Newsletter

Volume 9, Issue 9, September 2019

SSN

Mechanical Engineering

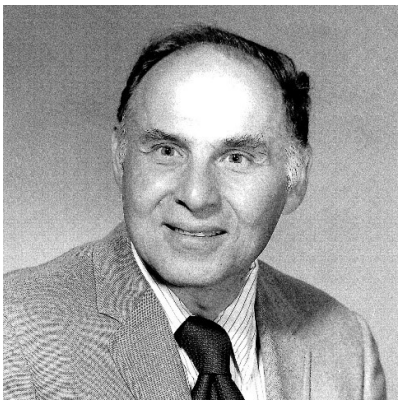
Aspire

Achievements in Sports, Projects, Industry, Research and Education

All About Nobel Prize- Part 69

Arthur Ashkin

The Father of Optical Tweezers



Arthur Ashkin was born on 2nd September 1922. He received a B.A. in physics from Columbia College in 1947 and a Ph.D. in nuclear physics from Cornell University in 1952. He worked at the Columbia Radiation Lab from 1942 to 1945 while in the Army and at AT&T Bell Laboratories from 1952 to 1991. At Bell Labs, he researched microwaves, nonlinear optics, and laser trapping. With colleagues he made the first observation of continuous wave (cw) laser harmonic generation, cw parametric amplification, discovered the photorefractive effect, and initiated the field of nonlinear optics in optical fibers.

Many consider Ashkin the father of laser radiation pressure. His work in this area concerned the optical trapping and manipulation of small dielectric particles using optical gradient forces. In 1970 Ashkin used laser beams to trap and move small transparent beads. These beads ranged in size from 0.59 to 2.68 microns (1 micron = 10^{-6} metre). When Ashkin shone a laser beam on such beads that were suspended in water, he found that the beads were both drawn into the centre of the beam and pushed along by the beam. By using two beams of equal intensity aimed at each other, he could trap a bead. He was the first to observe optical gradient forces on atoms and the first to perform laser cooling of atoms known as “optical molasses.” He also was the first to observe optical trapping of atoms.

Ashkin extended this work to the trapping and manipulation of living material such as bacteria, viruses, and cells. The laser technique for holding material in place became known as “optical tweezers.” The tweezers use laser light to push small particles towards the center of the beam and to hold them there. In 1987, Ashkin succeeded in capturing living bacteria without harming them. He explored the interior of a cell, manipulating its inner structures, and laying the foundation for new ways to understand normal and diseased states in the human body. The ability to cool and trap atoms has led to spectacular advances in basic science, such as the creation of Bose-Einstein condensates in atomic vapor.

Ashkin is the author of Optical Trapping and Manipulation of Neutral Particles Using Lasers and holds 47 patents. Awards and honors recognizing his scientific contributions include election to the National Academy of Engineering and the National Academy of Sciences, OSA’s Ives Medal/ Quinn award and Townes award, the IEEE Laser and Electro-Optic Society’s Quantum Electronics award, the APS Joseph F. Keithley award for advances in measurement science, and the Rank Prize in opto-electronics. Ashkin was elected fellow of APS, OSA, IEEE, and AAAS.

In 2009, he was named an Honorary Member of the Optical Society for his pioneering work on optical trapping and the development of optical tweezers.

On 2 October 2018, Ashkin was awarded the Nobel Prize in Physics for his work on optical trapping. Ashkin was awarded half of the prize while the other half was shared between Gérard Mourou and Donna Strickland. He received the prize at the age of 96, becoming the oldest Nobel

Laureate.

“Well, this is my life's work. It has to do with radiation pressure, the pressure of light. I'm going to give you a little lecture. When light shines on you, it pushes on you. Everybody knows that light has heat. The sun is hot. But the fact is, the sun pushes on you. And with lasers, if you focus the light down to very small spots, you can actually push things or pull, it turns out. Push, pull, make what they call optical traps. So, I am the inventor of the optical trap, and it sort of started in that very strange way. Just by accident.” - Arthur Ashkin, 2014 OSA Interview

Source:
https://www.nobelprize.org/prizes/physics/2018/

Info to Alumni- Campus Update

Between 03 August 2019 and 07 August 2019, Inspire Science Camp was organized by Dr N P Rajesh of the Physics Department.

On 08 August 2019, SSN JUNIOR CHAMPIONSHIP, a State level Inter school Football tournament for Under-19 boys was organized in SSNCE. The Valedictory function was conducted on the 14 of August, at 5.00 p.m, where Shri. Raman Vijayan (Former Indian Football Player) graced the event with his presence and distributed the prizes and medals.

Independence Day Celebrations took place on 15 August, 2019 in SSNCE and the Principal, Dr S Salivahanan, hoisted the national flag.

On 16 August, 2019, Systems team proves our capability to send sms to parents, based on daily attendance data through the implementation of ERP systems.

On 21 August, 2019, the President reviewed IQAC audit findings and facilitated the identification of common factors.

On 23 August, 2019, Professor S. Sankararaman, Department of Chemistry, IIT Madras delivered a Lecture on “Periodic table of elements – The greatest of all tables”. This was organized by the Department of Chemistry, in connection with the UNESCO’s declaration of 2019 as “The United Nations International Year of The Periodic Table of Chemical Elements” (IYPT 2019).

The Department of Physics organized a workshop on "Basics of Observational Astronomy, Astrophotography & Post-processing Techniques" jointly with Positron Foundation on the 24th and 25th of August, 2019. The inaugural talk was on "Active Galaxies and Black Holes" by Dr. Soundararajaperumal, Exeutive Director of Tamil Nadu Science & Technology Centre. This workshop was coordinated by Dr. Prita Nair.

The Data Centre was shifted from library block to the new CSE extension block. Mr. Krishnan Arumugham, IT Infra (CISCO), writes…

Mr. Krishnan Arumugham

A New Data Center has built in CSE Annexure Block 1st Floor, which becomes operational in test phase from August 09, 2019 onwards. This Data Center is having peer to peer single mode connectivity with all the departments, buildings and Blocks. The IT Infra Team members involved and completed the Data Center Shifting activities with in a time frame of 72 Hrs through a scheduled Non Stop & Dedicated Work during August 09, 2019 to August 12, 2019. The Data Center is supported by Precision Air Cooling system for the 24x7 operational competency of all the available Servers and Network appliances. The DC is built with Surveillance system with an Intelligent Business Management Systems for controlling Access privileges, detecting water leakages, sensing for any Smoke & Controllers for Rodents. Also, alarming units are inbuilt in IBMS for fire suppression too.

Info to Alumni- General Information

Mr. C. Gnananandan

Mr. C. Gnananandan joined us on 5th August 2019 as Senior Manager, Human Resources - Mr. Gananandan is a Mechanical Engineering Graduate from Arulmigu Meenakshi Amman College of Engineering, Kanchipuram (1999), MCA from IGNOU (2005), MBA in HR from Periyar University (2010) and M.Sc (Psychology) from University of Madras (2013).

To enable better team work among branches, the current first year students, irrespective of their branch, have been distributed across all classes. The classes are now identified as Sections, instead of identifying them by the branch.

Info to Alumni- Department Update

Dr D.Ananthapadmanaban

External Recognition:

Dr.D.Ananthapadmanaban,Associate Professor, reviewed a paper titled The effects of Ri/T ratio on Residual stress of SAPH440 steel for Auto parts.The paper is to be presented in CMA 2019 -1st International Conference on Metals and Alloys,Beijing,China. [07.08.2019]

Dr.D.Ananthapadmanaban,Associate Professor, reviewed 4 papers for ICMSET International Conference to be held during October,2019 in Singapore.[27.08.2019]
The papers reviewed are-
1.Machine Learning Approach to Predict Dielectric Permittivity of PE/TiO2 Nanocomposites,
2. A comparison between Σ3 asymmetrical tilt grain boundary energies in Niobium obtained analytically and through molecular dynamics based simulations.
3.Optimization of Manufacturing Time in External Cylindrical Grinding.
4.A Study on Optimization of Manufacturing Time in Internal Grinding

Dr. K. Jayakumar

Dr. K. Jayakumar, Associate Professor reviewed a paper titled "Optimization of Mechanical/Thermal Properties of Recycled Cotton/Flax/Glass Hybrid Composite" for the Journal of Industrial Textiles (SAGE Publications).
Dr. K. Jayakumar, Associate Professor reviewed 8 papers for the Journal of Key Engineering Materials (Scopus indexed).

Dr. K. Jayakumar, Associate Professor reviewed 2 papers for the Lecture Notes in Mechanical Engineering - Springer Journal (Scopus indexed). [31.07.2019]

Dr. M S Alphin

Dr. M S Alphin, Associate Professor delivered a guest lecture on “Biodynamics and Human factors in Design” in Three days workshop on Biomechanics using FEA held at SRM Institute of Science and Technology, Chennai. [23.08.2019]

Dr.K.S.Vijay Sekar

Dr.K.S.Vijay Sekar, Asso.Prof, Mechanical Department delivered a guest lecture on "Section of Solids and Development of Surfaces" for a FDP on Engineering Graphics organized by SRM Easwari Engineering College, Chennai.[13.08.2019]

Research Activity:

Dr.L.Poovazhagan

Dr.L.Poovazhagan, Assoc.Prof./Mech., published a paper titled "Tribological properties of B4C nanoparticulates reinforced copper matrix nanocomposites ”, in the INTERNATIONAL JOURNAL OF MATERIALS TODAY PROCEEDINGS (ELSEVIER). The paper is co-authored by passed out batch U.G students. [08.08.2019]

Dr. KL. Harikrishna

Dr. KL. Harikrishna, Associate Professor, published his research article "Influence of Plasma Electrolytic Oxidation on Corrosion Characteristics of Friction Stir Welded ZM21 Magnesium Alloy " in the journal “Protection of metals and Physical chemistry of surface” - Springer - Impact Factor 0.787, Co-Authored by Dr. S R Koteswara Rao, Professor / Mechanical Engineering / SSN CE [13.08.2019]

Dr. S R Koteswara Rao

Dr.R.Vimal Samsingh published a paper titled , "Element-capacity difference algorithm for optimal bin packing' in International Journal of Services and Operations Management, Vol. 34, No. 1, 2019 ,Pg 21-33 . Co authors : Deep shah , Aakash.A [28.08.2019]

Dr M S Alphin presented a paper titled Three-dimensional finite element analysis of the finger exposed to handle vibration, in 10th International Conference on Applied Human Factors and Ergonomics (AHFE 2019) held at the Washington DC, USA. [28.08.2019]

Mr. C. Arun Prakash, Asst. Prof/ Mech, working under the guidance of Dr. B. Anand Ronald, gave his 2nd Ph.D Seminar on "Magnetic Moulding of Metal Matrix Composites" [28.08.2019]

Dr. R Vimal Samsingh

Mr C Arun Prakash

Dr. B Anand Ronald

Project Proposal:

Under the guidance of Dr. B. Anand Ronald, Two IV year students (Joseph Anand Raj. I. G and Crispin. C), submitted a project proposal titled "A Novel Magnetic Moulding Method For Al Castings Having Complex Geometrical Features" to Tamilnadu State Council for Science and Technology (TNSCST) under the Student Project Scheme. [21.08.2019]

Industry Interaction:

Dr. N. Lakshmi Narasimhan

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech, had a technical discussion with Mr. Sivasankaran, Gen. Mgr., (Product. Dev.), Preethi Kithcen Appliances (Philips India Ltd.), Chennai, at our campus on Aug, 2, 2019.

Department Activity:

Dr. N. Lakshmi Narasimhan, Dr. S. Suresh Kumar and Dr. K. S. Vijay Sekar coordinated the interaction of Dr. V. Ramanujachari (Head of Propulsion Panel of ARDB) with the faculty members of the department, on 6th August at our seminar Hall. He addressed the faculty about "Research Avenues in ARDB and DRDO". Thanks to Dr.N.P.Rajesh, who facilitated this interaction while inviting him for Inspire Camp. [06.08.2019]

Dr.Ramanujachari interacting with the mech team

Dr. N. Lakshmi Narasimhan on Aug 9, 2019 arranged for an invited talk by the Alumnus Mr. Mohamad Raseem on "Experience Sharing on Academic and Work Experience Abroad", to the students of Mechanical Engineering. [09.08.2019]

Dr M S Alphin coordinated the project review for ME – Manufacturing students. [13.08.2019]

Student Activity:

Sam Sherin Raj.S,2nd year, participated in the NSS lake cleaning initiative [03.08.2019]

Sam Sherin Raj.S,2nd year, won the 3rd place at the 160cc BFKCT S3 go-kart virtuals [05.08.2019]

S.Muhilan, 2nd year, participated in the campus cleaning initiative conducted by YRC [06.08.2019]

Shri Harri V, 3rd year, participated in ELGi technical competition (Abstract submission) [02.08.2019]

Sathyajhith,3rd year, won 2nd place in the 32nd State level yoga Sana championship recognized by SDAT and selected for nationals which is held in Rajasthan. [03.08.2019]

Nitish B Sundar, final year, was nominated as Campus Ambassador for Higher Education for the "Global Education and Careers Forum". [02.08.2019]

Sharan Srinivasan, final year, completed a data science internship at Cartesian Consulting, Bangalore. [14.08.2019]

Info to Alumni- Alumni Update

The following students of the 2019 batch have been accepted into prestigious institutions of the world to further pursue their interests:

Sekkappan Chockalingam, Alagappan CT – North Carolina State University

Varun Subramanian, Hariprakash – Arizona State University

TS Murali – Cornell University

Sreemohan – Carnegie Mellon University

Kartiik S – University of Washington

Pranav Shankar S – Columbia University

Suraj Ravi – University of Maryland

Shami Jose, Sankgeeth VS – University of Texas

Subramaniam CG - City College of New York (Direct PhD in Chemical Eng)

Yashaswin Harathi – Purdue University

Siddharth Krishna – UC San Diego

Srivasupradha R - University of Minnesota Twin Cities

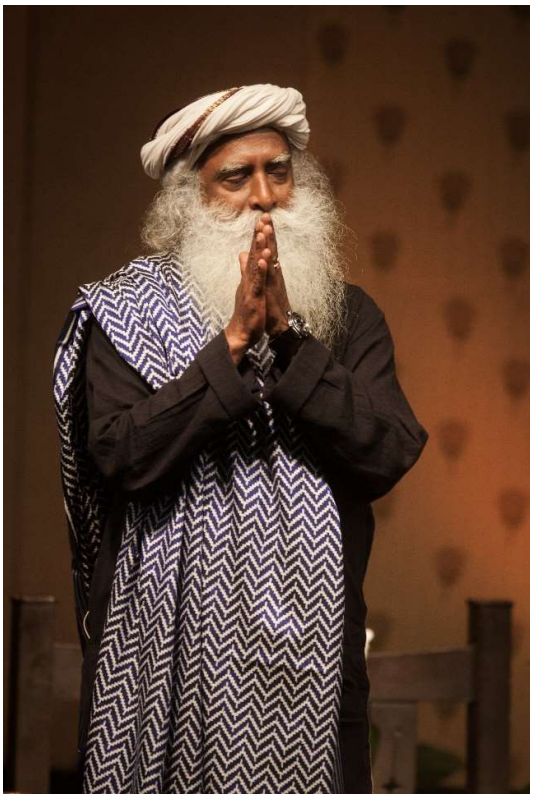
Neil Ashwin – Virginia Tech

Sreyas Chellu – IIT Madras

Sowmya Kumar – TU Delft

Unplug with Sadhguru

Sharan Srinivasan, Final year student, writes…



“Sadhguru” had been the only focal point at SSN for a few weeks leading up to the event on August 28. Not many expected him to turn up at SSN and talk to our students as part of his “Youth and Truth” program. The preparations for the event were like never before which included massive propaganda on social media, designing posters, performances from the SSN Music Club and long interactive sessions with members from the Isha Foundation. The day finally arrived and there was a massive crowd at the Justice Pratap Singh Auditorium waiting to listen to the words of Sadhguru. The atmosphere inside the auditorium really set the tone for what was to come. The event started with a welcoming performance by Sounds of Isha and videos highlighting the work done by Sadhguru and the entire foundation. Sadhguru entered the auditorium to a raucous reception from the audience and took the stage to start the question and answer session. The panel consisted of three students, Mohinish Kumar (Mechanical), Shruthi Sundar (ECE), Tejas Sivan (CSE) who asked him questions related to human psychology, future environmental implications, Cauvery water problems to name a few. The floor was also opened to the audience to pose some questions to Sadhguru. The event ended with the song “Bharat" and the raising of placards by the members of the audience to support the “Cauvery Calling" initiative.

Workshop on Business Analytics and Design Thinking

A workshop on Business Analytics with focus on the applications of Tableau was conducted on August 16 at the Mechanical Seminar Hall. This workshop was the curtain-raiser for a series of workshops and technical lectures to be organised by the Alumni Relations team. We had Karthikeyan (IT Department, 2018 Batch) who is currently a Business Analyst at Mu Sigma, come and deliver a wonderful session. He stressed on the need and applications of Business Analytics by adding many interesting case studies and examples. The session on the importance of Tableau was quite enriching and set the students thinking about career options in analytics. The aim of this workshop series is to provide skill enhancing opportunities to the students which could prove to be valuable additions to their resume. Thanks to Dhruv, our alumnus from the 2018 batch for helping us with this initiative.

Observational Astronomy Workshop

Samyuktha Sudhakar
Third year, IT Department

The two-day workshop on Basis of Observational Astronomy, Astrophotography and Post-processing Techniques was held at SSN College of Engineering by Positron Foundation in association with the physics department. The sessions held during the workshop were framed keeping in mind all that an amateur would need in order to dive deep into the world of Observational Astronomy. Following the formal inaugural session Dr. S. Soundarajaperumal, Executive Director, Tamil Nadu Science & Technology Centre, Chennai delivered an inaugral talk on “Active Galaxies and Black Holes” which left everyone spellbound on knowing the endless boundaries beyond what we are aware of. Following this Mr.Sarath Prabhav, AASTRO, Trivandrum hosted a session on Tools and Techniques in photography and Basis of Star Grazing where basis of DSLR camera, terms and techniques in photography, constellation, coordinates. After equipping the participants with all the basics that they'd need, they were taken to observe the amazing night sky using sophisticated telescopes and capture images. With this the schedule for day one needed. The next day a hands-on session on post processing techniques was conducted by Mr. V. Manivannan where the process of stacking of images taken on the previous night using DeepSky Stacker (DSS) and post processing. With the successful end of the session certificates were distributed and the workshop was concluded.

Confirmation DC Meeting Report

Mr Ram Prakash writes…

As a part of confirming my Ph.D. registration, I (Ram Prakash, Reg. No.:18142991344) presented a seminar entitled “**Investigations on Wire Electrical Discharge Machining of low conductive materials**” on 24.08.2019. Followed by this presentation, Doctoral committee was conducted. I would like to thank my supervisor Dr. G. Selvakumar (Associate Professor, Mech) for his vigorous involvement on arranging the DC meeting and Dr. V. E. Annamalai (HOD, Mech) for approving the same. I would extend my thanks to DC members (Dr. L. Poovazhagan and Dr. S. Jerome), subject experts and attendees for their valuable presence on the presentation. I could able to learn the nuances on presenting the XRD graphs, SEM images and other technical details through their constructive suggestions and feedbacks. I hope definitely it would edify, shape and groom me better. Finally, I thank my fellow researchers and volunteers for their active participation.

Student Write Up

Placement Activities

As it is time for our department to expect the arrival of core companies for campus recruitment, we the Student Placement Coordinators have initiated a lot of activities to improve our students’ performance.

Group Discussion Workshop

As Group Discussions are a compulsory elimination round for all companies, we organized a GD workshop with the help of faculties from the English Dept. on the 8th August 2019. Around 80 students from our department attended the workshop. GD topics were based on current affairs as well as opinion-based topics as asked during recruitments by companies.

Dr. Cherry Mathew Philipose and Dr. Srinivasan from the English Dept. monitored the GDs and gave suggestions to the students to improve their performance. We have documented the entire process and the suggestions given by the faculties were shared with the students.

Alumni Mock Interview Workshop

A mock interview workshop was organized by the Alumni Association on 10th August 2019. Mechanical Dept. students showed immense interest for the workshop. Nearly 50 students attended the workshop and were given valuable suggestions to improve while attending interviews as well as Group Discussions. The entire workshop was found useful by the students.

Placement Write Up

Dow Chemicals

Anupa Sri, Final year student, writes…

I got a pre placement offer from DOW CHEMICALS CEC after doing an eight-week internship at their Guindy engineering center. My internship selection process was as follows:

1. Technical test: It was technical test round where 35 questions were asked testing the student's basic core knowledge. The questions included were mainly from fluid dynamics, strength of materials, engineering graphics and metallurgy. The questions were set at a moderate difficulty level. This round was an elimination round.

2. Group discussion: This was a group discussion round where two topics were given by the mechanical panel. The topics were:

Is gender a qualification?
Is social media must for nation's growth?

3. Technical interview: questions related to fluid dynamics, strength of materials, engineering graphics and metallurgy were asked.

4. HR interview This was an interview with the mechanical panel where they asked personal questions and were highly inclined on our thoughts of whether we would be choosing higher studies after bachelor's or not. Now, one must already decide before pre final year whether he wants to take up higher or not. It was evidently seen that the panel wanted to select students who wanted to sit for placements and not

go for higher studies after their degree. This round also tested the confidence level and how well you interact with the panel. The panel was very friendly and understanding in this case.

During the internship period I worked under two departments namely the mechanical (rotary equipment) and PCE division (static equipment) wherein I was given various tasks which gave me insights on how to communicate technically with vendors and what employees deal with on a daily basis. I gained technical knowledge on pumps, heat exchangers, vessels, bolts and flanges which included their modelling and design in their company owned software. I was told to deal with ASME and API documents which contained all the formulae for designing.

Throughout my internship period my mentors guided me and also looked in for the determination to learn and put in efforts. After four weeks a mini hackathon was held where we were given real life problems related to what we learned prior to it and our practicality and presence of mind was checked. In the last week all the interns gave a presentation on their learnings at DOW and we were asked questions and marked accordingly.

Placement Write Up

FRESHWORKS SALES DEVELOPMENT INTERVIEW PROCESS

Akshay Kanna, Fourth year student, writes…

The first stage of the selection process starts with an online test with questions based on verbal ability and a few email writing questions based on the given situation. The emails were mostly customer care responses and such and there were two essays where we have to convince someone to use a particular product. They are mainly looking for people with good communication skills, so a decent essay can get you through. The second stage was a GD with about 6 members in each group. The groups were split based on your role choice, so everyone in your group would have applied for the same role as you did. Each panel was different but overall, they were again checking for communication skills and ability to think from various perspectives. We were made to talk about “ZERO”, so as you would imagine, our points varied from how zero represents a fresh start in life to the dual nature of zero. Topics in other panels were mostly mainstream like nuclear family vs joint family, etc. The third round is a face to face interview and the questions varied depending on the panel. My panelist was more keen on getting to know me and seeing if I suit the role so it was more of a conversation. They expect you to ask questions, interesting ones and ones using which you can drive a conversation. Most people had to go through three rounds of interviews but since my panelist took a lot more time for each applicant, we had to go through only two. The second interview felt like a stress interview to a few of us. They twisted whatever we said and we had to be careful with the answers we gave. The final round was a HR round. Everyone who got to this round got selected. It was more of a courtesy round where they explained a few things about the company and asked a few more questions. I recommend reading up about the company and what they do and the role specifically. Also make sure you have a compelling narrative to the question “Why sales after mechanical?”. Make sure you weave in your personal experiences and convince them that you are suitable for the role. Other than that, the entire process was simple and relaxed. We were not bombarded with questions and mostly they were aimed at understanding who we are rather than judging our capabilities. All the best!

Placement Write Up

ZoomRX

Divakar, Fourth year student, writes…

The placement process for ZoomRX was quite elaborate and consisted of 6 rounds of shortlisting and a full day worth of processes. The first round was a cognitive test which was written on Thursday (8th August 2019). Here you are asked to answer 50 questions in 12 minutes and the questions are from english and basic arithmetic. The maths part was very easy, however I would say that the english was of a bit higher difficulty. This was the preliminary round and the shortlists of this round were asked to attend the rounds on Monday(12th August 2019). Now, on the day, we had a small presentation regarding what the company does and details regarding our package. Then we were subject to yet another round of online tests. Yes, tests - plural. We had to write yet another cognitive test (of the same sort as mentioned earlier) followed by an online test consisting of 4 sections - verbal, quants, Data Interpretation, Writing. All the sections were of high standard and quality, though the DI and verbal were of the highest quality; quants was doable and writing section was easy.

The people shortlisted from this round had to take our GDs next. Now this was a different kind of GD than what was held by other companies. The presider had asked to ignore time limits and talk freely and completely of all the ideas that we had - and was true to his word. We took about 10-15 mins for our GD and everyone in our group barring one made it to the next round.

The next two rounds were the most arduous of them all. The fourth round was the technical interview and a LOT of people were eliminated from this round. Every interviewee was put to the task for an average of 45 mins each. The questions asked were aptitude and qualitative analysis. Aptitude topics concerned were of a wide range - from mixtures and allegations to ratios to taxes and such. They were of medium/easy difficulty but doing them on the spot was quite difficult. The analysis questions were easy, but you had to think from different perspectives. What worked for me was airing my thinking methodology to the panel and I suggest everyone do the same.

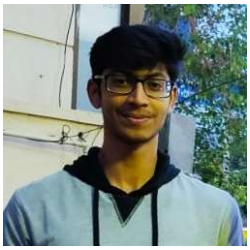
The fifth round was a specific interview where you are interviewed for the role that you chose/were chosen for. In my case it was the community associate position and I was asked on various scenarios that may occur in the workplace and how I would react to each and every one of them. In total, I was asked 5 of these questions and it took about 45 mins for the round. They clearly wanted to test how much of a people person I am.

The final round was an HR interview where they asked questions regarding your resume and it was quite easy. The interviewer was friend and made me feel at home and I enjoyed talking with him. After all these rounds they asked us to leave for the day and that they would communicate the results through our placement cells. I went home, obviously nervous. I had received the news that I was selected at about 9:00 pm and was elated and thankful. 108 of us had appeared for the interview that day, and only 6 of us were selected.

Placement Write Up

L&T InfoTech

Bhuvvan Teja, Fourth year student, writes…



I'm Bhuvvan Teja from 4th year, Mechanical Engineering and I recently got placed in L&T Infotech.
I would like to share my experience on recruitment process. First round is an online test for 145 mins (approx. two and half hours).

The test was comprised of 7 sections in total. Quants, verbal, logical reasoning, programming logic, coding question, paragraph writing and psychometric test. Sections could be attended in any order and sectional time limits were there. Sectional cut offs were there in order to get shortlisted. Students who aced in the coding section were directly selected for interview for a higher package. 252 students wrote the test and out of them 110 got selected for the next round, and out of which 17 were directly selected for the interview.

Next round was the group discussion, there were 6 batches in total, with each batch comprising of 15 students. We were given a total of 5 mins for the discussion and no time for preparation and hence we couldn't use a notebook to note down the points. Each candidate was assessed on the basis of communication skills, fluency of language, confidence, coherence of thoughts and general knowledge. The topic given to my batch was 'Computerization leads to unemployment – true/false'. Other topics for the rest of the batches were like 'Government educational institutions or Private institutions – which is better ', 'Does an engineer really require an MBA degree to be successful'.

Around 5 from each batch were selected for the next round of HR interview. So, in total 30 students were selected for the interview round and along with 17 students. In the interview, general questions such as tell me about yourself, your hobbies, job flexibility, reactions on failure and so on were asked. Basically, the interviewer picked up questions from my answer. Finally, 21 students got placed (I.e. 17 out of the 30 and 4 out of the 17).

Placement Write Up

LatentView Analytics

LatentView Analytics visited the SSN Campus on the 06th of August looking to hire students for the role of Data Analyst. 18 students got placed in LatentView out of which 4 were from mechanical. Mohinish Kumar, Rajam Varshini, Vignesh Muthukumaran and Ajay Krishnan were the students who got placed in LatentView Analytics. The recruitment process is described in detail below.

ROUND 1: ONLINE TEST

First round was an online aptitude test, with 45 questions to be solved in 60mins.The questions were based on quantitative aptitude, logical puzzles and few verbal reasoning Out of 250 people who applied 58 were selected for the next round (GD).

"Time Management and Selection of questions played a key role in clearing the test. In my case, as I was confident about the aptitude part, I left the verbal questions as it seemed time consuming. Selection of questions must be done wisely as it involves negative marking as well." -Rajam Varshini

ROUND 2: GROUP DISCUSSION

Group Discussion took place for 10mins with 3mins of preparation time. Each will get their turn to talk with no particular order.

“For GD the topics were very generic, in my case it was water scarcity. They expect students to be confident, out spoken and convey their opinion with clarity. Out of 58 students, 30 were shortlisted for personal interview rounds.” - Ajay Krishnan

ROUND 3: TECHNICAL INTERVIEW

In the first round of personal interview, focus was more on mechanical engineering. Application based questions from thermodynamics, automobile engineering, DnF and IFP projects were asked. The next round had puzzles, basic coding and guesstimates.

Vignesh Muthu Kumaran writes…

Be polite and never fail to follow the basic etiquette. Keep an open and inquiring mindset. Show them you are open to new challenges and ready to learn new software, adapt skills and whatever your job requires you to do so. If not in a technical interview, when asked about technical questions, don’t be too technical showing your actual interest. Answer in such a way, even a layman could understand. And for the most crucial question in case of a non-core interview, as to why you want you change your domain after spending four years, don’t mention the downfall in the automobile industry or the lack of opportunities in our industry. It shows nothing but our incompetency. Just tell that your four years of engineering experience has given you a systematic view and approach of looking at things and solving the problems, and that you found your interest(in whatever job you're applying to) in the latter stages only and that it is a growing field for the future where much is to be explored.

ROUND 4: HR INTERVIEW

Mohinish Kumar writes…

The final round was the HR round. I was asked basic questions about myself such as how I managed stress, what sort of person I am and so on. There was one question that I was asked in every interview, “Why data analytics after studying Mechanical?”. One thing that everyone needs to remember is that you’re in control of the interview. The interviewer always asks questions that are directly related to what you just said. This way, you can control the flow of the conversation.

Internship Write Up

FORD MOTORS

Pranaav Sankar, Fourth year student, writes…

Ford Motors is an American automobile company which has deep roots in the city of Chennai. Right from the Maraimalai Nagar manufacturing plant to the Global Technological and Business Centre (GTBC) in Sholinganallur we’ve seen them constantly growing in the city. We did our 3 months internship at Ford’s Global Manufacturing Engineering wing at SP Infocity for the first month and later moved to the GTBC facility that they had built recently in ELCOT, Sholinganallur. We worked for the Digital Factory team,

which is responsible for converting the existing factories into 3D CAD models. Our team had upto 35 interns from different institutions. The factories were scanned by 3D laser scanners and were converted to point cloud data (i.e.) a collection of points which had a coordinate and a RGB value. Once imported into Autodesk Inventor it would look as if we had imported a picture of the factory. We had to use Inventor and recreate the same. We also worked on MEP (Mechanical Electrical Plumbing's) to pipe the entire factory with fire hydrants, HVACs, pneumatic lines, etc. We didn't know the exact use case of the work that we were doing till we had a knowledge transfer session with various teams. We got to know that this would be used for operations such as layout population, virtual assemblies, virtual training in a VR environment and many more. These sessions actually helped us to get an understanding of the work that we were doing. Publishing is another activity that we did. It was to publish the models we had created and store them in a common library, so that any layout engineer across the globe can use the model if needed. If they need to introduce a new car variant, they were able to create a virtual assembly/factory and validate it. We also got a chance to visit the Maraimalai Nagar manufacturing plant. We got to witness the 3D models that we had modelled in real time. Another major take away from the internship was the corporate exposure we had during that period. We learnt how to behave in a corporate environment, how to address people, the processes we had to follow to get something done. I would like to thank NLN sir and the department for giving us this precious opportunity and would also like to thank the managers and engineers at Ford GTBC for giving us this experience.

Internship Write Up

CARTESIAN CONSULTING

Sharan Srinivasan, Fourth year student, writes…

I spent three months this summer at Cartesian Consulting, a data analytics firm in Bangalore. It turned out to be more than I ever hoped for. My aim was to become more knowledgeable in the fields of Machine Learning and Operations Research than I had been at that point. This was inline with my choice to pursue Industrial Engineering for my masters. From the very first day at Cartesian, I felt like I had been a part of the organisation for a long time and the people were all really friendly and helpful. I was initially very hesitant about whether I would be able to fit in and do substantial work. A few weeks into it though, I had learnt so many new techniques and exposure to Python and MiniZinc, a discrete optimization software certainly added lots of value. My project involved model building using python and optimization concepts for a unique customer budget allocation system based on triggers using multi-armed bandits. This internship just further asserted the choice I had made to pursue Industrial Engineering and served as a great start to the entire learning curve.

Mech Marvel - 57

Re-freeze the Arctic

Indonesian designers have proposed a submarine-like structure to float around the Arctic that can “give birth” to an iceberg (or ice “baby”) every month. Moreover, the freezer not only produces icebergs, the icebergs are “salt-free.”

Why does this matter?

According to the IPCC (Intergovernmental Panel on Climate Change), the Arctic could become ice-free by the summer of 2040 due to global warming. However, the decrease of sea ice is not only a consequence of global warming, but also a key driver of it. The process is known as Ice–albedo feedback. Because ice is white, it reflects back 80 percent of the sunlight that reaches it. When sea ice melts, there is less white surface and more Dark Ocean becomes exposed. Consequently, the artic no longer reflects sunlight and instead absorbs it, leading to further warming and more ice melting. By counteracting this positive feedback loop, designs such as the arctic-freezer are now more critical than ever.

At present, arctic ice contains an increasing amount of salt. As a result, the freezing point of water becomes more elevated and triggers the ice to melt faster.

The project, coined “Re-freeze the Arctic: re-iceberg-isation Hexagonal Tubular Ice Arctic,” was part of the ASA (the Association of Siamese Architects) International Design Competition 2019, for which the team finished as the runner-up.

The freezer involves an on-going process of reverse osmosis that divides fresh water from salt water. Upon the division, the salt water is expelled and only fresh water is enclosed in the freezer. After a month, a new iceberg is released. The icebergs are also made in a hexagonal-like figures, as this has been considered the most appropriate shape for ice to stick to other, existing ice.

Source:

https://www.springwise.com/innovation/environment/iceberg-refreeze-climate-change

Corporate Story 57

MSME FOCUS

OORJA

Oorja is a mission-driven social enterprise based in New Delhi, India. Oorja provides integrated energy solutions to replace diesel engines used along the agricultural value chain. Engineering, financing and installation of distributed solar energy systems with no upfront cost to end-users. Their services include operation and maintenance of solar systems for their full useful lifetime, sales of reliable and affordable energy services for productive use on a pay-per-use basis and rendering of excellent customer service. Their mission is to replace diesel engines with engines running on renewable sources in order to create jobs and to use it as a catalyst for economic development. OORJA is the proud winner of CISCO's global problem solver challenge. They are looking for driven individuals to join their Engineering and Field operations.

To get in touch with the company,
Email : careers@oorjasolutions.org
Website:https://www.oorjasolutions.org

Amazing Innovation- 129

Novel packaging solution from 3M

Minnesota-based materials company 3M is releasing a new type of packaging that requires no tape and no filler, and it can be customized to fit any object under 3 pounds—which 3M says accounts for about 60% of all items that are bought online and shipped. 3M claims that the material, called the **Flex & Seal Shipping Roll**, can reduce time spent packing, the amount of packaging materials, and the space needed to ship packages.

The roll is made out of three layers of different plastics that 3M developed, including a grey, internal adhesive layer that sticks to itself. There's also a middle cushioning layer that seems similar to bubble wrap to protect items during shipping, and a tougher outside layer that is tear- and water-resistant.

The Flex & Seal is recyclable—it's made of the same material as disposable plastic bags. But similar to plastic bags, the only way to recycle it is to take it to certain retail stores and recyclers, which might be able to include it in their plastic bag recycling program. But Flex & Seal does have an environmental benefit, compared with cardboard, 3M says: Shipping companies would be able to fit more of this type of package in a single truck, making the supply chain more efficient and potentially reducing emissions
Source:
https://www.fastcompany.com/90382264/no-more-cardboard-boxes-3m-invents-an-ingenious-new-way-to-ship-products

Amazing Innovation- 130

Engine that runs 7500 miles, without refueling

The **Nexo** is all-electric, but it's no Tesla look-alike, pulling power from a hulking battery built into the floor. This SUV makes its own juice with the hydrogen fuel cell sitting where you usually find a gas-exploding internal combustion engine. Like the few other hydrogen-powered, zero-emission cars on the market today, the Nexo is a joy to drive. As long as you can live with the fact that what makes it special also happens to make it a pain.

The promise of hydrogen power has tempted the auto industry for more than half a century. The idea is simple. Instead of storing electricity in a battery, you make it as you go. In a fuel cell, hydrogen (stored as compressed gas) is stripped of its electrons, then combined with oxygen. The resulting electricity powers a motor (and in turn the wheels), and water, the only byproduct, drips out a tail pipe. When you run low on hydrogen, just swing by a pump. After five minutes or so, you're back on the road with a full tank that should be good for more than

300 miles. It's a terrifically clean process that offers the benefits of EVs—a clean conscience and zippy acceleration—without the need to plug in for hours to recharge a drained battery.

This scheme has plenty of downsides. There's hardly any infrastructure to move the fuel around the country. Hydrogen is the most common element in the universe, but the process of making it useable as fuel often involves natural gas, so it's not a guaranteed clean.

Source:
https://www.wired.com/story/hyundai-nexo-review-hydrogen-fuel-cell-electric/

Amazing Innovation- 131

Bicycle at different level

MYLO folds in less than 1 second. This genius design creates an ultra-compact and manageable scooter you can store almost anywhere. The fun doesn't even begin to describe MYLO! Whether RV'ing, commuting, or just using on the daily for errands, MYLO is a blast to ride. MYLO is powered by a throttle activated 250w hub motor. Standard battery version averages about 15 miles per charge.

Even though MYLO has three wheels you still need to balance it like a regular bicycle. If you can't balance a two-wheel bicycle you will not be able to ride the MYLO. The specifications of the bike include:

Hydraulic Brakes	Front Rotors 145mm
Back Rotor 160mm	Tire size 14x2.125
Top Speed 18mph	Motor 250w
Battery 36v	Range: one battery 15miles
Range: two batteries 30miles	Front and rear lights

Source:
https://www.pimbicycles.com/products/mylo-pre-sale
https://www.youtube.com/watch?v=V4d_mCItBxE

Amazing Innovation- 132

Light and flexible solar panels

The Australian National Maritime Museum has installed the country's largest lightweight solar panel roof on its Wharf 7 Heritage Centre in Sydney's Darling Harbor. By using flexible, glass-free solar panels designed by Dr. Zhengrong Shi of SunMan Energy, buildings which previously were considered unsuitable for solar panels can now take part in the renewable energy revolution.

Dr. Shi's flexible and lightweight solar panel design, called eArche, opens up a whole new marketplace which the traditional solar panel industry has been unable to tackle to date. While the broad expanses atop many factories, warehouses and similar buildings may seem ideal for solar panels, these light, metal-skinned roofs generally don't have the structural integrity to support the weight of traditional solar panels. The museum came across SunMan's eArche, a 5.5-kg (12-lb), glass-free, thin and flexible panel, which – despite being around 70 percent lighter – had the same power out as heavy, conventional panels. The end result is a 235-kilowatt, 812-panel, rooftop solar installation, which has enabled the museum to offset almost 25 percent of the electricity consumption for the Wharf 7 Heritage Centre.

The museum came across Sunman's eArche, a 5.5-kg (12-lb), glass-free, thin and flexible panel, which – despite being around 70 percent lighter – had the same power out as heavy, conventional panels. The end result is a 235-kilowatt, 812-panel, rooftop solar installation, which has enabled the museum to offset almost 25 percent of the electricity consumption for the Wharf 7 Heritage Centre.

Source:
https://newatlas.com/sunman-earche-light-flexible-solar-panel/

Alumni Update 1

Sharan Srinivasan

Sharan Srinivasan, final year, writes as a part of the Alumni Documentation series…

I would like to introduce to all of you, Shashank Suresh (Batch 2009-2013) who is currently employed at Tekshift GmbH, Aachen, Germany as a Control Engineer for Vehicle Dynamics.

Tekshift is a small company, working mostly in controls software development, in several motorsport applications (Formula-E and other domestic race competitions), among other projects. After completing his four years at SSN, he went on to pursue an MS in Automotive Technology at Eindhoven University of Technology, Eindhoven, Netherlands. After completing his Masters, he decided to return to Chennai and began work at Royal Enfield, Chennai with

Shashank Suresh

whom he had interned earlier as well during his time at SSN. The experience he gained for close to three years at Royal Enfield propelled him to his current job at Tekshift.

Shashank is someone with around 4 years of work experience in two very different locations and we thought it was best for him to share his work experience in general with emphasis on how different the work culture and trend is in the Germany and India and how his journey panned out.

Please do refer to your personal SSN mail IDs for the complete write up.

Alumni Update 2

Alumni Talk

An alumni talk was organized on 9th August 2019, inviting the esteemed Mohammad Raseem, an alumnus of 2012 batch to speak on 'Experience sharing on Academic and Work abroad'. Raseem graduated from Virginia Tech, USA in 2014 with an M.S. in Industrial Engineering, served at Cummins, USA for 5 years under various positions, and has now been admitted into the prestigious **Harvard Business School** for his MBA. Rather than giving a complete lecture on his personal experience and counseling the students, he carried the seminar in a Q&A format, wherein he shone light on quite a many essential and career-wise existential queries students face around this time of their lives. Mentioned below topics that were discussed that day.

Q: How do you compare Germany with US for higher studies?
A: Finance is a huge factor here. US definitely costs more than Germany, where the tuition fee is waived for most universities. When the quality of education is factored, Germany as far as I know is top-notch. But it also depends on the area of interest you're pursuing.

Q: MBA in India, MBA in abroad. Which is preferable?
A: MBA in India requires you to write the CAT exam. Even upon getting a good score, the projects you undertake and the work you do related to management will absolutely matter. MBA in abroad requires you to write GMAT. After which, you have to hold atleast 3 years of work experience before applying anywhere abroad. Your experience should be convincing and impressive enough. Obviously, donating blood doesn't seem that significant compared to organising a blood camp, which is what matters more.

Q: What is your recommended method of study for competitive exams like GMAT or GRE?
A: For exams like these, I'd recommend you to undertake more practice tests than merely practice for the tests. Practice tests mentally train you to perform well under the long exam hours and conditions, which helps you more than solving questions and problems. Doing more tests lets you maintain your cool at the eleventh hour.

Q: What is the best time to start working and taking these exams?
A: Your 3rd year would be the perfect time to start preparing for the exams, so that you can work on your resume and have it ready by your 4th year.

Q: How to prepare for TOEFL?
A: TOEFL doesn't require any special preparations apart from GRE. Only the questions to be expected in the exam has to be given a look, and a basic knowledge is enough to get the desired mark.

Q: How best to prepare your resume?
A: Your resume should comprise of your accomplishments and works related to your area of interest. Your good scores will result in your holistic evaluation. If the scores aren't enough, then your experience in that field will be essential to convince them. Also, internships, projects or any other work related to the same skill shouldn't be mentioned again and again. It is not advisable to exaggerate or lie on your resume as there have been instances when it was crosschecked with the reference.

Q: How to decide a university for MBA?
A: To fix a university, the ratio of incoming to the outgoing class and the percentage of students being placed from there matters the most.

Forthcoming events

Workshop/Seminar

September 2019

- **Mechanical Engineering Department of National Institute of Technology, Durgapur, is organizing a GIAN course on "Fuel Cell Power Generation and Battery Storage", during September 16 – 20, 2019.**
  16.09.19 Electrochemical devices and its electrochemistry and thermodynamics
  17.09.19 Heat & mass transfer and performance characteristics
  18 – 20.09.19 - Electric Battery Storage and integration with other power generation sources
  and National Grid. Registration Rs.1000 for students. Rs.3,000 for faculty.Course coordinator amaranth.mullick@me.nitdgp.ac.in

- **A Three Day Short Term Course on Theory and Technology of Silicon Solar Cells will be held during 26-28 September 2019 at The National Centre for Photovoltaic Research and Education (NCPRE), Indian Institute of Technology Bombay (IIT Bombay). Fees: Rs.6,000 for Scholars and Rs.12,000 for faculties. For more details, please visit** https://portal.iitb.ac.in/ceqipapp/courseDetails.jsp?c_id=2253

- **The Department of Mechanical Engineering of IIT Madras, is organizing an AICTE sponsored short term course on 'Advances in Thermofluidics of Multiphase Flows', during November 4-9, 2019. Apply on or before September 3**

Conference

September 2019

- The Institution of Engineers (India), Punjab & Chandigarh State Centre will be organizing the International Conference on "Electronics & Communications, Renewable Energy and IoTs: Vision 2040" at Chandigarh, during September 07-08, 2019 under the aegis of the Electronics & Telecommunication Engineering Division.

- The Department of Electrical and Electronics Engineering of V R Siddhartha Engineering College, Vijayawada, is organizing an International Conference on SMART ENERGY SYSTEMS AND ELECTRIC VEHICLES (ICSESEV-2020)" during 8th – 10th January 2020. Paper submission on or before Sept 15, 2019, at https://cmt3.research.microsoft.com/ICSESEV2020.

- N.B.K.R. Institute of Science & Technology, Vidyanagar, SPSR Nellore Dist, Andhra Pradesh is conducting an "International Conference on Advances in Material Science and Mechanical Engineering" (ICAMSME 2020) during 7th to 9th of Feb, 2020. Paper submission by Sept 15,2019. Conf website: www.icamsme.nbkrist.org

- International Conference on Advanced Materials for Sustainable Energy and Sensors (INCAMSES-2019), 16-17 September 2019, Department of Physics, Alagappa University, Karaikudi-630003. Last Date of Abstract Submission: 30 August 2019
  Mail your abstract at: incamses@gmail.com

- SSN Research Centre, SSN Institutions in association with Elavenil Science Association, Indian Science and Technology Association (ISTA), Indian Association for Crystal Growth (IACG) and Indian Spectrophysics Association (ISPA) organizing the "3rd International Conference on Recent Trends in Applied Science and Technology (ICRTAST-2019) "*பயனுறு அறிவியல் மற்றும் தொழில்நுட்பத்தின் அண்மைப் போக்கு குறித்த மூன்றாவது பன்னாட்டுக் கருத்தரங்கு*" in Tamil language at SSN Research Centre, SSN Institutions, Chennai during 19-21st September 2019.

- PPG Institute of Technology, Coimbatore, is organizing AIP International Conference on Inventive Material Science Applications [ICIMA 2019] , during September 25-26, 2019.

- The Department of Chemical Engineering of SSNCE is organizing the First International Conference on Recent Trends in "Clean Technologies for Sustainable Environment (CTSE-19) during 26-27 September 2019. Details in conference website- www.cleantechssn.com.

October 2019

- SRM Institute of Science and Technology (formerly known as "SRM University"), is organizing the 3rd International Conference on Advances in Mechanical Engineering during February 24-29, 2020. Registration Rs.6000 for students and Rs.9,000 for faculty. Abstract submission by October 15,2019. Details at www.srmuniv.ac.in/icame-2020

- The Department of English, SSN College of Engineering, Chennai, to invite you to the Two-day International Conference on 'English Language Teaching: Trends and Innovations' on 13th & 14th December 2019. Submission of abstracts: 15 Oct 2019. Please visit our webpage for more details: http://www.ssn.edu.in/ssnelt2019/index.html

November 2019

- The Department of Mechanical Engineering of National Institute of Technology, Tiruchirappalli (NIT-T), will be organizing an International Mechanical Engineering Congress (IMEC) – 2019 during 29th Nov – 1st Dec 2019.

- The 6th International EcoSummit Congress - EcoSummit 2020 – Building a sustainable and

desirable future: Adapting to a changing land and sea-scape , will take place at The Gold Coast Convention Centre, Gold Coast, Australia, from 21st – 25th June 2020. Abstract submission deadline: 15 November 2019

- The University of Cincinnati, College of Engineering and Applied Science, is hosting the 2020 ASME International Manufacturing Science and Engineering Conference (MSEC), during June 22 – 26, 2020, at Cincinnati, Ohio. As part of the conference, a Symposium on Internet and Digital Twins Technology for Smart Manufacturing is also planned. Authors are encouraged to submit an abstract and full manuscript for review by November 15, 2019 via the conference website. https://event.asme.org/MSEC/

December 2019

- Department of Mechanical Engineering of the Indian Institute of Science (IISc) Bangalore, is conducting The International Conference on Industrial Tribology during 1-4 December 2019. Complete details of the event at http://tribologyindia.org/.

- 64th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM -2019) will be jointly organised by School of Mechanical Sciences and School of Basic Sciences (Mathematics), IIT Bhubaneswar during the period 9th-12th December, 2019.
  About ISTAM: https://istam.iitkgp.ac.in/#!/pages/home
  About IIT Bhubaneswar: http://www.iitbbs.ac.in/istam/

- Indian Institute of Technology (IIT) Bombay, is organizing the 7th International Conference on Advances in Energy Research (ICAER). The conference will be held from 10th to 12th December 2019 at VMCC, IIT Bombay.
  Website- http://www.ese.iitb.ac.in/icaer2019/conference.html#content1-1g

- The Mechanical Engineering Department of Syed Ammal Engineering College, Ramanathapuram, is hosting the " International Conference on NanoTechnology: Ideas, Innovation and Initiatives" (ICN2K19), during December 12 to 14, 2019. Details at https://sites.google.com/view/icn2k19

- Sardar Vallabbhai National Institute of Technology (S.V.N.I.T.) Surat, Gujarat, is organizing the 5th International Conference on Industrial Engineering (ICIE 2019) during December 12-14, 2019. Details at http://icie2019.com

January 2020

- 9th International Conference on Fracture of Polymers, Composites and Adhesives
  6-10 September 2020 | Eurotel Victoria, Les Diablerets, Switzerland.
  Abstract Submission by 17th Jan 2020
  Details at https://www.elsevier.com/events/conferences/esistc4conference/about

Research News from MSP

Dr Muthu Senthil Pandian

1.DST - Call for Project Proposals under Solar Energy Research and Development (SERD-2019), Technology Mission Division-EWO, Department of Science and Technology (DST)

The objective of the call is to promote translational research utilising available lab scale know-hows to consolidate research outputs to advance current technologies in the related field to deliver potential solutions to solar sector industrial and societal applications.

The eligibility of each stream is outlined in the following section.

1. SOLAR EQUIPMENT & CONSUMABLES STREAM (SECS)
Focus: Development of Equipment/Tools /Consumables for the solar sector.
2. AFFORDABLE SOLAR INNOVATION STREAM (ASIS)
Focus: Development of frugal innovations for India centric requirements including development of solution to address the problems faced by developers of solar power plant/ solar parks.
3. SOLAR TECHNOLOGY DEMONSTRATION STREAM (STDS)
Focus: Leading to enhancement of the Technology Readiness level of the Device / Process System to lab /field demonstration.
4. CONVERGENT SOLAR SOLUTION STREAM (CSSS)
Focus: Leading to potentially viable deployment at a credible scale for technology in real field set up. Other renewable resources like hydro ,wind, bio-gas etc. may also be integrated as per the site location. Unique selling point (USP) of such demonstration must be aptly mentioned in proposal.
5. APPLIED RESEARCH SOLAR STREAM (ARSS)
Focus: Proposal leading to establishment of proof of concept and to explore disruptive innovative ideas with a view to showcase the unique advantages of the idea over existing option. Only project evolving exceptional scientific research having potential for breakthrough will be supported. The projects related to photovoltaic and thermal of incremental nature will not be supported.
Last date for submission of project proposal: **12th October 2019**

Website Links:

http://www.dst.gov.in/callforproposals/solar-energy-research-and-development-serd-2019

http://www.dst.gov.in/sites/default/files/SERD%202019%20August%20Call%20document.pdf

http://www.dst.gov.in/

2.MNRE - Invitation of Projects Proposal for Research, Development & Demonstration in Solar Energy - 2019, Ministry of New and Renewable Energy (MNRE)

MNRE invites project proposals from Industries, Start-ups and R&D Laboratories/Organizations/Institutions etc. actively engaged in Research Development and Demonstration in the following areas of Solar Energy.

i. Development of a process for segregation of different components of PV module at end of life and recycling of glass.

ii. Development of Grid Tied Inverter suitable for Indian grid and operating environmental condition.

iii. Development of Hybrid Inverters of capacity upto 500 KVA.

iv. Development of Electronics for HT grid stabilization by incorporating storage batteries.

v. Development of high efficiency (6" x 6") Perovskite solar cell on single and multi-crystalline silicon substrate.

vi. Development of Photovoltaic based Thermal Storage Systems for refrigeration purpose in cold storage, milk chiller and air conditioners.

vii. Development of solar chulla with thermal storage.

viii. Development of waste water recovery from industrial waste through solar thermal technologies.

ix. Development of solar thermal applications for new multiple and industrial applications.

Format: https://mnre.gov.in/rd-formats

Website Links:

https://mnre.gov.in/

https://mnre.gov.in/sites/default/files/webform/notices/AdvtforSolar.pdf

https://mnre.gov.in/rd-formats

https://mnre.gov.in/sites/default/files/rd_formats/rnd-tech-dpf-a1.pdf

3.Hong Kong Ph.D. Fellowship Scheme 2020-2021 (Attention-Current ME students)

Fellowship Award: The Fellowship provides an annual stipend of HK$309,600 (approximately US$39,700) and a conference and research-related travel allowance of HK$12,900 (approximately US$1,700) per year for each awardee for a period up to three years. 250 Ph.D. Fellowships will be awarded in the 2020/21 academic year*. For awardees who need more than three years to complete the Ph.D. degree, additional support may be provided by the chosen universities. For details, please contact the universities concerned directly.

Selection Panel

Shortlisted applications, subject to their areas of studies, will be reviewed by one of the following two Selection Panels comprising experts in the relevant board areas:

1. Science, Medicine, Engineering and Technology
2. Humanities, Social Science and Business Studies

Selection Criteria

While candidate's academic excellence is of primary consideration, the Selection Panels will take into account factors such as a) Academic excellence, b) Research ability and potential, c) Communication and interpersonal skills and d) Leadership abilities.

How to Apply

Eligible candidates should first make an Initial Application online through the Hong Kong PhD Fellowship Scheme Electronic System (HKPFSES) to obtain an HKPFS Reference Number by 2 December 2019 at Hong Kong Time 12:00:00 before submitting applications for PhD admission to their desired universities.

Applicants may choose up to two programmes / departments at one or two universities for Ph.D. study under HKPFS 2020/21. They should comply with the admission requirements of their selected universities and programmes.

As the deadlines for applications to some of the universities may immediately follow that of the Initial Application, candidates should submit initial applications as early as possible to ensure that they have sufficient time to submit applications to universities.

Website links:

https://cerg1.ugc.edu.hk/hkpfs/index.html

https://cerg1.ugc.edu.hk/hkpfs/Leaflet2020-21HKPFS.pdf

https://cerg1.ugc.edu.hk/hkpfs/apply.html

Don't be afraid to make mistakes

Reproduced from http://wellsprings.in/dont-be-afraid-to-make-mistakes/

This story is about a famous research scientist who had made several very important medical breakthroughs. He was being interviewed by a newspaper reporter who asked him why he thought he was able to be so much more creative than the average person. What set him so far apart from others?

He responded that, in his opinion, it all came from an experience with his mother that occurred when he was about two years old. He had been trying to remove a bottle of milk from the refrigerator when he lost his grip on the slippery bottle and it fell, spilling its contents all over the kitchen floor—a veritable sea of milk!

When his mother came into the kitchen, instead of yelling at him, giving him a lecture, or punishing him, she said, *"Robert, what a great and wonderful mess you have made! I have rarely seen such a huge puddle of milk. Well, the damage has already been done. Would you like to get down and play in the milk for a few minutes before we clean it up?"*

Indeed, he did.

After a few minutes, his mother said, *"You know, Robert, whenever you make a mess like this, eventually you have to clean it up and restore everything to its proper order. So, how would you like to do that? We could use a sponge, a towel, or a mop. Which do you prefer?"* He chose the sponge and together they cleaned up the spilled milk.

His mother then said, *"You know, what we have here is a failed experiment in how to effectively carry a big milk bottle with two tiny hands. Let's go out in the back yard and fill the bottle with water and see if you can discover a way to carry it without dropping it."* The little boy learned that if he grasped the bottle at the top near the lip with both hands, he could carry it without dropping it. What a wonderful lesson!

This renowned scientist then remarked that it was at that moment that he knew he didn't need to be afraid to make mistakes. Instead, he learned that mistakes were just opportunities for learning something new, which is, after all, what scientific experiments are all about. Even if the experiment "doesn't work," we usually learn something valuable from it.

By Stephen

Corporate Wisdom 67

Appearances can be deceptive

Once upon a time, a man was walking along the seashore, when he came across some caves. He decided to explore them. In one of the caves, he saw a large bag. Curious, he opened it to look inside. There were several hard clay balls. How crazy to roll these clay balls and leave them out in the sun to bake, he thought.

Laughing, he was about to set off again, when he stopped and thought, why not take them?

As he continued to stroll along the beach, he took out one clay ball and flung it as far as he could into the sea. Soon, it was like a game. Then, one of the balls he threw happened to slip and fall. It hit a rock and split open. Inside, was a precious stone.

Naturally, the man was excited and couldn't wait to crack open the rest of the clay balls in the bag. There were about twenty left. Each ball had a similar treasure.

Appearances can be so deceptive!

After cracking the last one, the man realized he was looking at jewels worth thousands. Then it struck him that he must have thrown away at least fifty clay balls from the time he picked up the bag from the cave. What might that have been worth? At least tens of thousands? He regretted throwing them away.

Often, it is like that with the people we meet.

- We see someone—why—even ourselves and we only see what's visible and form an impression. The outside may not always look attractive or appealing, so we don't pay much attention. Appearances influence us more often than we care to admit.
- What if there's a treasure hidden within? The truth is, each one of us is blessed with that inner treasure—a uniqueness that is very special.
- Appearances can be deceptive.
- What if we took the time to get to know ourselves, and the people we come in contact with?
- What if we took the time to look through the outer layer to discover that inner shine?
- This might help us avoid regretting throwing away a fortune in friendships simply because they were hidden under an outer layer that didn't appeal to us.

May we look through the outer layer and appreciate the person within.

P.S.: The reverse can also be true. Gorgeously wrapped and nothing inside! May we look beyond the packaging!

#WishingMostAndMore

R.Ramakrishnan
Group Chairman Office

This edition of Aspire was compiled by Vinaya Krishna, with support from Saran Prasanth, Mohitha U M, Anupa Sri and Akshay Kanna.

Vinaya Krishna

Saran Prasanth

Akshay Kanna

Anupa Sri

Mohitha U.M

Compiled and released by Editorial Board, Mech Feedback to annamalaive@ssn.edu.in