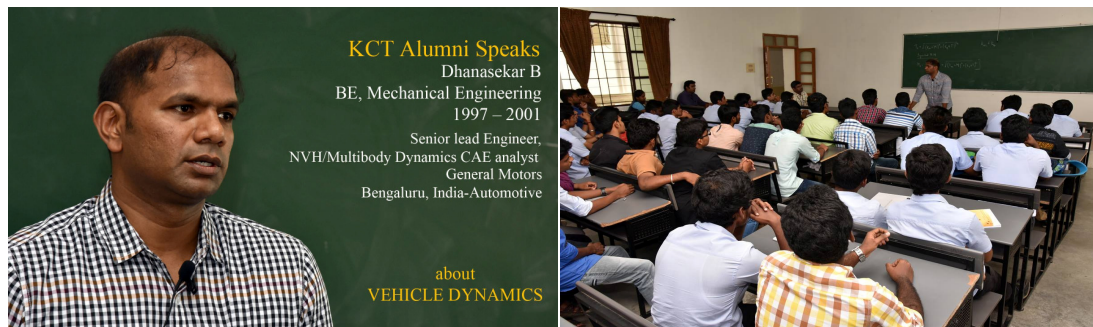
Guest Lectures from various industries has been organized in the fiscal year,

Guest Lecture on “Organizational Career Growth” by CADD Centre

Guest Lecture on GATE and UPSC

Guest Lecture on Defence Vehicles Manufacturing

Guest Lecture on Vehicle Dynamics



“Department of Automobile Engineering of Kumaraguru College of Technology Dr. B. DHANASEKAR, Senior Lead Engineer, NVH Multi body Dynamics CAE Analyst, General Motors, Bengaluru addressed the second and third year BE Automobile Engineering students”

During his lecture he also highlighted the students how to be industry ready and the expectations of the Industry towards the Engineering graduates, in particular General Motors.

Guest Lecture on Advanced Gasoline Fuel Injection System

Resource Person: Mr. C. NAGARAJAN

Mahindra & Mahindra - Research valley

Designation:

Manager - (Lead calibration engineer)

Following Topics were Covered

1. Working of Carburetors
2. Function and Current technologies of Carburetors
3. Future of Carburetors
4. Fuel Injection System Working
5. Components of Fuel Injection System
6. Technologies of Fuel Injection System
7. Engine Management System Overview

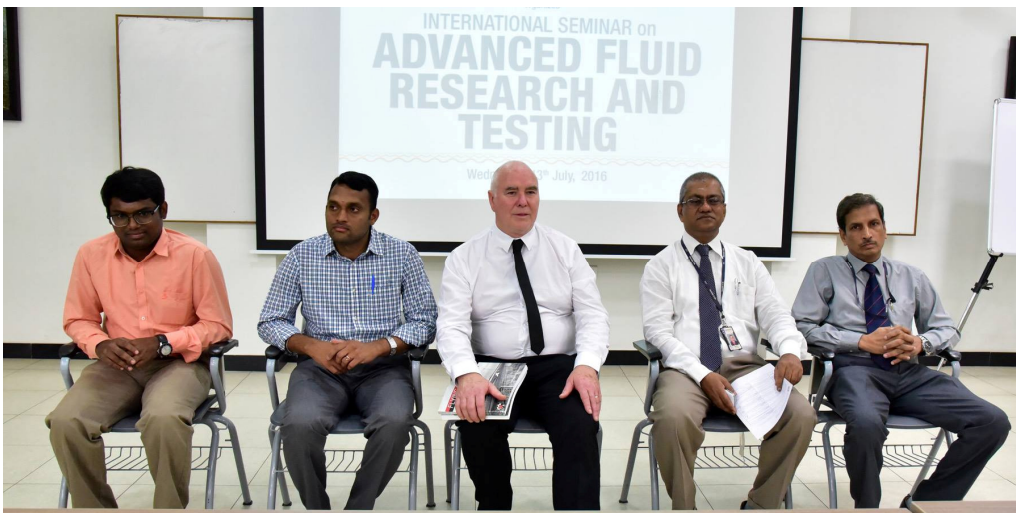




Mr. Graeme Harris, Department of Mechanical Engineering, Ara Institute of Canterbury, New Zealand visited KCT as a part of a Faculty Exchange Program from July 10th to 23rd, 2016. Department of automobile conducted several interactive sessions, workshop, seminars and hands on training in KCT Garage kindled the keen interest of the KCTians interested in Automotive Engineering.

INTERNATIONAL SEMINAR on

ADVANCED FLUID RESEARCH AND TESTING



Aeronautical and Automobile Engineering departments of KCT conducted **"International Seminar on Advanced Fluid Research & Testing"** on 13th July 2016.

Mr. Graeme Harris explained about the innovative Fluid Mechanics Teaching in New Zealand demonstrated the practical teaching methods Mr. Ramkumar highlighted how CFD applications are used in AEW&C aircraft design and simulation of Air to Air Refuelling. 41 faculty from 8 colleges participated in the event.

INTERNATIONAL WORKSHOP on

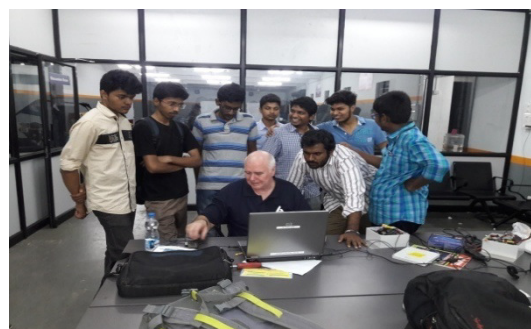
MOTORSPORTS ENGINEERING



Automobile Engineering department of Kumaraguru College of Technology, Coimbatore conducted **INTERNATIONAL WORKSHOP ON "MOTORSPORTS ENGINEERING"** on Tuesday, 19th July 2016 in association with ARA Institute of Canterbury, Christchurch, New Zealand. More than 200 engineering students from various colleges across Tamil Nadu attended the workshop. Graeme Harris, Lecturer Mechanical Engineering from ARA Institute of Canterbury, New Zealand brought out various motorsport activities in New Zealand and his contribution from academia for development of world class racing engines for record breaking performances.

Experience sharing with students

Baja, Supra & GoKart



"Graeme Harris is such a wonderful human being and a good teacher. Always has a smile in his face. We worked with us undoubtedly matching the Energy level of a student at his age. He taught us Basics and shortcuts in manufacturing field; I was totally inspired by him" – Giridharan, Captain of Team Blitzkrieg

STUDENT EXCHANGE & FACULTY EXCHANGE PROGRAM

INTERNATIONAL CERTIFICATION PROGRAM ON MOTORSPORTS ENGINEERING in ARA Institute of Canterbury, Christchurch, New Zealand

Students from 3rd year Adit Bharadwaj, Hari Pragadish S B, Hari Prasad T, Kabiraj N K, Manoj C, Vallinayagam S, and Assistant Professor Mr. R. Kishore from the department of Automobile Engineering have visited the ARA Institute of Canterbury, New Zealand from 30th January 2017 till 19th February 2017. They participated in a three-week "International Certification Program on Motorsports & Engineering".

Students have gained good knowledge and exposure by joining this program. They had an opportunity to visit many industries like JetPack, Sprintec, Aeromotors etc. which gave them an idea of work culture and as well as their advanced systems. Students have also visited and worked in labs / learning centers of Engineering & Architecture. As a part of the program, students had an opportunity to learn & understand the culture of New Zealand. They also had many extra-curricular activities like Bungee Jumping, trip to Akaroa etc.



STUDENT EXCHANGE &

FACULTY EXCHANGE PROGRAM

INTERNATIONAL CERTIFICATION PROGRAM ON MOTORSPORTS ENGINEERING
in ARA Institute of Canterbury, Christchurch, New Zealand

Hari Pragadish S.B

"First of all I would like to thank KCT & my Automobile Department for giving me this wonderful opportunity. The course was on Motorsports Engineering in the ARA institute of Canterbury, New Zealand. We had a great welcome from the team when we landed in the Christchurch airport. We were then introduced to our host family and they gave us a good company throughout our stay in New Zealand. They welcomed us in ARA in their traditional Maori Culture. We were taught about testing of engines and the way to improve their performance. The teaching was completely practical and the way they taught us was different. We had track sessions for few days where we had fun time driving the karts and tuning the karts to improve the performance of the vehicle. We had wonderful weekends, we enjoyed the beauty and charm of New Zealand. The tradition in New Zealand was different and the Kiwi people were very friendly and they helped us every minute. Overall the time we spent in New Zealand was awesome and I had a great exposure towards my future career!"



Hari Prasad. T

The welcome at ARA was different. They welcomed us in Maori style. I'm happy that I had an opportunity to learn in abroad, View and work on a race car at a race track, Maori Culture, Bungee Jumping and Trip to Akaroa. Learning at ARA was fun and useful. I thank KCT for this once in a lifetime opportunity.



INTERNATIONAL EVENT

Quad bike design challenge "QBDC 2016"

Department of Automobile Engineering hosted "QUAD BIKE DESIGN CHALLENGE – QBDC 2016" from 22nd to 24th October 2016 at KCT Dirt Track organized by Fraternity of Mechanical and Automotive Engineers (FMAE), Hyderabad.



The event was inaugurated on 22nd Oct 2016, by Shri. Shankar Vanavarayar, Joint Correspondent of KCT and introduction about QBDC was given by Mr. Karan Bhardiya of General Motors, Bangalore, Convener of QBDC-2016.

The three day technical event was to nurture technical and managerial growth in each and every student providing them the biggest inter-disciplinary competitive platforms judged by experts from industry and academia.



Eight Teams with about 150 students from Bangladesh, Madhya Pradesh, Telangana, Uttar Pradesh, Maharashtra and Tamil Nadu participated with their QUAD BIKES, designed and fabricated by them. The event has concluded with Prize Distribution by Mr. Saumil Parikh of FORD Motors, Ahmedabad and KCT / FMAE officials on 24th Oct 2016.

NATIONAL EVENT

KCT Mini Dirt Bike 2017

The Department of Automobile Engineering, KCT, conducted KCT MINI DIRT BIKE 2017 on Saturday, 18th Mar 2017. The KCT Mini Dirt BIKE event is a challenge of design engineering and manufacturing competition that requires technical performance demonstration of mini bikes designed and fabricated/remodeled 60 CC and 80 CC motorcycles. Around 30 teams from engineering colleges from all over Tami Nadu participated in this full day event from consisting of technical inspection for evaluating the design, fabrication, rigidity, innovation features, cost report & marketing presentation of the bikes and qualifying them for static and dynamic events.



The event was inaugurated by Prof. C Vasantharaj, HOD – Automobile Engineering, Kumaraguru College of Technology in the presence of Dr. R.S. Kumar, Principal, Kumaraguru College of Technology.



Also, dynamic events which includes Acceleration tests, Brake tests and Endurance performance tests for the teams qualified in Technical Inspection. A total prize money of Rs. 40000 was awarded to winners of the event in 60 cc and 80 cc category with special awards for Best Rider & Best Innovation. A demo dirt race was performed by the professional racers from Red Roosters Racing Club before the commencement of the final Grid-Start Race for the top 5 bikes in each category.

AWARENESS TOWARDS AUTOMOBILE ENGINEERING

Awareness and Outreach Program for School Students

Department of Automobile Engineering of Kumaraguru College of Technology (KCT) conducted Awareness and Outreach Program on Automobile Engineering for school students on 18th January 2017. In total 78 students participated from the following schools Ksir's School, Amirta Vidyalayam School, T.K.S Matriculation School, Maharishi vidya mandhir, N.G.R.A School and Government School (Kolathupalayam).



Various Competitions like Auto Quiz, Auto sketching Competition, Go kart & Mr. Mechanic were organized for the participants. Participants were taken to different Automobile Labs for giving awareness about Automobile Engineering.



AWARENESS TOWARDS AUTOMOBILE ENGINEERING

Awareness and Outreach Program for Polytechnic Students

Department of Automobile Engineering of Kumaraguru College of Technology (KCT) conducted Awareness and Outreach Program on Automobile Engineering for polytechnic students on 19th January 2017.



Prof. C. Vasantharaj, HOD Dept of Automobile Engineering has delivered the welcome address and gave Introduction about KCT to all the participants. Mr. S. SenthilKumar, General Manager- HR Turbo Energy Pvt., Ltd Chennai was the chief guest and delivered the Inaugural address. Mr. S. Sivakumar, Associate Professor, Automobile Engineering briefed about the event.



Various Competitions like Auto Quiz, Auto sketching Competition, Go kart & Mr. Mechanic were organized for the participants.

Participants were taken to different Automobile Labs for visit & Live Demonstration of Driving simulator was given during the event.



SOCIAL AWARENESS

Refresher Program on "DEFENSIVE DRIVING" For KCT Drivers

Department of Automobile Engineering of Kumaraguru College of Technology (KCT) in association with ABT Maruti Driving School conducted Refresher Program on "Defensive Driving" for KCT Drivers on 5th August 2016 at Automotive Learning Center, E Block.

The Topics covered are

- Bad Drivers
- Causes of Accidents
- Types of Road Markings
- Maintenance Tips
- First Aid
- How to Improve Attitude
- Safety policies of Corporate
- Driving Simulator Demonstration



Awareness Program on

"DRIVE SAFE"

Awareness Program "Drive Safe" for KCT Auto students on 29th December 2016 at Swami Vivekananda Seminar Hall, Admin Block, Block. KCT.

Mr. U.M. Gokula Krishnan interacted with the students & faculty about safe driving.



ABT Maruti Driving school Team Demonstrated AGS system & Test drive for Students and Faculty members.

Guest Lecture on

"VEHICLE PASSIVE AND ACTIVE SAFETY"

Guest Lecture on "Vehicle Passive and active Safety" by Mr. Srinivasan Velusamy, Engineering Manager, General Motors, Bengaluru. On 10th March 2017 at Swami Vivekananda Seminar Hall at Admin Block KCT. He explained the recent trends in vehicle safety and the constraints to design a safety system, tests conducted to the Second and Third Year BE Automobile Engineering students.



WORKSHOPS AND CONFERENCES

Industry Academia Connect Pgm on TWR-K40D100M Freescale Tower Board

Dr. G. Thenmozhi

International conference on Advances in Materials and Manufacturing Applications

Prof. S. Satish

6 Days Training at IIT, Madras

Dr. G. Thenmozhi

GIAN course on Finite Element Method, IIT Hyderabad

Course handled by Dr. J. N. Reddy, Texas A & M University, USA which included a detailed tutorial sessions with several numerical examples on the fundamentals of Finite Element Method.

Followed by detailed programming sessions on FEM with source executable files to understanding the working of codes.

Prof. J. Saiganesh

One Day Workshop on Rubrics in Student Assessment, Sri Krishna college of Engineering and Technology

Workshop on research methods and tools in Science and Technology, NBA, NAAC & Quality initiatives, student assessment methods and Materials.

Prof. J D Andrew

TEQIP II SPONSORED ONE DAY WORKSHOP ON Electric Hybrid Systems, PSG College of Technology, Coimbatore.

The program gave an exposure towards Electric hybrid Systems.

Hands-on Experience on Simulator Panels.

Dr. G. Thenmozhi

Prof. C. Naveen Kumar

GIAN course on Micro and Nano manufacturing process, IIT Madras

Course is about New Manufacturing processes and technologies used for the micro and nano manufacturing and also leading research trends have been witnesses in this area.

Dr. S. John Alexis

Two Days Workshop on Automotive Design, DJ Academy of Design, Coimbatore

Course handled by Mr. Fabris Boris, Leading automotive stylist from Italy, course involved Automotive Sketching practices, different aspects of sketching across the globe and Automotive brand wise sketching.

Prof. J. Saiganesh

Prof. R. Kishore

CII Industry-Academia Conclave 2016, CII Pune.

Event was on how to prepare and inventory of innovative good practices in education for increasing employability and sustainable development, to create avenues for a close academia and industry interaction through all the phases of technology development.

Prof. C. Vasantharaj

National Technical Seminar on Future Technologies for Combat Vehicles, CVRDE Avadi, Chennai.

Seminar is about Introduction to work at CVRDE, the requirements for design and manufacturing of Combat vehicles, and then continued with future technologies that are going to be deployed. Advancements in battery technology, and Battery management systems, Research work on UAV and UGV tanks, Hybrid Combat Vehicles and Robotics.

Dr. S. John Alexis

Prof. S. Satish

Prof. C. Naveen Kumar

PAPER PUBLICATIONS

Biodiesel from Goat and Sheep Fats and Its Effect on Engine Performance and Exhaust Emissions.

Journal Name: International Journal of Advanced Engineering Technology

Dr. S. John Alexis

Emission Characteristics of a CI Engine with the addition of kamala orange skin additive.

Journal Name: Journal of Chemical and Pharmaceutical Research

Dr. S. John Alexis

Emission Characteristics of a CI engine with the addition of different additives.

Journal Name: International Journal of ChemTech Research

Dr. S. John Alexis

Fatigue curve parameters description of AISI 1141 Micro alloyed Steel using Gatts equation, Exponential & Hyperbolic function.

Journal Name: Carbon – Science and Technology

Dr. S. John Alexis

Mathematical Analysis of MWCNT based aluminium alloy metal matrix composite.

Journal Name: Applied Mechanics and Materials

Dr. S. John Alexis

Effect of Cascade Controller on the Drum Dynamics of CFBC Boiler.

Journal Name: World Applied Sciences Journal

Dr. G. Thenmozhi

Renewable Fuel Production Technologies.

Journal Name: Middle-East Journal of Scientific Research

Dr. S. John Alexis

Modelling, Analysis and Simulation of Clutch Engagement Judder and Stick Slip.

Journal Name: SAE 2016 International

Mr. N. Sivanesan

Experimental Investigation of Influential Parameters in High Speed Machining of AMS 4205.

Journal Name: Asian Journal of Research in Social Science and Humanities

Dr. S. John Alexis

Corrosion behaviour of Aluminium Metal Matrix reinforced with Multi-wall Carbon Nanotube.

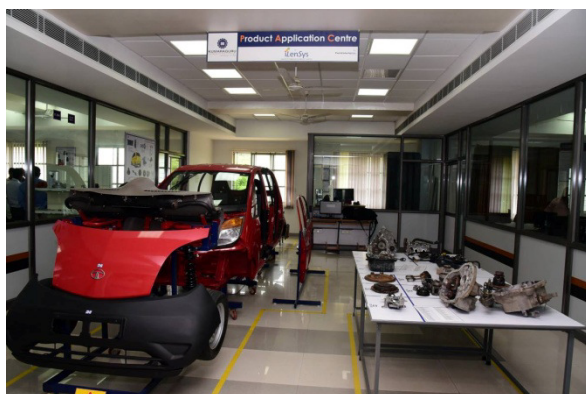
Journal Name: Journal of Asian Ceramic Societies

Dr. S. John Alexis

CENTRES LAUNCHED PRODUCT APPLICATION CENTRE

Curriculum Plus learning solution with Product Application Centre (PAC) from ILensys, Hyderabad has been installed at Room No, E-203 & 204, I Floor, E- Block at KCT for the benefit of all students of Mechanical Sciences departments such as Aeronautical Engineering, Automobile Engineering, Civil Engineering, Mechatronics Engineering and Mechanical Engineering for self learning of the fundamental subjects through interactive tool and products.

This system will also help students to prepare for project work and to face the placement interviews confidently. It will also be useful to prepare for competitive exams like GATE etc.



BOSCH CENTRE FOR AUTOMOTIVE ELECTRONICS



KCT and RBEI signed an MOU for collaboration between RBEI & KCT and the Bosch Centre for Automotive Electronics powered by Infineon. Mr. T. V. Sriram, Vice President & Centre Head, Robert Bosch, inaugurated the centre in the presence of Shri. Shankar Vanavarayar, Joint Correspondent, KCT, Mr. Girish Kamala, Head-Automotive Division, Infineon Technologies and Mr. Anil Prakash, General Manager-HR & Head of University Relations, RBEI.



The interdisciplinary centre is equipped with Diesel Engine Management System Kits from Infineon Technologies and relevant sensors and actuators from Robert Bosch. The centre will add value to the students of KCT, enhance their knowledge and concepts behind some of the latest technologies to KCT Students in which RBEI is involved.

INTELLISAFE TECHNOLOGIES

Safer, more comfortable driving

Every journey is effortless with Adaptive Cruise Control, which automatically maintains a safe distance from the vehicle in front. At speeds below 50 km/h our Pilot Assist technology works alongside this to help you stay in lane with gentle steering inputs.



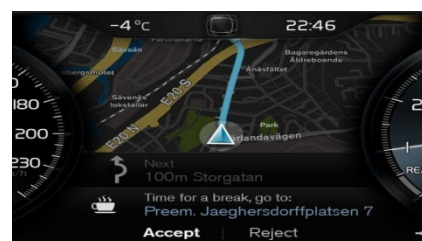
Bird's-eye view

With 360° Surround View technology, you get a bird's-eye view of your car and its surroundings so you can see obstacles all around you. It makes parking and maneuvering in tight spaces simple.



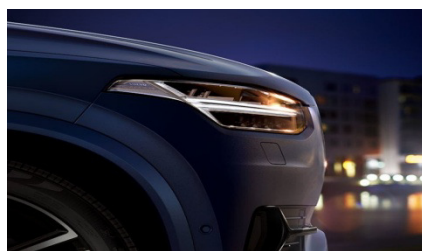
Staying alert

If you are getting drowsy or inattentive at the wheel, Driver Alert Control will alert you and prompt you to take a break. The Rest Stop Guidance function can even tell you where it's safe to stop.



Lighting the way ahead

To give you the best view, Active High Beam Control allows you to drive with high beam on all the time, without dazzling others. It detects road users ahead of you and automatically shades the part of the high beam that would dazzle them. You get optimal light and safety is improved for everyone.



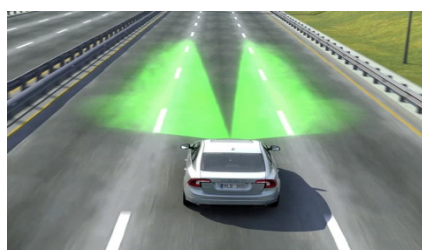
Confident lane changing

You can change lanes with the confidence that it's safe to do so with our Blind Spot Information System. It uses radar sensors to alert you to traffic around the vehicle.



Keeping you on track

To keep your car safely on course, our Lane Keeping Aid senses if you start to leave your lane unintentionally and gently steers you back on track.



INTELLISAFE TECHNOLOGIES

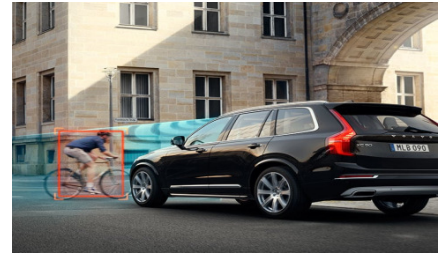
Protecting pedestrians

Our City Safety technology detects pedestrians on the road ahead, whether they are stationary or moving into your path. If you don't respond to a warning your Volvo will brake for you, which can lessen – or avoid – an impact.



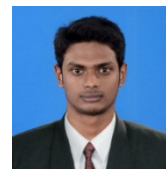
Helping you protect cyclists

If a cyclist swerves in front of your car, our cyclist detection technology issues a warning and will brake for you if a rapid response is necessary.



Helping you turn safely

Our world-first intersection braking technology makes one of the most common – and damaging – types of collision less likely to happen. If you are about to turn into the path of an oncoming car, it detects if a collision is imminent, braking for you to reduce the severity of an impact, or avoid it altogether.



*Information by
N. R. Mahalingam
3rd Year Automobile Engineering,
KCT*

Upcoming Events

- *SAE Student Convention 2017 - Tier 1 Competition - 19th - 28th September 2017*
- *BAJA SAEINDIA Mega Design Workshop 2017 - 23rd & 24th September 2017.*
- *Mr. Graeme Harris, Lecturer, Department of Mechanical Engineering, Ara Institute of Canterbury, New Zealand visits the Automobile Department, KCT - 1st - 13th October 2017.*
- *International Seminar on Advanced Fluid Research and Testing in Association with Ara Institute of Canterbury, New Zealand - 5th October 2017.*
- *International Workshop on Motorsports Engineering in Association with Ara Institute of Canterbury, New Zealand - 7th October 2017.*
- *Short Term Course on Motorsports Engineering Certified by ARA Institute of Canterbury, New Zealand - 10th & 11th October 2017.*

Prepared by

*Mr. C. Naveen Kumar, Asst. Prof.
Dept. of Automobile Engineering, KCT.*