

Mechanical Aspire

Achievements in Sports, Projects, Industry, Research and Education

External Recognition

Dr.M.S.Alphin's paper accepted for presentation in an International Conference at Bangkok, Thailand. Thanks to SSN Trust, Dr.M.S.Alphin received full Travel Grant support to participate in this Conference.



The 20th International Conference on Sound and Vibration was conducted by the International Institute of Acoustics and Vibration, USA, during 7-11, 2013 in Bangkok..

Dr.Alphin's .Research Paper titled “Hand transmitted vibration in tracked excavators with breaker” has been published in the Proceedings of the ICSV20, International Journal of Acoustics and Vibration, ISBN:978-616-551-682-2, Volume 18, No 2, June 2013 issue.



Student presentation at Singapore

Third year student Mr.Karthik Srinivas's paper on “Advanced NDE for investigating the tensile deformation of friction stir dissimilar welded 304 austenitic and 430 ferritic stainless steel” was presented in an international conference organised by the NDTSS (Non-destructive testing society of Singapore).

The authors of this paper are Karthik Srinivas IIIrd year Mechanical "A" , Mr.Srinivasan from IGCAR and Dr.A.K Lakshminarayanan.

Review Requests..



Dr.K.Rajkumar, Reviewed a research article in Advanced Tribology - Hindawi Publication



Mr. A. S. Ramana, Reviewed a research article in Energy Sources Part B Taylor & Francis Publication, 24 June 2013.

Research Utility Information

Info to Alumni



Dear Professor Annamalai,
A year ago your article
'A Performance Simulator for grinding coolant evaluation' was published in *Industrial Lubrication and Tribology*.
Since then this article has been downloaded 78 times.
Editor, Emerald Publications.

Campus Update

1.SSN research of Chem engg dept cited in Nature Journal.

<http://www.nature.com/nindia/2012/120222/full/nindia.2012.25.html#B1>



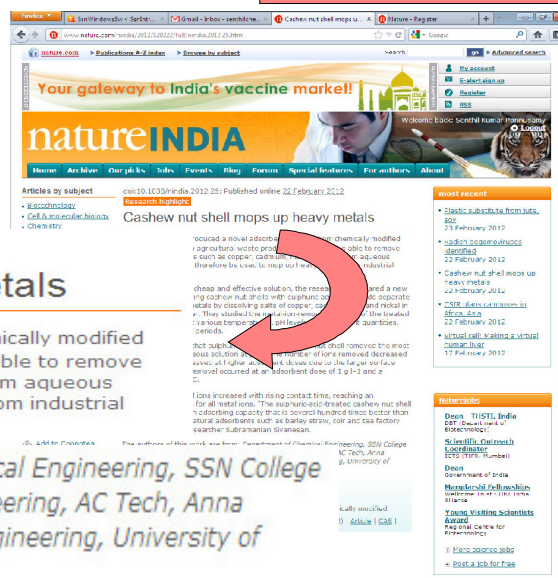
Kudos to
Dr.P.Senthilkumar
whose work has been cited

Research highlight

Cashew nut shell mops up heavy metals

Researchers have produced a novel adsorbent material from chemically modified cashew nut shell, an agricultural waste product¹. The material is able to remove harmful heavy metals such as copper, cadmium, nickel and zinc from aqueous solutions, and could therefore be used to mop up heavy metals from industrial wastewater.

The authors of this work are from: *Department of Chemical Engineering, SSN College of Engineering, Chennai, & Department of Chemical Engineering, AC Tech, Anna University-Chennai, India and Department of Chemical Engineering, University of Louisiana at Lafayette, USA.*



2.SSN Rates itself through a Peer Committee Audit

A Peer Committee of top notch Professionals visited us during July 16-17 and made an assessment of our credentials, in line with SSN Management's decision to have a self assessment.

Purpose of visit

The purpose of the visit is to find out what needs to be done further to improve the status of the Institution and to achieve a state of excellence.

This would be done under the following sections

- Academic aspects and directions
- How to develop a Research Culture
- Outreach Activity (collaborations / Consultancy)
- Governance (Delegation / Decentralisation)

The department wise suggestions made by this Committee would be the guiding principle for our Future Actions

Faculty Update

AICTE Funding



Dr. K. S. Jayakumar received Financial Grant of Rs. 5Lakhs from AICTE for conducting a two-week faculty development programme on "Mechatronics".
Program is planned during Dec 2- 15, 2013.



Research Paper

Dr.N.LakshmiNarasimhan's paper on "Studies on the performance of a small reciprocating compressor with different nitrogen-hydrocarbon mixtures" has been accepted for publication in the International Journal of Refrigeration.



Dr.K.Rajkumar's research paper on "Effect of nanographite volume fraction on mechanical properties of Al-Nanographite composite" has been accepted for presentation in The Conference on Robust innovation in Engg & Tech.

Student Activity Update

The research paper authored by Sarah Ann Ramji, Tarun M, Bharath R, A Siddarth Arumugam, Prakash Ramasamy, Ebenezer D, titled "A Parametric Study on the Improvement of Pressure Recovery Coefficient of a Conical Diffuser Using Computational Fluid Dynamics" that was presented at the International Conference on Energy Efficient Technologies for Sustainability (ICEETS'13), during 10th to 12th of April 2013, [has been published online](#)- available online at [IEEE Explore Digital Library](#). 01 July 2013, pp 234-240

Internship 1 at VSSC



V.Girish, VII Sem

EXPERIENCE AT VIKRAM SARABHAI SPACE CENTRE (ISRO)

Until I reached Vikram Sarabhai Space Centre (VSSC), ISRO, neither was I aware of the ongoing in such a reputed organization, nor was research exciting. Rather, it was to me, just another project destination. But there was more to it, something indigenous, something wonderful. The fact that we, research fellows, were being treated with no little respect than the scientists themselves, made us feel more responsible. Being at a place where research is nurtured, expectations were at the apex, as we had lots to know about in a short period of time. I soon realized that there was a lot more to do than just my project work, which we were thankfully encouraged to do.

A visit to the Solid Motors Group, gave me an overview of rocket propellants, the motors used, the design, fabrication of their casing systems and the assembly of the various stages of a rocket. VSSC, being the only ISRO centre to house the Sounding Rocket Launching facility, was highly resourceful to me, in terms of its library facilities with an astounding number of books on Mechanical Engineering. I was also fortunate to witness the launch of one such sounding rocket, the Rohini-200 and the testing of MENCA, a vacuum chamber payload to be sent to MARS in November-2013. The Space Museum threw light on all the hardwork that has been done, in making India a master in Space Research.

I was extremely fortunate to be under the guidance of Dr. Siddarth Shankar Das, Scientist, Space Physics Laboratory, VSSC who was kind enough to teach me every basic detail about 'Atmospheric sciences and dynamics' so that I was able to complete my project work titled 'Study of short-period gravity waves using meteor radar techniques' on time. The work involved the study of the dynamics of wind in the mesosphere using a SKYMET Radar.

The work that is being put into the making and the launch of every rocket, leaves us agape, for everything is being done to bring our nation to the top in space research. More than what research was all about, it was knowing what benefits such research leads to, that served as an eye-opener to me, thereby making me realize that a career at ISRO is a must in everyone's wish-list. I would like to thank everyone who made this dream of gaining exposure to research at ISRO, a reality. If given a choice, I would relive and cherish this period of work forever.

Internship 2 at Mando India

INPLANT TRAINING – A PRACTICAL LEARNING EXPERIENCE

We (K. Adithyan, V. Kaushik, V. Adithya and D. Dhanoj Kumar), the students of 3rd year mechanical – 'A' had an opportunity to visit MANDO INDIA LIMITED and MANDO STEERING LTD, SIPCOT Irungattukottai for a one week INPLANT TRAINING. The plant focuses on the assembly of Brakes, Suspensions and Power steering systems for automobiles, Hyundai and Mahindra being the primary customers. We spent our first four days at MANDO INDIA LTD learning about the various braking and suspension components that were assembled there. The machinery and equipment employed for assembly were either fully or partially automated. Robotics plays a very important role in the assembly of very minute and delicate components. Hydraulic and Pneumatic controls were prevalent in most of the machines. With Manufacturing technology being a major subject in our 3rd and 4th semester, we learnt a lot about CNC's, Numerical Controls, Automated arc welding, Spot welding, CO2 welding etc and the various machining operations. The Braking Unit had the assembly of three major components – The Caliper Carrier assembly unit (A caliper is usually assembled in the front wheel's disc and is provided with brake pads to achieve braking), The Drum Brake Assembly Unit (Drum Brakes or expanding shoe brakes are used in the rear wheels.) and the Master Booster and Master Cylinder assembly unit (Master Boosters are employed to amplify the load applied on the brake pedal).

The suspension assembly unit was comparatively small as the construction of a suspension/Strut is easier. There were two lines, One for the assembly of Strut (which is rigid in construction and is used in the front part of the automobile where the load is higher) and one for the assembly of Shock absorber (which is placed at the rear end). The MANDO STEERING LTD is a new plant established to assemble Power steering systems for Hyundai Verna, i10 and i20. The entire assembly of the power steering unit was automated. All the machines, computer systems, robotic arms were imported from Korea which have a production capacity of 2000 power steering units per day.

In addition to the assembly process, we also learnt the various procedures that were to be carried out before starting the shift. The communication boards in each and every line provided information regarding the target, customer complaints, quality assurance etc. We also learnt about the various models that were adopted in the factory. The 5S and 3C models were new and interesting to learn. Overall, It was a very refreshing and informative experience which would support our academics.

Competing Spirit at SAE-Baja

The **BAJA SAE** is a very **prestigious** event for the undergraduate engineering students, organized by the society of automotive engineers USA. The event originated in the name of mini BAJA in the year 1976.

Winners who make it to the Finals end up receiving on the spot appointment orders from Coveted Automakers.



V. Vigneshram, J. Karthic raja, J. Kalaiselvan and B. Praveenramanujam

At the national level **BAJA SAE INDIA** organizes an automotive competition which provides an opportunity to the SAE members of colleges across the country to build an **All-Terrain Vehicle (ATV)** individually by a team of members from each participating SAE collegiate clubs. The vehicle has to *driven live* and is expected to stand the test conditions of BAJA during the Mega BAJA Final Event. The selection of the teams competing for the Finals is made through two stages. In the first stage student members from interested collegiate clubs are called for a Virtual BAJA presentation. The theoretical design and analysis of the proposed ATV using modern Simulation tools like the Carsim, ANSYS, CATIA, etc., are assessed by an expert committee during the Virtual BAJA. Selection is made amidst a stiff competition and meticulous assessment on the knowledge and capability of the students to build as well run an ATV.

A team of 25 student members comprising of Final and Third Year Mechanical Engineering at our SSN Campus have made an attempt to show case their skills and talents for the BAJA 2013. We participated in the Virtual BAJA (Preliminary round) held at Bengaluru on the 26th July, 2013. We had to design and perform analysis on the various parts of the vehicle (ATV) and present the results in front of an elite panel of judges from various leading global automotive companies. Of the 367 participating institutions a deserving 120 teams would be selected for the finals.

In order to do this we split ourselves into 5 major groups namely Roll cage, Suspension, Steering, Powertrain and brakes. The teams are required to adhere to a given set of parameters and norms prescribed in the official **BAJA-2014 rule book** available on the website. The students' creativity and innovation is also recognized as long as it is within the set basic rules.

The design and analysis of the various components required the use of a variety of software such as ANSYS, Hyperworks, Solidworks, ADAMS, CATIA, Abaqus etc. Members of our team had already worked on a few of these and knowledge of these was shared amongst the rest. The organizers conducted workshops on the above software over a period of 3-4 months which helped us to gain an in-depth knowledge about various critical design criteria and techniques to perform analysis.

The results would be announced soon and on selection we would need to start the fabrication of our ATV according to the project plan we had proposed during the Virtual BAJA. The expected cost of our ATV is about 3-4 Lakhs INR.

Once selected for the finals of BAJA 2013, we would go head to head with the other teams from around the country in a race that could be termed the 'survival of the fittest'. The winner and finalists would be awarded prizes under various categories such as innovation, design, durability, comfort, etc. The competition is thus a perfect platform for all the budding automotive enthusiasts to showcase their hidden engineering skills and talents.

Hands on Training-BLP



Prof.N.Nallusamy arranged for a Hands on training for Third year students on dismantling and assembling engines. The training was done by Goodwin Motors on 30th July, 2013.

This is part of our Basics Learning Program (BLP) intended to create interest in mech subjects.



Innovation Update



In a development that will definitely benefit BAL (Bajaj Auto Ltd), Govt. of India recently gave its nod to quadricycles. With this, the Bajaj RE60 inches closer to its launch and the quadricycle has been spotted testing on several occasions in recent past.

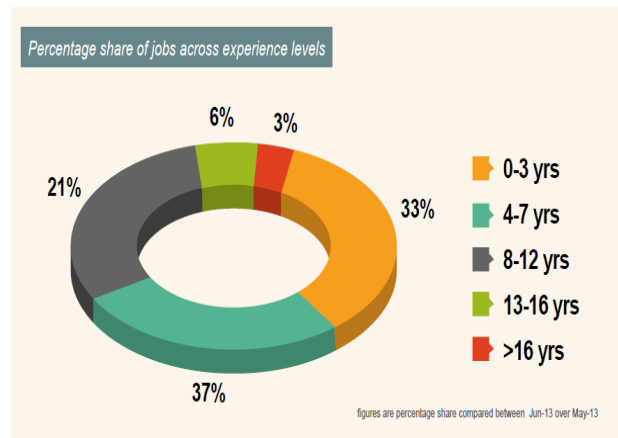
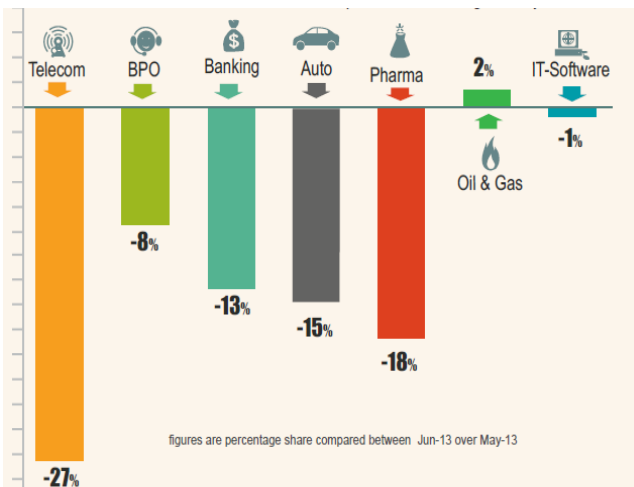
The RE60 'four wheeler' has been in news ever since Bajaj Auto Ltd, the popular Indian two wheeler manufacturer, announced its plan to launch a four wheeled motorized vehicle in India. Initially, we all thought that the RE60 could rival the Tata Nano, the cheapest car in the world. However, soon after unveiling the RE60, Bajaj made it clear that it has no intentions of challenging the Tata small car and that the RE60 would instead battle it out with auto rickshaws.

So basically, the RE60 will play the role of three wheelers but with . four wheels!

Powering the RE60 is a single cylinder petrol engine that has a claimed mileage of 35 kmpl. The RE60 has low CO2 emissions of just 60g per kilometre. The engine has a max power output of 20bhp.

<http://www.motoroids.com/news/bajaj-re60-quadricycle-spotted-again-spy-p>

Job Market Update



Job market is quite dull. More details at

http://w10.naukri.com/mailers/recruiter/JobSpeak_pdf/jobspeak_june2013.pdf?othersrcp=16303&wExp=N

Understanding University Rankings

Every time, when a university rank list is released globally, we find that most Indian Universities are not in that preferred list. In order to understand why this is so, it is essential to understand how the ratings are done globally. Unless we measure ourselves using the same measure that the University ranking agencies use, there may be no synergy between what we think as achievement and what others think as achievement. Hence an attempt to throw light on the ranking systems.....

The *Times Higher Education World University Rankings* 2012-2013 are the only global university performance tables to judge research-led universities across all their core missions - teaching, research, knowledge transfer and international outlook.

They employ 13 carefully calibrated performance indicators to provide the most comprehensive and balanced comparisons, which are trusted by students, academics, university leaders, industry and governments.

The methodology for the 2012-2013 World University Rankings is identical to that used for the 2011-2012 tables, offering a year-on-year comparison based on true performance rather than methodological change.

The 13 performance indicators are grouped into five areas:

- Teaching: the learning environment (worth 30 per cent of the overall ranking score)
- Research: volume, income and reputation (worth 30 per cent)
- Citations: research influence (worth 30 per cent)
- Industry income: innovation (worth 2.5 per cent)
- International outlook: staff, students and research (worth 7.5 per cent).

Exclusions

Universities are excluded from the *Times Higher Education* World University Rankings if they do not teach undergraduates; if they teach only a single narrow subject; or if their research output amounted to fewer than 1,000 articles between 2006 and 2010 (200 a year).

In some exceptional cases, institutions that are below the 200-paper threshold are included if they have a particular focus on disciplines with generally low publication volumes, such as engineering or the arts and humanities. More information at.....

<http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/region/asia/methodology>

Forthcoming Events

Barry-Wehmiller International Resources (BWIR) is pleased to announce the fifth edition of its design contest DesignACE 2013 for students of engineering across South India. This is an annual event .

This event is aimed at nurturing and bringing out the design thinking in students and enables them to exhibit their talent to the industry. There are very attractive cash prizes, internship and work opportunities with BWIR for the winners.

For Poster, rules and the guidelines for the event, please visit www.bwir-designace.com

Challenge 1

Challenge 2

Valeo, the world's leading automotive supplier, is announcing an **Intercollegiate Engineering Design Challenge called 'Smart Car Challenge'** for engineering students across Tamil Nadu and near-by cities under the banner 'Valeo University challenge 2013 (VUC 2013)'. We plan to hand deliver the concerning posters to you or have it couriered so that it can be displayed on your college notice boards in time.

Students can follow the link on the posters (goo.gl/aj7t2) to register themselves.

Topic: Smart car (design) challenge

Who can participate: Undergraduate students in their 3rd or 4th year (Mechanical, Mechatronics and Automobile streams preferred). M.Tech/ M.E students are also welcome to participate (separately judged).

How many can participate: Team of 2 students Cross-semester and cross-streams are welcome too.

Design Abstract Specifications: The registered students will receive from us specifications and guidelines to create a design abstract, based on results of which they will progress to further rounds.

Awards: Cash Prizes for the first three teams. Participation certificate for all presenters. *Innovation Champion Award* for the winning college.

Last date to register

August 12th

Last date to submit design

August 19th

Alumni Visit to Campus

Rohit Subramanian, alumni of 2012 batch, is employed as Graduate Research Associate at The Ohio State University and is currently doing his M.S. in Industrial Engineering . He visited us on 22nd July and shared his experiences with present students on the following topics:

- 1) MS in USA - Experiences
- 2) Research Projects on - Multiscale Modeling and Materials Based Design
- 3) Profile building for an admit at a Top American University – What Graduate Admissions Committees are looking for



Watch out -Crank- X on Sept 6th