

Mechanical Aspire

Achievements in Sports, Projects, Industry, Research and Education

All About Nobel Prize- Part 39

Nobel Prize Exhibition in India



On 9-13 January 2017, a programme of events, Nobel Prize Series, took place in India.

The intention was to stimulate creative thinking, bringing together Nobel Laureates, other experts and lifelong learners.

The events were held in several places in India, including Ahmedabad, Gandhinagar, Delhi and Bangalore.

Prime Minister Mr. Narendra Modi Inaugurated the exhibition in connection with the "Vibrant Gujarat" series.

This unique programme combined an exhibition, conference, lectures, roundtables and other meeting spaces. By sharing achievements and stories of Nobel Laureates with a global audience, this official Nobel programme aimed to inspire engagement in science, literature and peace in line with Alfred Nobel's vision.

The Nobel Prize Series India 2017 was produced in a unique partnership with the Department of Science and Technology (DST/DBT) under the personal patronage of Mr. Narendra Modi, Prime Minister of India.

Parts of Nobel Prize Series India 2017 took place in connection to the Vibrant Gujarat Summit, adding a special focus on innovation and education. The Vibrant Gujarat Summit, referred to by many as the "Davos of the East", is a biennial event held for the 8th time in 2017.

Inauguration of the exhibition "The Nobel Prize: Ideas Changing the World"



The travelling exhibition, *The Nobel Prize: Ideas Changing the World* was inaugurated in the presence of Narendra Modi, Prime Minister of India. The exhibition tells the story about Alfred Nobel, the Nobel Prize, Nobel Laureates and how Nobel Prize-awarded achievements have shaped and continue to change our world.

Dialogue with focus on Innovation and Education

The dialogue brought together a unique constellation of Nobel Laureates, world-leading experts and key opinion leaders who met participants for a day of discussions on a topic of global concern from various angles such as scientific, societal, economic and ethical. The doors were open to anyone, scientist or not, to engage in a dialogue for connection and knowledge sharing.

Executive round table

An Executive round table meeting was arranged featuring a dialogue between a number of business profiles and elite researchers as well as Nobel Laureates on a decided theme. The dialogue was a closed session without audience, enabling an open and animated discussion where all participants took active part.

Q&A moderated sessions

Q&A moderated sessions with Nobel Laureates took place in two cities as part of Nobel Prize Series India 2017. In Delhi the session was at Nehru Memorial Museum and Library on the theme: "Strengthening ties between science, government and industry – a recipe for innovation?". In Bengaluru the session was at ITC Gardenia Bengaluru on the theme: "Strengthening ties between science, government and industry – a recipe for innovation?".

Student lectures and round tables at universities

Student initiatives took place where Nobel Laureates met and inspired tomorrow's pioneers through inter generational dialogue. Local universities in Gandhinagar (Gujarat), Bangalore and Delhi were visited by a Nobel Laureate who held an inspirational lecture to a large audience, conducted a face-to-face discussion with a limited group of students and engaged in a meeting with faculty.

About the Exhibition

'The Nobel Prize: Ideas Changing the World' contains several original artefacts, both from Alfred Nobel himself and from a number of Nobel Laureates. The history of the 20th century can be viewed through the history of the Nobel Prize, how discoveries, conflicts and other important events have influenced the way we live and how a number of brave and imaginative Nobel Laureates changed the course of history at a number of decisive moments.



Dr Olov Amelin, Director of the Nobel Museum said,

"The exhibition displays the life and career of Mr Alfred Nobel and his most important innovation; the Nobel Prize supporting the idea that the most talented and innovative people can be role models and sources of inspiration for others, through the Nobel Prize.

Humanity today continues to face extremely difficult challenges, be it with regard to global warming, energy, food, health care or conflict resolution.

The future Nobel Laureates can be the persons who manage to solve these problems, because there are always solutions - this is what the Nobel history tells us, and that is the message we want to convey to the young generation through our exhibition."

Nobel Prize Series India 2017 is produced by Nobel Media in partnership with the Department of Biotechnology, Ministry of Science and Technology, and the Government of Gujarat, with the kind support from Nobel International Partners 3M, Ericsson, Scania and Volvo Cars.

Catch a glimpse of the events through the 45minutes video at https://youtu.be/1Nccazg4T_c

First Year mech student Arun Sathianarayanan was featured in a TV program “Theervugal”

Tamil Nadu's artistic roller skating champion | Theervugal | News7 Tamil



Arun Sathianarayanan, is now in the spotlight after winning the bronze at the 17th Asian Roller Skating Championship in Lishui City (China) during Sept 2016. In the recent competition held at Italy, Arun has stood 14th globally. Listen to how Mr. Lena Tamilvanan views SSN for nurturing talents like Arun Sathianarayanan, at <https://youtu.be/7s0KeG8w7qY>.

Invite for a TV program

Dr.M.S.Alphin was invited to participate in the “Neeya Naana” debate program on Engineering Education, telecast on 26-2-2017 in Vijay TV. It was a debate with students on one side and faculty on the other side, discussing various aspects of Engineering Education Today.



Invited Lecture

Dr. N. Nallusamy, Professor, delivered lecture on "Solar Energy: Availability and Limitations in India" in ISTE sponsored one day workshop organised by Panimalar Institute of Technology, Chennai.[1-2-2017]



Invited for review

Dr. A. K. Lakshminarayanan, Participated as a lead expert to review the progress of research scholars of Centre for Materials Joining and Research (CEMAJOR), Annamalai University [18 & 19-2-2017]



Dr. A. K. Lakshminarayanan, reviewed 5 research articles for Materials and Manufacturing Processes, Taylor and Francis.

Dr.M.Nalla Mohamed, Associate professor, reviewed the article titled "Kena fiber-reinforced polyester composites: flexural characterization and statistical analysis" for International journal of industrial textiles



DC Meeting attended

Dr. R. Prakash, Assoc. Prof/ Mech., attended First DC meeting of Dr. K.P. Gopinath's (Chemical Engg., SSN CE) student.[1-2-2017]

Research Publications

A.K. Lakshminarayanan & V.E. Annamalai's paper titled, "Fabrication and performance evaluation of dissimilar magnesium–aluminium alloy multi-seam friction stir clad joints" was published in the Transactions of Nonferrous Metals Society of China, Volume 27, Issue 1, January 2017, Pages 25–35 (**Thompson Reuters Impact Factor 1.34**)

Dr.G.Selvakumar, Associate Professor published a paper titled 'Multi-Objective Optimization of Nd:YAG Laser Cutting of Thin Ferritic Stainless Steel Sheet Using Grey Relational Analysis with Principal Component Analysis' in International Journal of Printing, Packaging & Allied Sciences, Vol. 4 (No. 5), Pp. 4037 – 4048. Authors: K. Velayutham, G. Selvakumar, K. Venkadeswaran and N. Lenin

Dr.K.S.Vijay Sekar's and Dr.S. Suresh Kumar's paper titled" Finite Element Analysis of Tool Particle Interaction, Particle Volume Fraction, Size, Shape and Distribution in Machining of A356/SiCp" was accepted for publication in Materials Today(Elsevier). The Coauthors are Y J Nithiya Sandhiya, Thamizharasan M M and Ajay Subramanyam B V of M.E. Manufacturing Engineering.

Mr.Vimal Sam Singh's paper titled "A Case Study On Implementation Of Walking Worker Assembly Line To Improve Productivity and Utilisation Of Resources In A Heavy Duty Manufacturing Industry", alongwith students Deepak AD and Srivatsan, has been accepted for publication in the FME Transactions.

Book Chapter

Dr.V.E.Annamalai's paper titled "Value Co-Creation in Education: a case study on engineering education" has been published as a book chapter. Published Jan 2017, by IGI Global, Business Science Reference, USA. pp.305-324. DOI: 10.4018/978-1-5225-2084-9.ch015

Industry Interaction

SAEINDIA SSN CE Collegiate Club organised a Factory visit on 31.01.2017 at TI Automotive (Bundy India Ltd), Sriperumbudur for the following three students Arumai Seelan II Year- Mech A, Alvin Vinod II Year -Mech A and Arun Kumar R II Year -Mech A [6-2-2107]

Dr. N. Nallusamy, Professor and **Mr. B. Jayakishan**, AP, visited the CLRI, Chennai on 10th Feb 2017 and discussed with Dr. K. C. Velappan, Sr. Scientist and Dr. Vedaraman, Sr. Technical officer for establishing relationship with CLRI for collaborative research in the areas of Solid waste management & alternate fuels [10-2-2107]. This was in continuation of Mr. B. Jayakishan's participation in the biodiesel workshop at CLRI, Chennai, during 24-25 Jan 2017.

Guest Lecture

Dr.M.NallaMohamed, and Dr.D.Anandapadmanabhan jointly organised a guest lecture on 08.02.2017 to the third year mechanical engineering students. Dr.Raghunathan, Professor, Chemical Engineering Department, I.I.T, Madras was the speaker. [8-2-2017]

Workshops conducted

1.Dr. B. Anand Ronald, Assoc. Prof/ Mech, Dr. R. Seyezhai, Assoc. Prof./EEE & Mr. Amit Tyagi , Asst. Director - Marketing, co-ordinated the Entrepreneurship Awareness Camp (EAC) conducted by SSN Incubation Center, sponsored by Entrepreneurship Development Institute, Ahmedabad under DST-NIMAT Project [20 to 22-2-2107]

2.Dr G Selvakumar, Dr M Selvaraj, Dr Nalla Mohamed, Dr M S Alphin, Associate Professor Organised a WORKSHOP ON AUTOMOTIVE SKETCHING & 3D PRINTING on 23 Feb 2016

3.Mr.Vimal Sam Singh conducted a workshop on Six Sigma on Feb 23.

4.Mr.C.Arun Prakash and **Dr.G.Satheeshkumar** conducted a workshop on Automation on Feb 24

5.Dr.K.Babu / Mr.Vimal Sam Singh conducted a workshop on Genetic Algorithm and Fuzzy Logic on Feb 24.

6.Dr. N. Nallusamy, Professor and **Dr. R. Prakash**, Associate Professor organized a one day workshop on "Automotive Technical cum Practical Training on four wheeler engines" for II and III year Mechanical Engineering students. [25-2-2017]

7.Mr.Vimal Sam Singh conducted a workshop on Solidworks on Feb 28.

(Details in Faculty write up / Student write up Sections)

Student Support

Dr.K.S.Vijay Sekar, Associate Professor, conducted Mock Interviews for II and III Year Rural scholarship students of SSN as part of the Personality development programme. [11-2-2107]

Dr.K.S.Vijay Sekar, Asso.Professor, delivered an Invited talk in the Personality development Workshop organised by SSN, for the benefit of the Rural Scholarship Students of the II and III years.[28-1-2017]



Dr M S Alphin, Associate Professor, Convened QLP to brief the research plan of each faculty to decide the project and guide for their project work, Venue: Seminar hall, Participants: II sem ME Manuf. Engg students. [16-2-2017] (details in Faculty write up)

STUDENT ACTIVITIES:

Vassante Kumar S of Third year was a part of the organising committee of the Entrepreneurship development cell event "Mela" [31-1-2017].

Jose Rohan of Third year Won 2nd place and cash reward of Rs.25,000 at Honeywell's eureka challenge for their motorcycle safety equipment project, during 9 and 10 Feb at CII-Madurai.

R.Senthil kumar of Third year was a part of organising committee of the maths department technical symposium ExLog [25-2-2017]

Velchandru of Final year attended one day workshop on "Advances in robotics and automation" at ViT University, chennai campus. The workshop provided a hands on session in matlab, robotstudio and the demonstration of Abb articulated robot for pick and place operations [24-2-2017]

DR G SELVAKUMAR, DR M SELVARAJ, DR M NALLA MOHAMMED AND DR M S ALPHIN



The program was conducted in collaboration with Institute of Industrial Design, Chennai, on 23 Feb 2017.

Totally 42 students trained in this one day workshop.

The first session focused on Product Design and development.

The second session was about Hands on training on sketching for product design.

Students individually created perspective drawings of the automotive components in free hand.

The final session was a demonstration with a 3D printing machine. A prototype produced by using a developed CAD

Dr. K. Babu and Mr. Vimal Sam Singh organized a one day workshop on Genetic Algorithm and Fuzzy Logic on 24-Feb-2017. The workshop was inaugurated in the Mechanical Engineering seminar hall and Dr. V.E. Annamalai, the HoD of Mechanical Engineering welcomed the participants and highlighted the importance of these optimization tools.

Genetic Algorithm (GA) is an optimization method that mimics the principle of natural genetics and natural selection to establish search and optimization procedures. Fuzzy Logic (FL) is a method of reasoning that resembles human reasoning. Both these techniques are the application of Artificial Intelligence and heuristics based. Both are powerful research tools that find their applications in all the Engineering and Management fields.



The workshop was well received by faculty, research scholars and PG students with the registration crossing 20.

The workshop had three sessions, the first session was on Genetic Algorithm, presented by Dr. K. Babu and the second session was on Fuzzy Logic, presented by Mr. Vimal Sam Singh.

The third session was on hands-on session by Dr. K. Babu, in which a problem was solved by using Genetic Algorithm.



Faculty write up 3

Automotive Training



Automotive Training is part of BLP (Basics Learning Program), conducted by Dr.R.Prakash and Dr.N.Nallusamy, to familiarise students with the engine. Students learn to dismantle and assemble motorcycle and car engine. This is the starting point for those who later build race cars during their final year.



WORKSHOP ON "AUTOMATION USING PLC"

24th February, 2017



C.Arun Prakash and
Dr.Satheeshkumar Gopal lead the
students towards Automation.



Automation and Control are the integral parts essential for the seamless operation of any real-time system in both industrial and home automation. As like the embedded and robotics industries Automation in industries, require a vast pool of educated and skilled manpower to sustain its impressive growth rate.

The theme with which the workshop was structured:

"Automation starts at home"

In a quest to educate young minds with a wholesome learning on automation, we stepped forward to train them with hands-on knowledge on the technologies related to PLC. By attending this workshop exposure to the current trends in Industrial Automation, highlighting the issues encountered while integrating intelligent machines into the industries, was ensured.

Needless to say the entire programme was one interactive session and was thoroughly enjoyed by the organizers more than the students. 31 students attended this workshop spreadover from 1st, 2nd and 3rd years, bringing in challenging requirements for the organizers to deliver. The facilities of the Mechatronics laboratory was effectively put to use for better understanding of the concepts learnt. Finally a competition was conducted to test the implementation skills acquired through the workshop and the results of which is provided below:

Vijay, S of third year won the First Prize.

Venkatesh of Third year, Alvin Vinod of Second year and Rahul B of First year got the Second Prize.

Santhosh Kumar D, of Third year , Arvind R / Deva Prashanth S of Secodn year won the Third prize.

Congratulations to all the winners!!

Usage of sensors, actuators and controllers has become so common these days that one cannot create a product/innovation without the role of (non-human) intelligence. The man-machine interface has reached a point where a product or process is not considered 'good' if it is not interactive. It is our sincere hope that this workshop is another good step in the right direction for our students.



18th Indian Metal-Cutting Machine Tool Exhibition with International participation



19th International Exhibition of Cutting Tools, Tooling Systems, Machine Tool Accessories, Metrology & CAD / CAM

The Indian Machine Tool Manufacturers' Association (IMTMA) inaugurated IMTEX METAL CUTTING 2017 and concurrent Tooltech 2017 at the Bangalore International Exhibition Centre on Jan 26, 2017. IMTEX METAL CUTTING 2017 is South-East Asia's topmost annual exhibition to display the latest trends in metal cutting machine tools as well as technological refinements from India & other countries.

This exhibition was conducted at Bangalore from Jan 26 – Feb 1, 2017. Going beyond the regular exhibition show, IMTEX METAL CUTTING 2017 also offered a platform to the academia in the form of i2 Pavilion. It is an Industry-Institution Pavilion, a forum for academic and research and development institutions to showcase their activities in the manufacturing and engineering space. About 40 stalls in i2 Pavilion were devoted to institutions including IIT Delhi, IIT Kanpur, IIT Indore, IIT Ropar, IIITDM Jabalpur, PSG Tech, SASTRA University and many others to showcase their research activities in the form of Posters.

Dr. M. Suresh (MSU) and Dr. S. Suresh Kumar (SSK) took part in the presentation and displayed their respective project posters in the i2 academic pavilion. The poster themes were: 1. Liquid coolant combined with vortex tube cooler for grinding applications, 2. Numerical and experimental ballistic performance determination of plates and fibre metal laminates. Both themes attracted faculty and students from many educational institutions as well as people from few industries.

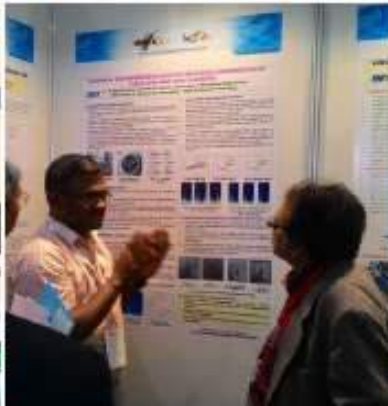
As a part of the i2 Academia Pavilion initiative, IMTMA organized "Academia Research Projects' Presentation" to give the industries a glimpse into the R&D capabilities of academic institutions. Dr. M. Suresh presented his theme, "Liquid coolant combined with vortex tube cooler for grinding applications" and was well received by the audience. Also, both themes were presented to jury members (professors/industrialists) during their visit to SSNCE stall to assess the projects. On the final day, awards were distributed to the selected projects.

The first prize of Rs. 15, 000/- was awarded to IIT Indore, **second prize of Rs. 12, 500/- was awarded to SSNCE and SASTRA University jointly** and the third prize of Rs. 10,000/- was awarded to IIITDM, Jabalpur. Consolation prize was awarded to MIT, Aurangabad. It was a proud moment for SSNCE to win the second prize. This way, SSNCE was able to highlight in the exhibition that our projects are also industry relevant and in line with the quality of IITs, IIITDMs, etc.

GLIMPSES @IMTEX METAL CUTTING 2017



Dr. M. Suresh and Dr. K. Babu



Dr. S. Suresh Kumar's presentation



Dr. S. Suresh's presentaion



India's Biggest Broach
(L 3000 mm and OD – 350 mm)



Landing Gear of Boeing – displayed by MAZAK

Faculty write up 6



Quick Launch Program-QLP



Quick Launch Program is a common meeting session happens in Mechanical Engineering Department by the initiative of HoD where the faculties share their research focus and current projects proposed to students, So that the students choose the project based on their interest. QLP for second semester ME manufacturing students was held on 16 February 2017 (AN) at seminar hall. The meeting was convened by Dr M S Alphin.

Faculty write up 7

Free period is specified as BLP in Time Table, a faculty allotted and BLP is treated like a Practical subject. As of now, Championed by Dr.M.S.Alphin and Dr.S.Somasundaram.

BLP- BASIC LEARNING PROGRAM

Basic Learning Program is being conducted for Mechanical Engineering Second semester students by the novel initiative of the Head of the Department. At present the sessions cover following themes:

- Basics in Mechanical Engineering
- What are ways the student can contribute to the Mechanical Engineering Research
- Introduction to Research Methodology
- Visit to laboratories and explaining the basic concepts
- Demonstrating experiments to gain motivation
- Teaching Research Tools
 - MATLAB
 - CATIA VS
 - Design of Experiments
 - CIM
 - Robotics
 - CFD



Demonstration on Rapid prototyping

Students involved in testing the Natural Frequency in free vibration



Experimental Modal Analysis



Dr.M.S.Alphin

MATLAB learning



Dr.S.Somasundaram

Faculty write up 8

Guest Lecture by IIT Professor

Dr.M.NallaMohamed, and Dr.D.Anandapadmanabhan jointly organised a guest lecture on 08.02.2017 to the third year mechanical engineering students. Dr.Raghunathan, Professor, Chemical Engineering Department, I.I.T, Madras was the speaker.

The topic of the lecture was –Microfluidics, which means understanding flow in very minute quantities. He explained about interdisciplinary research being conducted in his lab. A simple experiment in which a small drop goes around a tube with an inlet and outlet was explained and the results compared with real life scenarios. Practical applications of microfluidics would be mainly in sending required quantities of medicines or chemicals in a precise and controlled way to required locations.



The lecture was well received by the students as evidenced by the questions asked. Dr.Raghu has also promised help in internships and final year projects. He has also invited the students to visit his lab at I.I.T, Madras. Some of the students have taken his e-mail id for further correspondence with him.



Faculty write up 9

NTU Alumni Meet

Dr. K. S. Jayakumar has attended NTU-Alumni Networking event at SRM Hotel, Chennai on 12 February 2017. Nanyang Technological University (NTU) President Prof Bertil Andersson has inaugurated NTU Alumni Southern India Chapter and 15 members participated. Prof Bertil Andersson is professor of biochemistry and Swedish National and he is president in NTU since 2006 and he placed NTU in the thirteenth position globally in his leadership.



He talked about NTU-India Connect programme as the way to link India and NTU. **The NTU-India Connect Research Internship Programme** is a university-wide short-term research programme lasting for 2 to 6 months. It is initiated to enable undergraduate and graduate students from Indian Universities and Institutes of higher learning to pursue research at NTU. Participants of this programme will work under the supervision of NTU faculty, develop a strong research interest and expertise in a given research field, experience multicultural living, gain a network of friends and a better understanding of Singapore. (More at <http://global.ntu.edu.sg/GMP/ic/Pages/default.aspx>)

Many of you have responded to my request to join Materials Joining Research Group. The group has been formed on the initiative and advise of our HOD with the objective of maximizing research output in the area of welding and allied processes.

The group aims at higher output by sharing resources, contacts, discussions, visits to industry and collaborations with scientists at R&D labs and industry.

Yesterday (Feb 23) was our first outing and we attended
A technical talk organized by IIW India, Chennai Branch on

Topic : “TPS/i Robotics - A Genesis for the next Generation”(Robots in Welding)

Speaker : Mr. Harald Langeder, Fronius International GmbH, Austria.

All of us had some good interactions with the speaker and it was a good time of learning.

The program closed with a nice dinner at Radha Regent.

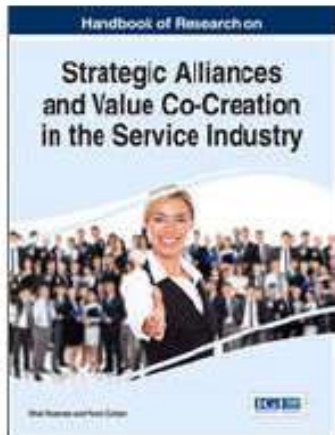
What is cooking:

- 1. A visit to Fronius India technology centre**
- 2. A visit to Materials Joining labs at IGCAR and IITM**
- 3. A two day conference by IIW Chennai branch at SSN**

Check the photograph to find who attended yesterday's talk!!!!



Value Co-Creation in Education: a case study on engineering education, is included as the fifteenth chapter in the Book “Handbook of Research on Strategic Alliances and Value Co-Creation in the Service Industry”, published by IGI Global, Business Science Reference, USA. pp.305-324. DOI: 10.4018/978-1-5225-2084-9.ch015



Handbook of Research on Strategic Alliances and Value Co-Creation in the Service Industry

Shai Rozenes (/affiliate/shai-rozenes/315673/) (Afeka Tel-Aviv Academic College of Engineering, Israel) and Yuval Cohen (/affiliate/yuval-cohen/315674/) (Afeka Tel-Aviv Academic College of Engineering, Israel)

Abstract

The case study presents the opportunity to co-create, faced by a new department (department of mechanical engineering) created in an already existing college of ten years standing. The mechanical department had the option of either following the procedures established by other departments or creating its own procedures. The systems existing in the college were based on treating the student as the customer. In reality, the objective of any student is to get employed, immediately after the prescribed period of study. Therefore, the employer must be the customer and the student must be the product of the system. With this mindset, all existing procedures were revisited. The student and faculty co-created several procedures to differentiate themselves to suit the needs of their employers. The case study elaborates on the needs and approaches taken to achieve this differentiated status

Mr.Kumarasubramaniam V, SrGM, Learning and Development, Tube Investments of India responds.

I have gone through the article. I must congratulate you for this fantastic effort and for bringing in a paradigm shift by looking at employers as customers and students as products as against the conventional thinking of seeing students as customers. How much of change in approach, this one single thought, could bring about, is fascinating. It is like opening a window to a new world of opportunities.

It is quite appreciable that you and your team has identified the correct issues, faced by students graduating from institutions, as well as the employers who want to recruit them. I also see the connect now when you sent Dr. Lakshmi Narayan as faculty intern and then students took up projects at TII.

Having said that, I also understand how demanding it will be for the faculty team to keep the students engaged in so many activities, beyond what the course curriculum the University advocates. It will take a really passionate faculty team to keep this going.

Students' Discussion with President on 23-2-2017

Club members of SAE, Aero, Robotics and Mech association shared their proud moments- of winning external awards.

President said, "I am getting to know achievements of mech in various forums. So, let us talk about what challenges you are facing".



Placement co-ordinators briefed on the challenge of IT recruitments coming down and how "mech not knowing Coding" comes as a handicap. They also felt that the new placement training is helping a lot. President mentioned that the attendance for the same is of concern and has to improve.

President suggested that we should build resume according to the company. It is always possible to drift the dialogue into areas of our strength. Instead of trying to introduce same way to all companies, we should try to describe our fit and alignment to the requirement of the particular company.

PG co-ordinators mentioned that some of them are interested in Teaching and would like to audit courses in EEE stream. They wanted Management to write to companies, instead of them writing. (Need to clarify with NLN on what this means and why they should write!) President suggested that anyone in the Management Board will be willing to write to any company, if we request them.

Robotics club member asked for extra classes in CSE. Since we are under AU, our present System cannot permit this. But they are open to take up extra CSE courses in NPTEL, through IIT.

SAE team wanted some space for car building. They were advised to discuss with Prof Chandy on opening up the rear side of Incubation Centre. They also wanted some training in practicing welding. They were asked to look at possibilities of learning within SSN or undergo certified external programs. Some wanted specific time for club activities during working hours. President replied that Club activities must come out of passion and all activities cannot be cramped into working hours. If need be we can ask for a room for day scholars to stay whenever they have to take up club activities.

President suggested that interaction with juniors must improve. IT team had told that they are planning to interact by serial numbers (number 1 of all years as a group and seniors acting as mentors to juniors).

We explained our BLP system and how it creates interaction based on activity interest.

Closing remarks by President: "So, all of you look happy with what you have. We would like to see more projects and interactions at the Innovation Centre."



Happy to share that
Renault Nissan Technology Business Centre
has offered jobs to 11 mech students.

The **Entrepreneurship Awareness Camp** was organized by SSN Incubation Centre from February 20 to 22, 2017 at the EEE Seminar Hall. This camp was sponsored by **Entrepreneurship Development Institute of India**, under **DST – NIMAT Project (2016-2017)**. The objective of this camp was to create awareness among the students about the fundamentals of starting up an enterprise, through conversion of a project idea into a marketable product.



The camp was inaugurated by Mr. Amit Tyagi, Asst. Director, Marketing, SSN. The inaugural address was delivered by Dr. B. Anand Ronald, followed by a short briefing on the schedule of events. The morning session of the first day was addressed by Mr. Amit Tyagi, who spoke about “Entrepreneurship concepts in the present scenario”. After a brief break for lunch, the afternoon session began, where the key concept of Entrepreneurship, namely “Business Idea Generation and Creativity” was handled by Dr. V.E. Annamalai. It was an enthralling session wherein various examples of creative solutions to daily problems were discussed. Taking that concept to the next stage, Dr. K. Murugesan from EEE Dept. conducted an informative session involving a case study, followed by critical analysis on marketability of a product idea.



Mr.Lakshmanan Krish



Professor Chandy

The second day started with an interactive session handled by Mr.B. Srinivasan, Director, SSN School of Management. Mr. Lakshmanan Krish, a highly successful entrepreneur in the restaurant business, shared his experiences on “Risks vs. Rewards” as the Guest Speaker. The latter part of the morning session was about “Marketing Skills” handled by Prof. B. Asokumar, followed by a brief talk on “Social Entrepreneurship” by Mr. V. Murugesan, alumni of mechanical dept, SSN. Post lunch, an exciting demonstration on Robotics featuring mini and micro-robots was given by Dr.Syed Ajmal, Director of Ajilon Technologies, a robotics based startup in Chennai. This was followed by the much awaited address by Dr. Idichandy, Chief Mentor, SSN Innovation and Incubation Centre on “Role of R&D in Entrepreneurship”, who shared his experiences while working as part of the DRDO team, developing underwater missile systems.

The third and final day started with a speech by Prof. S. Senthilvelan from SVCE, who gave a detailed idea on “Project report preparation”, which is an important stage of converting an idea into a product. The participants were then taken on a tour of the Solar Energy Research lab and Renewable Energy conversion lab, EEE dept. The afternoon session started with Dr. Ranganath Muthu, EEE dept., who gave a highly entertaining presentation on “Financial Support for startups”, followed by the session on “Importance of Accounting & Finance” by Dr. K. Sampath Kumar.

The camp ended with a valedictory session, in which the participants were provided with certificates, and the winners of the ideation competition were awarded with prizes, followed by a photo session with the participants and organizers of the camp.



Entrepreneurship Awareness Camp

Co-ordinators: Dr. B. Anand Ronald, Assoc. Prof/ Mech,
Dr. R. Seyezhai, Assoc. Prof./EEE & Mr. Amit Tyagi , Asst. Director -
Marketing

Dr.B.Anand Ronald



Student write up 2

T.S.Murali of Second year writes..

SAE SKIP workshop from 04.02.17 to 05.02.17 at **SAEINDIA Southern Section office, Guindy**

The SKIP workshop dealt with IC AND SI Engines. The speaker, Dr. Senthil Kumar, specializing in alternate fuels, gave us an excellent view of the exhaust emission mechanisms from both the types of engines. He explained the different smoke, soot, HC emissions that are formed and also the reasons behind their formation. He also showed us the importance of extracting energy from alternate fuels. Overall, we had spent two days of fun and learning. We look forward to attending more of these workshops from SAE. **Six students** attended the **SKIP workshop conducted by SAE** from **SSN College of Engineering**.



Student write up 3

Project won Second Prize in CII Exhibition at Madurai

Honeywell, in collaboration with CII ,organized the Eureka Challenge as part of Madurai Tech Expo on February 9,10 at Fortune Pandian Hotel, Madurai.

50+ teams registered for the event out of which 12 teams (2 from SSN) were shortlisted for the pre-final rounds.

During the pre-final rounds, judges from Honeywell evaluated the projects based on its novelty and feasibility. Our “MOTORCYCLE SAFETY ATTACHMENT” project was promoted to the finals which was held on Feb tenth

In the finals , panelist from industrial background evaluated the projects presented.

Our project was applauded for being the “first of it's kind”. They congratulated us on addressing such a crucial issue of safety of bike riders. **We won Second prize and were awarded a cash amount of Rs.25,000.**

Other notable comments were put forward by members of BARC, encouraging us to work towards marketing it.



Student write up 4

Industrial Visit



We students S.ARUMAI SEELAN , R. ARUN KUMAR, C. ALVIN VINOD attended the industry Visit held at TI Automotive industry, Sriperumbudhur, on 31-1-2017, through our SAE membership. At first The faculty from the industry gave a presentation about the company and its development and it was followed by a clear cut presentation about the manufacturing and testing of the petrol tank. Through the presentation we came to know about the following..

1. The process involved in production
2. Types of petrol tank
3. Raw materials for production
4. Stock values and marketing
5. Test for checking the quality of products etc..



After the presentation, the faculties divided us in to two groups and took one group to demonstrate the quality testing department and the another group to the moulding machine.

They showed us how the machine operates, the method to identify the defect in the products and how to solve it. The demonstrations were very detailed and clear.

After the demonstration, the time was given for asking the doubts to the faculty about the industry .

It was a very useful visit for us.

1) Felicitation by State Chairperson Smt Arundhati Bhattacharya

I feel proud in informing you that I was felicitated by Smt Arundhati Bhattacharya, State Bank of India Chairperson, for my musical skills at the Trident, Chennai on January 30th

**2) Times of India Article**

I am happy to inform you that I was part of the initiative Urur Olcott Kuppam Vizha, where a 70 minute long bus journey (29C) was a music relay of sorts, with musicians and commuters hopping on to the bus at different bus stops. With the Metropolitan Transport Corporation (MTC), the agency that operates public bus service in Chennai an enthusiastic partner, on offer was a buffet of musical variety – from Tamil rap to Carnatic classical to fusion to devotional music to percussion ensemble.

I performed along with Magsaysay award winner TM Krishna (Renowned musician), Rapper and activist Sofia Ashraf and Suren Vikhash for this outreach initiative on February 2nd



Report on Two days workshop on “Materials Characterization” at CEG,
Anna University on 24/2/17 and 25/2/17

The Mechanical Engineering Department in Anna University (CEG) has assembled a roster of renowned experts from CEG, IITM, IGCAR and Bruker Company to enlighten the two days workshop on **“Materials Characterization”** at Henry Maudslay hall, Central Workshop. **Vignesh.A** and **Praveen kumar.A**, Ph.D Research scholars along with **Dr.M.Nalla Mohamed**, Associate Professor have attended the workshop.

The lecture session of the first day dealt with Materials Characterization for integrated interpretation of materials response followed by other four lecture topics such as **Scanning Electron Microscopy, Tribology, Spectroscopy, and XRD**. These modern techniques are employed to characterize the materials by studying its microstructure, topology, fractography and elemental composition.

The morning session of the second day was nicely ended with two lecture sessions “An overview of Fatigue testing” and “Electron microscopy characterization for materials development and performance”. The next half of the day dealt with **hands on training** on Fatigue testing, Tensile testing, Wear testing, Microscopy and Spectroscopy. The participants were split into 5 batches and taken to various labs. The equipments were demonstrated by research scholars of CEG and trial experiments were conducted with mock samples.

The following sophisticated testing facilities are available in the central workshop, which would be very useful for our **UG, PG students and Research Scholars** working in the area of materials.

	Make: Instron 3369 Capacity : 50 kN Tests can be done: 1)Tensile 2)Compressive 3)Flexural Metals,polymers,plastics, Composites can be tested Soft copy of Stress strain values can be given on request	Testing cost per sample- Rs.250 <u>Contact Person</u> Mr.Srinivasan, Central workshop Division CEG <u>Location of M/c</u> Special Machine shop
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Universal Testing M/c

 Fatigue testing M/c	Make: Instron 8801 Capacity : 100 kN Suited for high and low cycle fatigue testing, thermomechanical fatigue testing.	Testing cost per sample- Rs.3000 <u>Contact Person</u> Mr.Srinivasan, Central workshop Division CEG <u>Location of M/c</u> Special Machine shop
 Scanning Electron Microscope	Magnification - 5X to 300,000X EDS Software – Quantitative and qualitative analysis ,X-ray spectral mapping	Testing cost per sample- Rs.500 (5 images) With EDAX- Rs.1000 (per region) <u>Contact Person</u> Dr.J.Sudha Central workshop Division CEG
 Wear Testing Machine	(Newly bought)	Testing cost per sample- Rs.1000 (approx.) <u>Contact Person</u> Mr.Srinivasan Central workshop Division CEG <u>Location of M/c</u> Near Metrology lab
 FT-IR Spectroscopy	Make : Bruker ATR attachment available for testing solid samples Samples should not be highly acidic	Testing cost per sample- Free of cost for research purpose <u>Contact Person</u> Dr. D.Sangeetha Central workshop Division CEG <u>Location of M/c</u> Basic Workshop

We, the students from M.E. Energy Engineering, had the opportunity to attend a guest lecture on the topic **“Pump selection – Energy audit”** by **Mr. Sivanesan Mani**, Senior Manager, Grundfos Pumps India Pvt. Ltd. **organised by the department of Chemical Engineering** on 21-Feb-2017. We, being Energy Engineers, would be working on energy conservation in energy consuming devices like pumps in the near future. So we were sure that this lecture was going to be useful in one way or the other, but it exceeded our expectations.

The speaker initiated the lecture with the fact that pumps consume about 10% of the world's total electricity. If every business switched to a high efficiency pump system there could be global savings of 4% of the total electricity consumption- comparable with the residential electricity consumption of 1 billion people.

In the first part of the lecture, he started with the basic terminologies involved with pumps, like flow rate, various heads of the pump, Net Positive Suction Head (N.P.S.H.), operating point, etc. and their contribution to the pump's design and efficient operation.

The second part was about the causes for energy wastage in pumps, making them less efficient. The main causes were over designing of pumps and using pumps in applications with lower/higher than their optimum head value. So the energy conservation starts right from the designing of pumps based on the requirements.

The third part dealt about the best methodologies available to conserve energy in the pumps and thereby improving their efficiency. On-Off control of pumps, using Variable Frequency Drive (VFD), matching correct pump types with their respective application(s) will make the pumps to operate in their Best Efficiency Point (BEP).

Last part of the lecture was an overview of various steps involved, while carrying out an energy audit at an industry. The steps involved were Preliminary Audit à Identifying scope/areas for maximum energy savings à Detailed Audit à Proposal of ideas and necessary action plans à Action plan implementation à Follow-up and re-evaluation.

To sum up, the speaker gave us a beautiful insight about Pumps and the energy conservation techniques involved and energy audit, which is in line with our syllabus in the course “Energy Conservation in Electrical Systems”. The lecture was interactive right from the start which made the lecture more interesting.

We thank our HOD and Department Faculties, Department of Chemical Engineering for giving us the opportunity to participate in the guest lecture and for making us realise the importance of Energy Conservation, yet again.--Students of M.E. Energy Engineering (2016-2018)

Test Facilities at ARAI

ARAI (Automotive Research Association of India) has included the following test facilities

1. ***Drive-in 4-Poster with Integrated Climatic Chamber***
2. ***Metallurgical Failure Analysis and Process Improvement Projects at Materials Lab of ARAI - Forging Industry Division***
3. ***Offline & Real - Time Simulator for Electric and Hybrid Electric Vehicles***
4. ***Seminar on Tyres - Technology and Regulations 2016***

https://www.araiindia.com/cpanel/Files/NEW_224201751513PMARAI_Update_Jul-Sep2016.pdf

CAREER PLANNING – BIG DATA / DATA ANALYTICS / DATA SCIENTIST - PART-II

- by S. Muralidharan, Technology & Business Consultant

CEO - MECH VIGYAN (Centre For Research, Innovation And Training)



Dear Readers !! Happy to connect with you all back again through this month's Aspire. Let me continue from where I have left in the last edition.

To become a Data Analyst:

Programming skills: Knowing programming languages are R and Python are extremely important for any data analyst.

Statistical skills and mathematics: Descriptive and inferential statistics and experimental designs are a must for data scientists.

Machine learning skills

Data wrangling skills: The ability to map raw data and convert it into another format that allows for a more convenient consumption of the data.

Communication and Data Visualization skills

Data Intuition: it is extremely important for professional to be able to think like a data analyst.

Data Sciences, Big-Data Specialists and Data Analysts, though coming from the same domain, earn varied salaries.

The average a data scientist earns today, according to Indeed.com is \$123,000 a year. According to Glassdoor, the average salary for a Data Scientist is \$113,436 per year.

The average salary of a Big Data specialist according to Glassdoor is \$62,066 per year.

The average salary of a data analyst according to Glassdoor is \$60,476 per year.

Now that you know the differences, which one do you think is most suited for you – Data Science? Big Data? Or Data Analytics?

The Facebook context

A popular network for the last five years with over 1.2 billion users worldwide, Facebook stores a gigantic amount of user data, making it a massive data wonderland.

The Social Media Marketing Industry Report, 2015 states that Facebook is the #1 social platform for marketers.

Every day, we feed Facebook's data beast with mounds of information. 10 billion Facebook messages, 4.5 billion hits on the 'like' button, 350 million new picture uploads, on a daily basis.

At first, this information may not mean anything to a lot of people. But with data like this, Facebook knows who our friends are, what we look like, where we are, what we are doing, our likes, our dislikes, and so much more. Some researchers even say Facebook has enough data to know us better than our therapists!

Apart from Google, Facebook is probably the only company that possesses a high level of detailed customer information. The more users use Facebook, the more information they suck out. Heavily investing in their ability to collect, store, and analyze data, Facebook does not stop there. Apart from analyzing user data, Facebook has other ways of determining user behavior.

1. Tracking cookies: Facebook tracks its users across the Web with the use of tracking cookies. If a user is logged into Facebook and simultaneously browses the Web, Facebook can track the sites they are visiting.

2. Facial recognition: The latest investment of Facebook is in facial recognition and image processing capabilities. Facebook can track its users throughout the Web and other Facebook profiles due to the image data that is stored with them due to user sharing.

3. Tag suggestion: Tag suggestions can be made on user photos due to image processing and facial recognition.

4. Analyzing the 'Likes': A recent study conducted showed that is viable to predict data accurately on a range of personal attributes that are highly sensitive just by analyzing the 'Likes' that have been clicked by a user on Facebook. "The work conducted by researchers at Cambridge University and Microsoft Research shows how the patterns of Facebook 'Likes' can very accurately predict your sexual orientation, satisfaction with life, intelligence, emotional stability, religion, alcohol use and drug use, relationship status, age, gender, race and political views among many others."

Facebook Inc. analytics chief Ken Rudin says, "Big Data is crucial to the company's very being". He goes on to say that, "Facebook relies on a massive installation of Hadoop, a highly scalable open-source framework that uses clusters of low-cost servers to solve problems. Facebook even designs its own hardware for this purpose. Hadoop is just one of many Big Data technologies employed at Facebook."

PG Diploma - Data Analytics

Accelerate your career in data analytics by mastering concepts of Data Management, Statistics, Machine Learning and Big Data from the most influential analytics leaders and academicians of India.

The 11-month online PG Diploma program, co-developed by **IIIT Bangalore** and UpGrad, covers the depth and breadth of the subject in the form of interactive lectures, live sessions and a 3-month capstone project mentored by industry professionals.

For the Industry, By the Industry :Learn from our comprehensive collection of case-studies, hand-picked by industry experts, to give you an in-depth understanding of how data analytics moves industries like telecom, transportation, e-commerce & more.

Uber Supply Demand Gap: Use analytics to identify why Uber sometimes faces a supply-demand challenge and what can be done to overcome it.

Telecom Churn Prevention :Telecom is an extremely competitive sector and the existing players face the constant challenge of customer churn. Learn how churning customers can be identified in this sector

Spark Funds Investment :Spark Funds is looking for new avenues to invest its surplus funds in the startup ecosystem. Help the fund identify the geographies and sector for its investment to maximise the return.

Retail Giant Sales Prediction : Help a Retail giant predict the future sales volume of retail goods using time series forecasting so that it can plan the production and logistics better.

Creditworthiness of Customers : Learn how predictive analytics can be used to decide the creditworthiness of customers and whether they should be issued a credit card or not.

E-commerce Market Mix Modelling : E-commerce websites often face the challenge of how much to spend on which marketing channel. Use modelling to help them figure out the optimal spends across channels to drive sales.

2. Domain Specialisation

Choose between BFSI, E-commerce/Retail, Healthcare/Life Sciences or Telecom/Media & build a resume showing expertise in one of the largest sectors in the world.

Big Data Hadoop Master Program

The Big Data Hadoop Architect Masters Program is designed based on an extensive industry research. The course is structured to help you gain knowledge and expertise in the Big data and Hadoop framework.

Big data has taken analytics to new heights with new and enhanced analytics models that enable analysts to dissect massive data sets to reveal patterns, trends and suggest actionable recommendations. These valuable insights backed by data will help organizations to make smart decisions in regulating production which could directly impact the company's financial quotient.

Become a Big Data Hadoop Architect and fast-track your career in Big Data. The Masters program helps you transform into a Hadoop Architect with training in the core skills necessary for senior roles in the industry. Learn Hadoop development, real-time processing using Spark, NoSQL database technology, and tools like MongoDB. Reinforce your learning with hands-on project work in the unique CloudLab virtual environment.

The Big Data Hadoop Masters Program

In today's highly competitive environment, multi-skilled professionals are edging out peers with knowledge of just 1-2 areas within a discipline. According to data from indeed.com, professionals with proven expertise in a range of big data tools earn more than their peers.

Multi-skilled professionals are in-demand for 3 reasons:

- They reduce costs for a company because fewer employees need to be trained or replaced when a company's business model is adjusted.
- They can use the insight that comes from possessing a range of skills to become mini-entrepreneurs within a company – this helps companies stay relevant in a fast-changing marketplace.
- They encourage a culture of debate and collaboration that help companies produce top-quality work.

Hybridize Your Skillset to turn into a Big Data Engineer & Architect

The big data ecosystem is evolving steadily, and the Hadoop framework remains at the top as the most in-demand skill. With Big Data requirements pivoting to real-time streaming and processing, technologies like Spark and NoSQL databases are rapidly gaining in importance.

Hadoop and **MapReduce** skills form the crème-de-la-crème in the arena of large-scale data processing across many servers that employ HDFS.

MapReduce – the programming model processes and generates large data sets with a parallel, distributed algorithm on a cluster.

Spark on the other hand processes data in-memory and near real-time – reputed to be ten times faster than MapReduce. Spark Machine Learning algorithm will be the best bet if you are designing an online recommendation engine.

NoSQL databases are primarily non-relational in nature and are becoming more and more popular in big data and real-time processing scenarios.

MongoDB and **Cassandra** are examples of popular picks for **NoSQL** implementations.

Storm, **Impala**, and **Kafka** are gradually gaining ground, and expertise in these fast-growing tools will give you a big advantage.

Pave the way to bag the Big Data Role of Your Dreams

With inputs from industry experts, we have prepared a 3 step process to meet current market expectations get the big data role of your dreams.

Step 1 - Get trained as a Big Data and Hadoop Developer.

Step 2 - Get trained in Spark, Scala, and MongoDB.

Step 3 - Get trained in Cassandra.

With this, you will gain valuable expertise in big data storage, batch processing, real-time processing, and NoSQL.

To round off your skillset, you have the option to add 3 additional, highly sought-after skills. This excellent combination is bound to unleash your highest earning potential. Hybridize your skillset - optimize your ROI – **Impala; Storm; Kafka**

Apache Spark - is a fast large-scale data processing engine which can run real-time analytics from streaming big data sources.

MongoDB is a document-oriented type of NoSQL database. It's the most popular type of document store on the market.

Apache Cassandra is an open-source project and a second-generation distributed NoSQL database. It is the best choice for higher availability and scalability of the database.

Apache Kafka is an open-source, highly distributed, and fault-tolerant message broker, designed for accommodating real-time data feeds. It is written in Scala.

Impala is a popular type of MPP database / SQL engine that is used to bypass MapReduce, and query data directly from the HDFS.

Apache Storm is an open source distributed real-time computation system. Storm is used to process unbounded streams of data.

Big Data professionals who are multi-skilled are in greater demand than professionals who possess only Hadoop skills. There are hundreds of job openings on indeed.com for Data Scientists who can also work with Hadoop; the salary figures for these jobs are much higher than for Data Scientists without Hadoop skills.

How embracing Data Science can help you in the Hadoop environment?

Hadoop is a cluster computing technology that makes use of techniques like data engineering, software engineering for distributed computing, warehousing methodologies, large-scale analytics, and distributed systems administration. It combines distributed computing techniques with distributed storage, and is by far the most efficient framework for performing high end analytics.

Data Science used SAS and R programming to perform statistical analysis. By clubbing **SAS and R with Hadoop**, you will be able to analyze large datasets with a variety of tools. You will also learn your way around higher-level data analytics tools like Hive and Spark.

This mix of Data Science and Hadoop skills will set you apart, and make you eligible for very lucrative jobs. Perks of having expertise in both Data Science and Hadoop

If you know how to use Data Science techniques within Hadoop, you will understand how the various parts of Hadoop combine to form an entire data pipeline – managed by teams of data researchers, programmers, engineers, and business people. You will also be able to:

- Understand Hadoop architecture and set up a pseudo-distributed development environment
- Develop distributed computations with MapReduce and the Hadoop Distributed File System (HDFS)
- Work with Hadoop via the command-line interface
- Use the Hadoop Streaming utility to execute MapReduce projects in Python

- Explore data warehousing, higher-order data flows, and other projects in the Hadoop ecosystem
- Use Hive to query and analyze relational data within Hadoop
- Use filtering, summarization, and aggregation to move Big Data towards last-mile computation
- Understand how analytical workflows including feature analysis, iterative machine learning, and data modeling work in a Big Data context

Every company needs data scientists to comb through their data and find better ways to regulate production, forecast buying and selling behaviour, and resolve bottlenecks.

To be a good data scientist, you need to have a working knowledge of MapReduce, distributed systems, and distributed file systems. You should also know how to analyse backdata to understand market trends, demographic behaviour, and seasonal fluctuations. If you can use data analytics to spot patterns and derive insights from large volumes of data, companies will be thrilled to hire you.

How Data Science fits in like a puzzle piece with Big data?

The Hadoop ecosystem is changing. Data scientists used to be lone wolves who performed a major analysis once a month; now the field is both more collaborative and iterative. Small and big insights are always being drawn from databases, and these insights have helped companies increase profits, reduce costs, retain customers and identify new opportunities. Data science methods are being used to solve problems in a variety of industries, and there are new job openings for specialists every day.

With extensive knowledge in both these fields, you will be able to:

- Identify potential business use cases where Data Science can provide impactful results
- Obtain, clean, and combine disparate data sources to create a coherent picture for analysis
- Use statistical methods to explore data and provide critical insight for the business
- Leverage Hadoop streaming and Apache Spark for Data Science pipelines
- Choose the best machine learning technique to use for a particular Data Science project
- Implement and manage recommenders using Spark's MLlib

Recognize the pitfalls of deploying new analytics projects to production-level scale

Apart from building a strong skillset and being at the front of the line for interesting job roles, Hadoop professionals with Data Science skills make more money.

By combining these skills, you will out-earn both data scientists and Big Data professionals and have a deeper understanding of the entire field of Data Analytics.

If you're a Big Data Hadoop developer, you're already doing well. Developers with expertise in using Hadoop 2.7 and CloudLab are in-demand in the market; the use of Big Data to gain actionable insights is on the rise in every industry in the world.

By acquiring a Hadoop certification, or by demonstrating your Hadoop expertise with relevant work experience (by implementing real-life industry projects in Hadoop technologies, for example) you have already proved to employers that you're a person well-suited to roles in the field of Data Analytics. But if you want to move up in the industry, you need more skills in your toolkit.

Professionals who are multi-skilled tend to earn a lot more than their peers. According to Indeed.com, Big Data developers who are skilled in both Hadoop and Apache Spark make a lot more money than professionals who are only skilled in one framework; the data also shows that headhunters are on the lookout for people with a wide variety of analytical skills for specialized projects and job roles.

"That comes to an end of Part-2. Shall see you all with more info on certification courses for Big Data and my concluding views on the topic in the next edition of Aspire."

Ice Stupa is a form of glacier grafting technique that creates artificial glaciers, used for storing winter water (which otherwise goes waste) in form of conical shaped ice heap. During summer, when water is scarce, the Ice Stupa melts to increase water supply for crops.

Ice Stupa was innovated by Sonam Wangchuk in Ladakh, India and the project is undertaken by the NGO Students' Educational and Cultural Movement of Ladakh. Launched in October 2013, the test project started in January 2014 under the project name The Ice Stupa project. On 15 November 2016, Sonam Wangchuk was awarded Rolex Awards for Enterprise for his work on Ice Stupa.



Ladakh is a trans-Himalayan mountain desert in the extreme north of India with villages located at 2,700m to 4,000m altitudes. It is a cold desert with winter temperatures touching -30°C , and an average annual rain/snow fall of only 100 mm. Human settlements are almost always located around glacial streams which feed into the Indus and other rivers as tributaries.

The key to human settlement in this cold desert is the art of diverting water from the streams through meticulously built canals toward deserts to grow crops like barley, wheat, vegetables and trees like apricots, apples, willow and poplar.

The Problem

Most villages face acute water shortage, particularly during the two crucial months of April and May when there is little water in the streams and all the villagers compete to water their newly planted crops. By mid-June there is an excess of water and even flash flooding due to the fast melting of the snow and glaciers in the mountains. By mid-September all farming activities end, and yet a smaller stream flows throughout the winter steadily but wastefully going into the Indus river without being of use to anybody.

The problem is getting worse with time as Himalayan glaciers are disappearing due to global warming and local pollution.

The Solution



This winter after two years of experiments at SECMOL Alternative Institute the Pheyang Monastery near the institute will see the making of ice stupa from artificial glaciers which store this wasting winter water in the form of ice mountains that melt and feed the farms when water is most needed by the farmers.

This project has been initiated by His Holiness Drikung Skyabgon Chetsang Rinpochey and executed in partnership with SECMOL. To provide a platform for further innovations, The Himalayan Institute of Alternatives, Ladakh (HIAL) is being planned. Read the simple science behind this at <http://icestupa.org/about>

Watch a video on Ice Stupa project at <https://youtu.be/7dChiLpYifs>



Royal Enfield belongs to the Eicher Group. Incorporated in 1982, Eicher Motors Limited is the flagship company of the Eicher Group in India and a leading player of the Indian automobile industry.

ROYAL ENFIELD

The oldest motorcycle company in continuous production, Royal Enfield made its first motorcycle in 1901. A division of Eicher Motors Limited, Royal Enfield has created the mid-size motorcycle segment in India with its unique and distinctive modern classic bikes.

VE COMMERCIAL VEHICLES

VE Commercial Vehicles Limited (VECV) is a joint venture between the Volvo Group and Eicher Motors Limited. In operation since July 2008, the company includes the complete range of Eicher branded trucks and buses, VE Powertrain, Eicher's components and engineering design services businesses, the sales and distribution business of Volvo Trucks as well as aftermarket support to Volvo Buses in India.

EICHER POLARIS

In 2012, Eicher Motors Limited signed a strategic joint venture agreement with US based Polaris Industries Inc., to design, develop, manufacture and sell a full new range of personal vehicles suitable for India and other emerging markets. The JV will allow Eicher Motors Ltd. to enter into a new vehicle segment. In 2013, the JV company- Eicher Polaris Pvt. Ltd (EPPL), set up its manufacturing facility in Jaipur, Rajasthan.

The Beginning



The Enfield Cycle Company made motorcycles, bicycles, lawnmowers and stationary engines under the name Royal Enfield out of its works based at Redditch, Worcestershire. The legacy of weapons manufacture is reflected in the logo comprising the cannon, and the motto "Made like a gun". Use of the brand name Royal Enfield was licensed by the Crown in 1890.

The Early Years

In 1909 Royal Enfield surprised the motorcycling world by introducing a small Motorcycle with a 2 ¼ HP V twin Motosacoche engine of Swiss origin. In 1911 the next model was powered by a 2 ¾ HP engine and boasted of the well known Enfield 2-speed gear. In 1912 came the JAP 6 HP 770 CC V twin with a sidecar combination.

It was this motorcycle which made Enfield a household name. 1914 saw the 3 HP motorcycles this time with Enfield's own engine which now had the standardised Enfield paint scheme of black enamelled parts and green tank with gold trim.

Track the company's history at <https://royalenfield.com/aboutus/history/>

The Motorcycle- as depicted in their website:

A Royal Enfield is a rare breed in an age of mass-produced, user-friendly predictability. This is a mechanical motorcycle, handcrafted with love, engineered with purpose, and designed in a way that gives each machine its own unique character. This character is reinforced by Royal Enfield's cultural DNA - by where it was born, and by where it is now built.

Its classic British pedigree shows in every line, while the gleaming new engine hints at the devotion that has enabled this legendary marque to thrive in the outskirts of Chennai.

This campaign, "Handcrafted in Chennai", is a tribute to the wonderful people who build, sell, ride and maintain these beloved machines, and is a heartfelt tribute to the city that Royal Enfield calls home. See the video at

<https://youtu.be/Amy8yS9OTQE>

Creating Rider Experience

They do not spend much on advertising, but spend a lot in creating driving experience by conducting many rallies. As their website goes "Royal Enfield has been associated with leisure and adventure motorcycling and under the various initiatives we activate which bring our enthusiasts closer to this aspect. Our rides primarily can be segregated into the Marquee rides and events conducted at a national level (through our dedicated rides & events team) and subsequently into the regional rides conducted through the regional showrooms as well our dealers." Read more at <https://royalenfield.com/rides/>

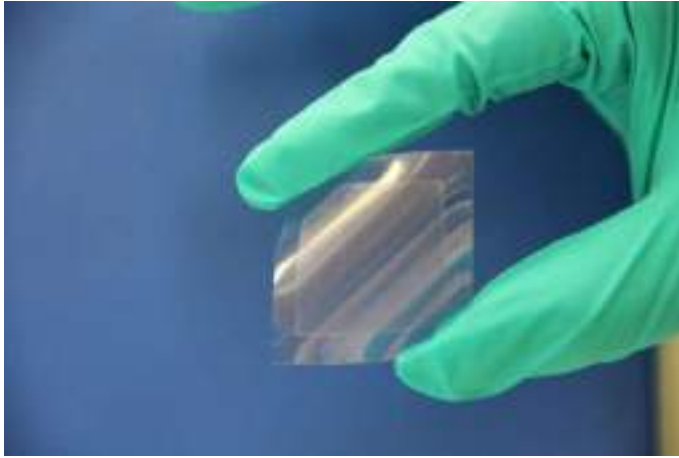
Factory Tour

Royal Enfield conducts factory tours for all enthusiasts, seeking to soak in the ambience of the factory that still manufactures the Royal Enfield Bullet 350 and the Classic along with other models. Factory tours will be open on **second and fourth Saturdays** only. The factory tour registration starts at 9:00 AM, followed by a de-briefing on RE at 9:30 AM. The Factory tour starts at 10:00 AM sharp. Each tour will cost Rs. 600 per person(*The registration fees may change as per management's discretion. The same will be notified on the website), which is payable at the reception, while registering for the tour.

For the first time, Royal Enfield has come to SSN for Campus Interview.
Of course we do have Shashaank Suresh who joined off campus last year!

Amazing Innovation- 9

Low Cost Graphene



Researchers at the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia have developed a method to produce graphene quickly and cheaply from the humble soy bean, and without the need for exotic gases or complex production techniques.

Using their bespoke "GraphAir" technology that removes the need for potentially explosive compressed gases such as methane and hydrogen, CSIRO researchers have grown graphene film using a natural precursor (soybean oil) that does not require any vacuum processing or many hours in a high temperature kiln, both of which are required in the standard chemical vapor deposition (CVD) techniques currently used to create graphene.

"This ambient-air process for graphene fabrication is fast, simple, safe, potentially scalable, and integration-friendly," said CSIRO scientist Dr Zhao Jun Han. "Our unique technology is expected to reduce the cost of graphene production and improve the uptake in new applications."

To grow their graphene, CSIRO's GraphAir uses a catalyst of relatively inexpensive polycrystalline nickel (Ni) sheets. Graphene production takes in a sealed quartz tube, where heating the soybean oil to around 800 °C (1470 °F) for approximately 26 minutes breaks it down into the various carbon elements that are essential for the synthesis of graphene. The temperature is then maintained for a further three minutes to ensure proper dissolution of the carbon atoms through the Ni substrate.

By restricting air flow into the quartz tube, the produced carbon does not further transform into carbon dioxide or other gases and, by strictly maintaining the applied temperature and the cooling rate, the process produces good quality graphene film.

CSIRO's new method, however, can use almost any other type of organic oil, even waste oil from frying or barbecuing, and transform it into graphene film.

"We can now recycle waste oils that would have otherwise been discarded and transform them into something useful," said Dr Seo.

<http://www.csiro.au/en/News/News-releases/2017/CSIRO-makes-high-quality-graphene-with-soybeans>

Amazing Innovation- 10

Textile lock for bicycles-stronger than steel



Steel cable-style bike locks may be lighter than U-locks, but they're also notoriously easy to cut through, plus their coiled design can make them difficult to use. Chains are one alternative, although they're quite heavy. So, what's lighter than a chain, and more cut-resistant than steel cable?

According to an all-female group of German designers, their textile-based lock is.

Known as the tex-lock, its rope is made up of five layers of different types of material. The middle material is reportedly saw-resistant, followed by layers that are cut-resistant, fire-resistant, waterproof, and dirt-repelling. In the future, a layer of conductive fibers might also be added, along with some electronics. This could allow the lock to send an alert if anyone tried tampering with it.

Tempered steel eyelets are located at either end of the rope, which engage the shackle of an included mini U-lock or padlock, depending on the size selected.

The designers claim that the tex-lock is much lighter than either steel chain or cable, while being more difficult to cut through using traditional bike-stealing tools such as bolt cutters. It's also very flexible and isn't coiled, making it easier to work with.

<https://www.tex-lock.com/en/>

Amazing Innovation- 11

Mini drones for pollination

Without bees, the wingmen of the plant world, much of the food we eat would be a lot harder to come by – so their worldwide decline is cause for alarm.

While some scientists are fighting to study and save the bees, a team from Japan has found a way to give them a little high-tech help, in the form of tiny pollen-collecting drones covered in a sticky gel and animal hairs.



The research began with a bottle of gel cast aside after a failed experiment in 2007. Sitting forgotten in a cupboard in the lab for all this time, it was found in a surprisingly good condition during a cleanup. Being super sticky, the team thought the gel might be useful as a kind of pollen glue.

"This project is the result of serendipity," says Eijiro Miyako, senior author of the study. "We were surprised that after eight years, the ionic gel didn't degrade and was still so viscous. Conventional gels are mainly made of water and can't be used for a long time, so we decided to use this material for research."

To test the gel's prowess at picking up pollen, the researchers put droplets of it onto the backs of ants, and had them wander around in a box full of tulips. Unsurprisingly, the ants with the gel gathered much more pollen than those that enjoyed an unencumbered trip through the tulips.

With a small, inexpensive store-bought drone in hand, the next step was to test whether it could be slathered with the gel and used as a kind of robo-bee. In nature, bees are covered with scopa, tiny branching hairs that hold grains of pollen, and in an attempt to mimic that, the team gave the drone a horse hair wig. That gives the pollen more surface area to cling to, and creates a touch of static electricity to keep it there.

And it worked. With a combination of the hair and gel, the team flew the drones from flower to flower, in this case Japanese lilies, and found that they were effective artificial pollinators. A control group, which made the same trip without a cargo of gelled hair, were unsurprisingly useless at pollination.

"The findings, which will have applications for agriculture and robotics, among others, could lead to the development of artificial pollinators and help counter the problems caused by declining honeybee populations," says Miyako. "We believe that robotic pollinators could be trained to learn pollination paths using global positioning systems and artificial intelligence."

published :Materially Engineered artificial pollinators, Chem,vol2, issue 2, 9 February 2017, Pages 224–239

<http://www.sciencedirect.com/science/article/pii/S2451929417300323>



There have been efforts focussing on the main component of rubber, a molecule called isoprene. To make isoprene, molecules in petroleum are thermally broken apart and the molecule is isolated from hundreds of other chemicals and purified, at which point it organizes itself into long polymer chains. Now researchers at the University of Minnesota are claiming a new breakthrough in the area, by way of a chemical process that combines the boosting of natural microbial fermentation with catalytic refining, similar to the process used to refine petroleum.

It begins with the microbial fermentation of plant sugars, such as glucose, into something called itaconic acid. This acid is then mixed with hydrogen, causing a chemical reaction that results in something called methyl-THF.

And the third step, which is where the breakthrough lies, involves using a recently discovered catalyst called Phosphorous Self-Pillared Pentasil to dehydrate the methyl-THF into isoprene.

This method resulted in catalytic efficiency as high as 90 percent, with most of the product being isoprene, something the researchers say gives the prospect of renewable isoprene a real boost and could even lead to other advanced rubber-based products.



"The performance of the new P-containing zeolite catalysts such as S-PPP was surprising," says Paul Dauenhauer, a University of Minnesota associate professor of chemical engineering and lead author of the new study. "This new class of solid acid catalysts exhibits dramatically improved catalytic efficiency and is the reason renewable isoprene is possible."

The research was published in the journal [ACS Catalysis](#).

Alumni Info



Shreyas R Krishna of 2008-12 batch, is about to complete his MBA at Great Lakes Institute of Management (GLIM), Chennai and has got placed at HDFC.

After two years at Rane as Sr.engineer, he moved to GLIM. At GLIM, he did summer Internship at Amazon India development center, Chennai in the domain of Operations. Worked closely with the Media products team and completed a project titled "Metrics Deck Automation and operation efficiency improvement".

The project involved the tasks of automating the process of calculations in the metrics deck and improving the operation efficiency by identifying the non-productive tasks involved in the activities of the team and eliminating the same.

Vijayaraghavan Sakthivel of 2009-12 batch is now Project Engineer at SapuraKencana Engineering and Construction B.V., Netherlands. After BE, he did M.S in Offshore and Dredging Engineering at University of Delft.

His linked in profile message reads as "Leadership-oriented project engineering professional with three years of international experience, pursuing a career in Offshore and Dredging Engineering. I love providing sustainable solutions to customers with my problem solving skills and fuel the industry to advance further "



Aravind Muralidharan, of 2011-15 batch is currently pursuing Post Graduate Diploma in Liberal Arts and Leadership in Ashoka University under the flagship of Young India Fellowship. He was one among the 20 students at the Young India Fellowship chosen to represent Ashoka University - HBX cohort with a scholarship of \$1500. This course is offered by Harvard University-HBX CORE (Credential of Readiness)

He writes to Dr,NLN...

I hope you are doing well. My final months at the fellowship has come and it has never been better. The soft courses that has been taught here have humbled me beyond measures. Courses on Gender and Heart of Leadership has sensitized me to the deep seated problems in our country and also has groomed me well to take on new challenges in life.

I found that one of the stronghold of this fellowship is the alumni base. We always have the contacts of our alumni with us and we can reach out to them any time we want and hardly we are faced with closed doors. Be it on advice to get into top B schools in the world, career advice or even the kind of electives one wants to choose, the alumni are happy to help.



Forthcoming events

March 2017

The National Symposium on Light Metals, Composites and Manufacturing Processes (LMCMP-2017) is being organised on March 3, 2017 at Thiruvananthapuram by CSIR- National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram -695019, Kerala .

The department of Ceramic Technology, Anna University, is organising a one day Seminar on Ceramic Coatings, on March 13, 2017.

Twelfth National Conference on OPTIMIZATION TECHNIQUES IN ENGINEERING SCIENCES AND TECHNOLOGIES (OPTTEST 2017), will be organized by the Department of Mechanical Engineering, Bannari Amman Institute of Technology, Sathyamangalam on 17th -18th March 2017. Submission of abstracts March 2.

The Department of Mechanical Engineering, SSNCE, is organising a one day workshop on Advanced Materials, on March 24, 2017.

The Department of Mechanical Engineering of SRM University - Vadapalani campus, Chennai is organising a two days National Conference entitled "Advances in Materials and Manufacturing Techniques (NCAMMT-2017)" during March 24-25th, 2017. The major aim of this conference is to disseminate information on new materials development and various materials processing technologies which can directly impact the advancement of several technologies in our country.

The Department of Mechanical Engineering of SSNCE, is organizing one day "National Conference for Mechanical Engineering Research Scholars (MERS-2017)" on 31st March 2017 (Friday) at SSN College of Engineering, Chennai. Prospective students and Research scholars (Ph.D., PG, UG) are encouraged to send full length papers to this mail id: ssnmers@gmail.com on or before 24th March 2017.

April 2017

PSN College of Engg & technology, Thirunelveli, is organising a National Conferenec on Material, Design and energy(NCMDE-17) during 6-7 April, 2017. Manuscript submission 17-3-2017.

June 2017

6th Annual World Congress of Advanced Materials (WCAM-2017) will be held on June 14-16, 2017, in Xi'an, China with theme of "Innovation Opens a New Future"-organized by School of Materials Science & Engineering, Shaanxi University of Science & Technology , China.

September 2017

The Institution of Engineers (India), Kolkata has entrusted the responsibility of organising the 33rd National Convention of Mechanical Engineers to Udaipur Local Centre. The Convention will be held on September 1-2, 2017. At this convention Engineers, Technologists, Scientists and Entrepreneurs from all over the country will be deliberating on the theme "Advances in MEMS and Robotics in Manufacturing Industries". Extended Abstract by 30-4-2017.



DST is seeking to support novel energy storage research proposals addressing one or more of the following challenges:

• **Materials and materials design**

- Projects should seek to improve the lifetime and performance of energy storage devices through improved materials design and development.
- Projects should seek to achieve performance advances in terms of energy and power density, together or separately, as they are important for future energy storage devices.

• **Diagnostics**

- Projects should seek to improve the tools and methodologies needed to understand and predict the characteristics and performance of energy storage materials, components, devices and systems, under different conditions and at different length and time scales.
- Development of methodologies to diagnose energy storage systems under prevailing conditions with sufficient speed and accuracy to enable the efficient and safe operation of the system.

The proposers are encouraged to consider following aspects in their proposals where appropriate:

- Modelling as a tool to inform development.
- The manufacturability of new materials and devices including scale-up and Cost.
- End of life aspects should be considered from an early stage to ensure new devices stand the best chance of minimising environmental impact down the line.
- Integration of components to device level.

Funding Available:

1. Research Stream (Stream A) : 1 Crore maximum
2. Technology Stream (Stream B) : 5 Crore maximum

Project Duration : 3 years maximum

Equipment:

Where possible, researchers are advised to make use of existing facilities and equipment, including those hosted at other universities. If equipment is needed as part of the research proposal, applicants must follow DST's norm for requesting equipment which will be made available only on the basis of strong dedicated requirement for the project.

Who can apply:

The collaborative research and/or technology endeavour is primarily between scientists and engineers in India.

Soft copy of Project Proposal is to be e-mailed (Subject Captioned: Call for Research & Technology Proposals on "Materials for Energy Storage" (MES) - 2017 / Stream Name / PI Name) to ranjith.krishnapai@gov.in by **31st March, 2017** for Stream A and **15th April, 2017** for Stream B.

Dr.Muthu Senthil Pandian
SSNResearch Centre

Once a king ordered his three ministers to take a bag and go to the forest and fill up the bag with fruits.

The first minister thought that since the king has ordered for collection of fruits, he must collect the best of the fruits in the bag.



Mr/Kishore Babu
Schwing Stetter

The second minister thought that since the king is a very busy person, he may not look very thoroughly into the bag what has been collected and hence he collected whatever he could lay his hands. Thus his bag was filled up with a mixture of good and rotten fruits.

The third minister thought that the king would see only externally how big the bag is and hence he just filled up the bag with all dried leaves and dust.

All the three ministers came back to the court with their respective bags, having executed the order of collecting the fruits.

The King, without even seeing what their bags contained, just ordered that now the three ministers must be sent to separate jails for three months, where they will not be provided with any food and they were only allowed to carry the respective bags wherein they had collected the fruits.

- The first minister could spend the three months in the jail by eating the very nice fruits he had collected.
- The second one could survive for some time with the good fruits in the bag and later he developed diseases by eating the rotten fruits he had collected.
- The Third minister had nothing to eat and hence could not survive.

Moral of the story: We have to undergo the consequences of our own activities. Good and bad, everything, you have to have this reaction. No doubt about it.

Kishore Babu, HR – Department,

SCHWING Stetter India Private Limited



What do you do when you see a red light at the traffic signal? That's a question if you ask any Corporate leaders , Professionals and B-school students, and their answer is consistently the same. They all say, "we stop". I am guessing that was your response too. When we see a red light, we stop. That's it. Seems pretty straightforward. Everyone knows that's the right thing to do.

But it doesn't end there. As we linger a bit longer on the question, other responses begin to pop up. Of situations when we don't necessarily stop on seeing a red light. Like, if it's late in the night. Or if there's no cop. Or in a medical emergency. Or we jump the red light because we see everyone else is doing it too. Sounds familiar, no?

Quickly, very quickly, the initial response – we stop when we see a red light – seems to give way to a set of responses that suggest there are many, many situations when we don't stop at the red light. We all know that the right thing to do is to stop when you see a red light. And yet, we find ourselves not necessarily doing the right thing.

The problem might actually lie at the traffic light. Maybe we should just learn to stop. We all know what the right thing to do is, but then we make exceptions to the rule, and rationalize that it's all right. Saying it's okay to jump the red light at 2 AM soon means that we jump the red light at 1 AM too.

After all, not much difference. And then what's good for 1 AM becomes good for midnight. And then 11 PM. And 9 PM in winter begins to feel like 11 PM — and we soon find ourselves jumping the red light with impunity at all hours.

No one suddenly decides to rob a million bucks. It usually starts small. It seems harmless. And then slowly balloons into a catastrophe that destroys reputations, careers, lives even. Don't let it happen to you. The secret is simple. Next time you see a red light, just stop. It doesn't matter what time it is. It doesn't matter whether anyone is looking. And it doesn't matter who else is doing it. Just stop.

Clayton Christensen, the venerable professor at Harvard Business School says it right.

**"It's easier to hold your principles 100 per cent of the time
than it is to hold them 98 per cent of the time."**

- Sounds counter-intuitive, but it's true.
- Because 98 per cent soon becomes 95 per cent, then 90, and 80, then 70 per cent.
- And before you know it, you have quickly slid down a slippery slope.

Holding on to your values is quite simple really.

- Next time you see a red light, just stop.

**It is not a question of where you stand in the position of comfort ,
but where you stand in times of Challenge**

Wishing you most & more

Ramki