ASPIRE

Achievements in Sports, Projects, Industry, Research & Education

Monthly Newsletter

Department of Mechanical Engineering

Volume-13 Issue-3 MARCH-23

Sri Sivasubramaniya Nadar College of Engineering.
Rajiv Gandhi Salai (OMR) Kalavakkam – 603 110. Tamil Nadu, India.

FROM THE HOD'S DESK...

We are excited to bring out our March edition of Aspire!!

In the Nobel Laureates section, we profile Jules Jean Baptiste Vincent Bordet, Belgian immunologist, and microbiologist, who won the Nobel Prize for Medicine in 1919 for his discoveries related to immunity.

It is heartening to see our visionary founder, industrialist, and philanthropist Dr Shiv Nadar, being conferred the Lifetime achievement award by Economic Times. The SNF leadership conclave was celebrated in the SSN-SNU Chennai campus with a plethora of workshops, shared memories of the past year, vision ahead for the near future, celebrity chats and an inspiring Bharatanatyam performance by Dr Kala Vijayakumar, President, SSN institutions. SSN incubation organized a four-day workshop for potential startups in collaboration with IITM and GDC.

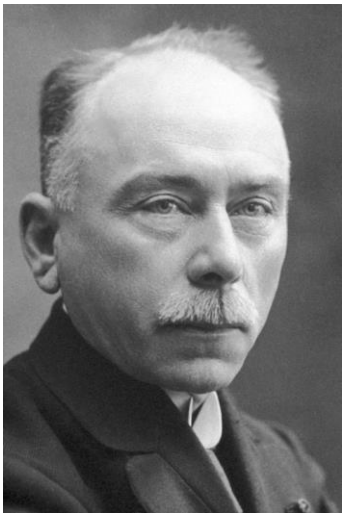
The placement count stands at 69, with JSW recruiting three of our students. and good times are still ahead. Faculty continue their journey in publishing quality research papers.

A value-added course on service robotics by HCL was coordinated by the Mech team. A team of faculty members from SSN visited RANE NSK Steering systems, Chennai for exploring mutual consulting opportunities. I was invited to the jury panel for a young manufacturing managers competition conducted by CII.

Happy reading and wishing you a memorable March!!!

KSV | vijaysekarks@ssn.edu.in

JULES BORDET-
THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 1919



Jules Jean Baptiste Vincent Bordet (13 June 1870 – 6 April 1961) was a Belgian immunologist and microbiologist. The bacterial genus Bordetella is named after him. The Nobel Prize in Physiology or Medicine was awarded to him in 1919 for his discoveries relating to immunity.

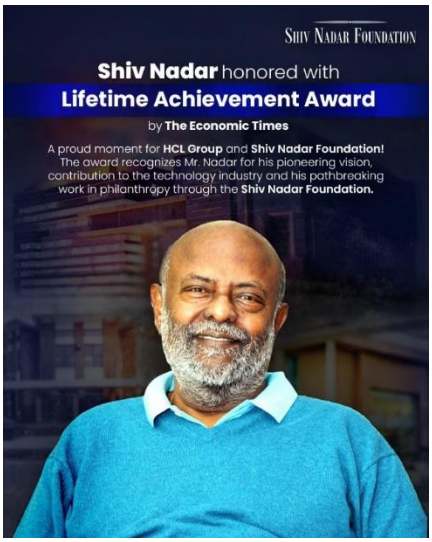
Bordet was born at Soignies, Belgium. He graduated as Doctor of Medicine from the Free University of Brussels in 1892 and began his work at the Pasteur Institute in Paris in 1894, in the laboratory of Elie Metchnikoff, who had just discovered phagocytosis of bacteria by white blood cells, an expression of cellular immunity.

In 1895 Bordet made his discovery that the bacteriolytic effect of acquired specific antibody is significantly enhanced in vivo by the presence of innate serum components which he termed alexine (but which are now known as complement). Four years later, in 1899, he described a similar destructive process involving complement, "hemolysis", in which foreign red blood cells are ruptured or "lysed" following exposure to immune serum. In 1900, he left Paris to found an institute in Brussels like Pasteur's, and continued to work extensively on the mechanisms involved in the action of complement. These studies became the basis for complement-fixation testing methods that enabled the development of serological tests for syphilis (specifically, the development of the Wassermann test by August von Wassermann). The same technique is used today in serologic testing for countless other diseases.

In March 1916, he was elected a Foreign Member of the Royal Society[1] and in 1930, delivered their Croonian Lecture.[2] In this lecture, Bordet also concluded that bacteriophages, the bacteria-killing "invisible viruses" discovered by Felix d'Herelle did not exist and that bacteria destroyed themselves using a process of autolysis. This theory collapsed in 1941 with the publication by Ruska of the first electron microscope pictures of bacteriophages.[3] The Nobel Prize in Physiology or Medicine was awarded to him in 1919 for his discoveries relating to immunity.

Campus Update

SHIV NADAR - LIFETIME ACHIEVEMENT AWARD!!



Industrialist and philanthropist Shiv Nadar epitomizes the country's startup and innovation culture as the man who gave India its first microcomputer, around the same time as Apple, and co-founded HCLTech, now the country's third-largest IT services company by revenue. Those accomplishments as well as his philanthropic programs led the ET Awards jury to confer the Lifetime Achievement on Nadar.

"I would like to thank The Economic Times and the jury for honoring me with the Lifetime Achievement Award in Corporate Excellence. It has truly been a joy and privilege to build HCL and the various institutions of the Shiv Nadar Foundation over the last 47 years," Nadar told ET.

In what would seem like the career graph of a latter-day startup founder, Nadar switched three jobs within less than a decade before launching his own company in 1975. Supported by an investment from the Uttar Pradesh government, in 1976, Nadar launched his second venture Hindustan Computers (HCL) — synonymous with Made-in-India computers, before tapping the software services outsourcing opportunity in the late 1990s. One may argue that many other entrepreneurs have demonstrated the level of business acumen and innovation that he has, but few have paid it forward through the immense scale of philanthropic and educational initiatives launched by Nadar.

As per the Hurun India Philanthropy List for 2022, billionaire Nadar's annual donations stood at Rs 1,161 crore or roughly Rs 3 crore per day. With a net worth of $28 billion, he was positioned at 46 in the Hurun global rich list and fourth among Indian peers.

Having started his life in rural Tamil Nadu, the third richest software and services billionaire in the world always credited access to quality education and scholarships for his success and worked to expand access to these opportunities for others.

SHIV NADAR FOUNDATION LEADERSHIP CONCLAVE -2023

DR K.S.V TUNES IN ……

The SSN-SNU campus was witness to the annual leadership conclave conducted by the Shiv Nadar foundation, where all the individual cogs of the foundation converge to share their progress over the past year. The 2-day event is a star-studded affair with the presence of the founders as well as dignitaries from the celebrity world. Roshni Nadar and Kiran Nadar graced the occasion and shared their inspiring thoughts on the foundation and laid threadbare the goals for the immediate future, one that is destined for growth and progress. The Mechanical team had a round of discussions with the HCL team on mutually rewarding areas like digital twin and robotics. There were a plethora of discussions and presentations through the 2 days amongst other

teams of the foundation like SNU Noida (Institute of eminence), SNU Chennai, Shiv Nadar School, Vidya Gyan, Habitat trust, Kiran Nadar Museum, Shiksha, Guvi apart from the SSN team's presentation led by Dr Kala Vijayakumar, President, SSN institutions. The event witnessed some lively sessions from all components of the foundation including some live on-stage chats with celebrities like author and historian - Manu Pillai, actor Arvind Swamy, cricketer Javagal Srinath and actor - director Pradeep Ranganathan, an alumnus of SSN. The event culminated in a group photograph snapped for posterity and memories to hold on to, but not before a surprise mind-blowing Bharatanatyam performance by our President!!

Department Update

PLACEMENT UPDATE – MECH 2023 BATCH

Total Placement Count: 69

Adarsh Sahu, Mohanraj and Hareesh got placed in JSW.

JSW Group is an Indian multinational conglomerate, based in Mumbai. It is led by Sajjan Jindal and is part of the O.P. Jindal Group. The Group's diverse businesses include steel, energy, infrastructure, cement, and paints, across India, the United States, South America, and Africa

S Abhishek got placed in Tredence Analytics.

Tredence is a global data science solutions provider focused on solving the last mile problem in AI. The 'last mile' is the gap between insight creation and value realization.

Rahul Rauniyar got placed in SrinSoft Technologies.

SrinSoft, a rapidly growing IT Consulting company specialized in helping customers manage the convergence of Digital IT and Engineering Services with seamless automation and distinctive products.

International Journal Publication - SCI /Clarivate

Kaliyappan, P., and M. Dhananchezian. "Investigate the effect of ground tyre rubber as a reinforcement filler in natural rubber hybrid composites." *Soft Materials* (2023): 1-20. Clarivate Impact Factor: 1.619

Indexed

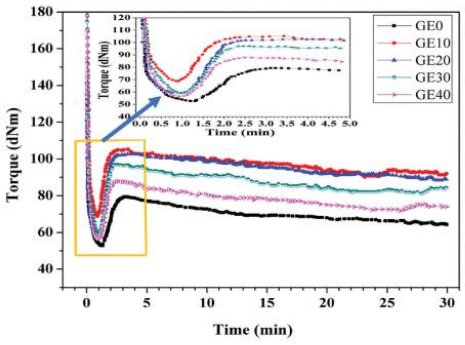


Figure 6. Curing curves of NR/EPDM/GTR composites.

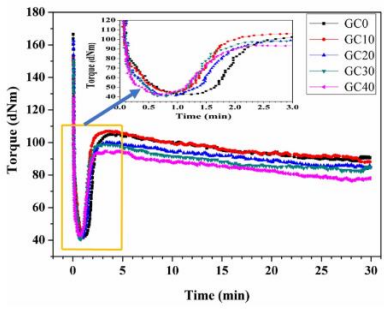
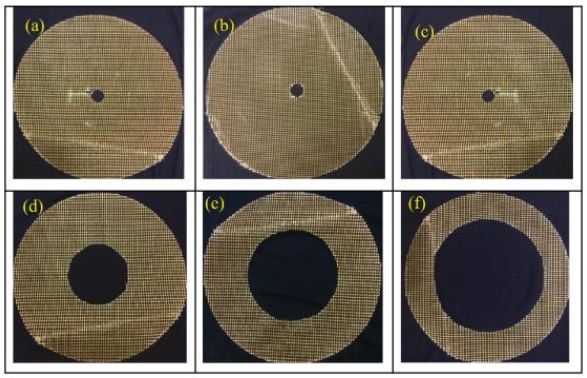


Figure 7. Curing curves of NR/CR/GTR composites.

International Journal Publication - SCI /Clarivate Indexed



MJ, Hepsi Beaula, and K. Jayakumar. "Enhancement of grinding performances using fabricated pore aligned grinding wheels with PCA-GRA." *Materials and Manufacturing Processes* 38.1 (2023): 39-49. Clarivate Impact Factor: 4.783

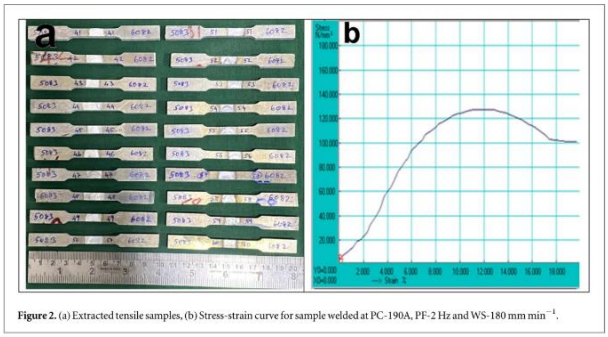


Figure 2. (a) Extracted tensile samples, (b) Stress-strain curve for sample welded at PC-190A, PF-2 Hz and WS-180 mm min^{-1}.

Ramarajan, A., and K. Jayakumar. "Influence of pulsed TIG welding process parameters on the mechanical characteristics of AA5083 with AA6082 weldments." *Materials Research Express* (2023). Clarivate Impact Factor: 2.025

International Journal Publication - SCI /Clarivate Indexed

Venkata krishna, A., A. K. Lakshminarayanan, P. Vasantharaja, and M. Vasudevan. "Unravelling the microstructure–indentation creep resistance relationships for friction stir welded modified 9Cr-1Mo steel and LN-type 316 stainless-steel dissimilar joints." *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications* (2023): 14644207221148658. Clarivate Impact Factor: 2.663

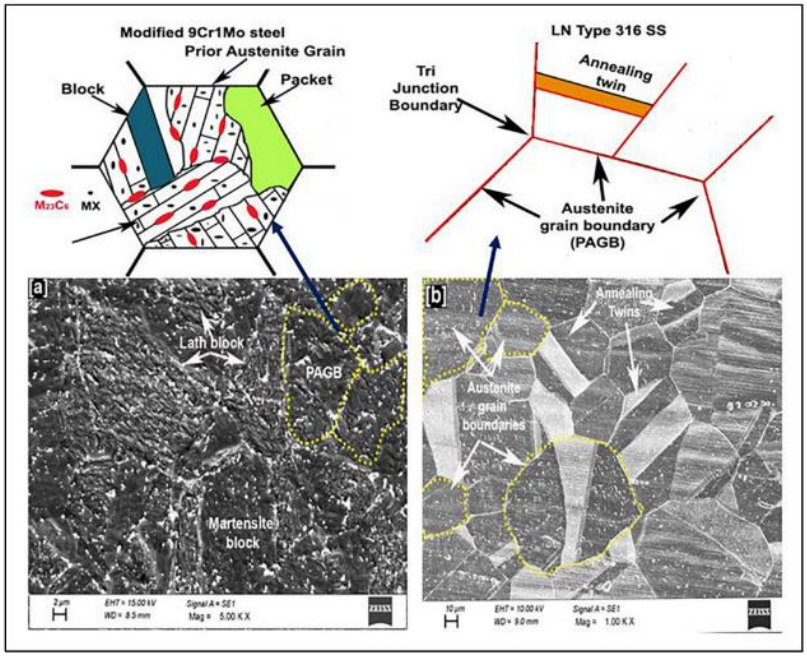


Figure 3. Grain structures schematic diagram and SEM Microstructures of the as-received base materials: (a) modified 9Cr-1Mo steel; (b) LN-type 316 SS.

International Journal Publication - SCI /Clarivate Indexed

Lakshmikhanth, R. Sasi, and A. K. Lakshminarayanan. "On the mechanical, microstructural, and corrosion properties of pulsed gas tungsten arc and friction stir welded RZ5 rare earth grade magnesium alloy." *Materials Research Express* 9.12 (2022): 126507.Clarivate Impact Factor: 2.025

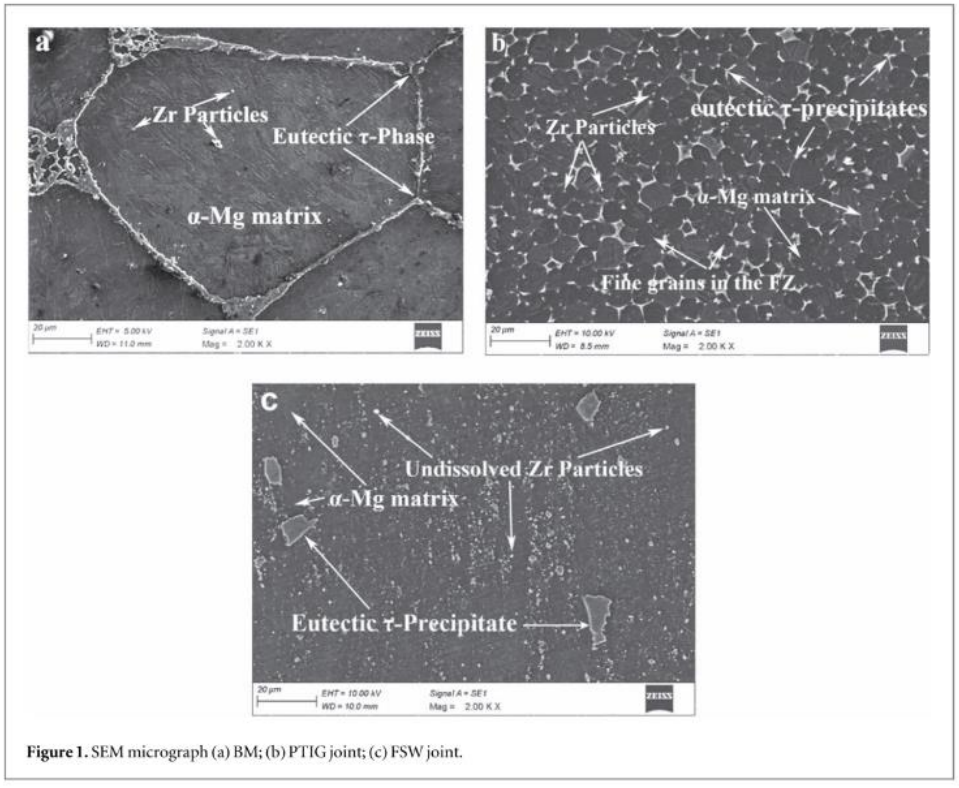
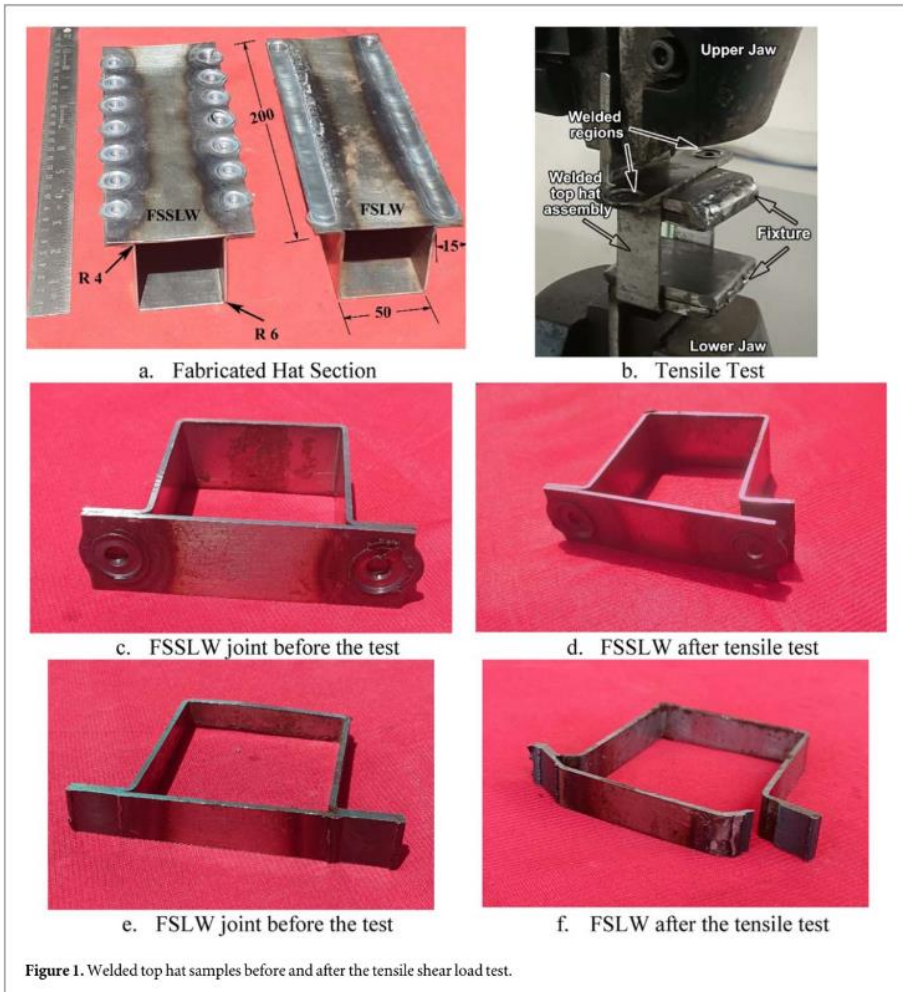


Figure 1. SEM micrograph (a) BM; (b) PTIG joint; (c) FSW joint.

International Journal Publication - SCI /Clarivate Indexed

Abhilash, V., and A. K. Lakshminarayanan. "Friction stir lap joining techniques effects on microstructure and tensile properties of high-strength automotive steel top hat sections." *Materials Research Express* 10.2 (2023): 026505.Clarivate Impact Factor: 2.025



a. Fabricated Hat Section
b. Tensile Test
c. FSSLW joint before the test
d. FSSLW after tensile test
e. FSLW joint before the test
f. FSLW after the tensile test

Figure 1. Welded top hat samples before and after the tensile shear load test.

International Journal Publication - SCI /Clarivate Indexed

Lakshminarayanan, A. K., et al. "Harnessing friction stir back extrusion process to fabricate microtubes from as-cast Mg–4Zn–0.7 Zr-1.6 RE magnesium alloy." *Surface Topography: Metrology and Properties* 10.1 (2022): 015042.Clarivate Impact Factor: 2.185.

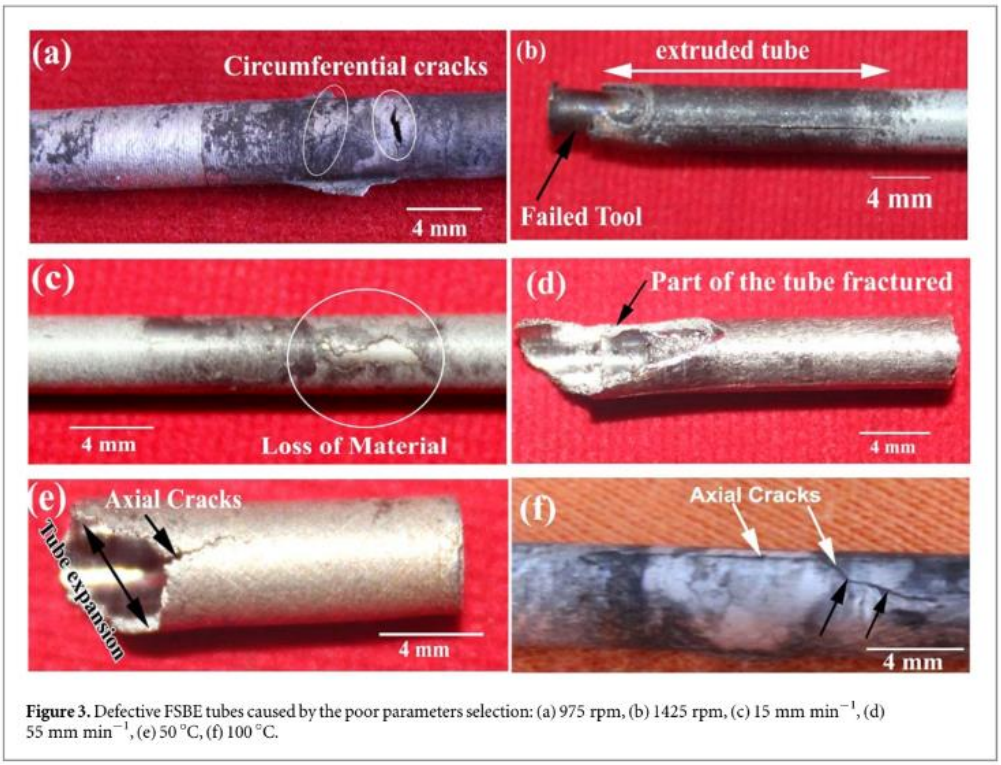


Figure 3. Defective FSBE tubes caused by the poor parameters selection: (a) 975 rpm, (b) 1425 rpm, (c) 15 mm min^{-1}, (d) 55 mm min^{-1}, (e) 50 °C, (f) 100 °C.

International Journal Publication - SCI /Clarivate Indexed

Rajasekaran, R., A. K. Lakshminarayanan, M. Vasudevan, and P. Vasantha Raja. "Stress Corrosion Cracking Susceptibility of 316LN Grade Stainless Steel Weld Joint in Boiling Magnesium Chloride Hexahydrate Environment." *Metals and Materials International* 28, no. 11 (2022): 2778-2797.Clarivate Impact Factor: 3.451

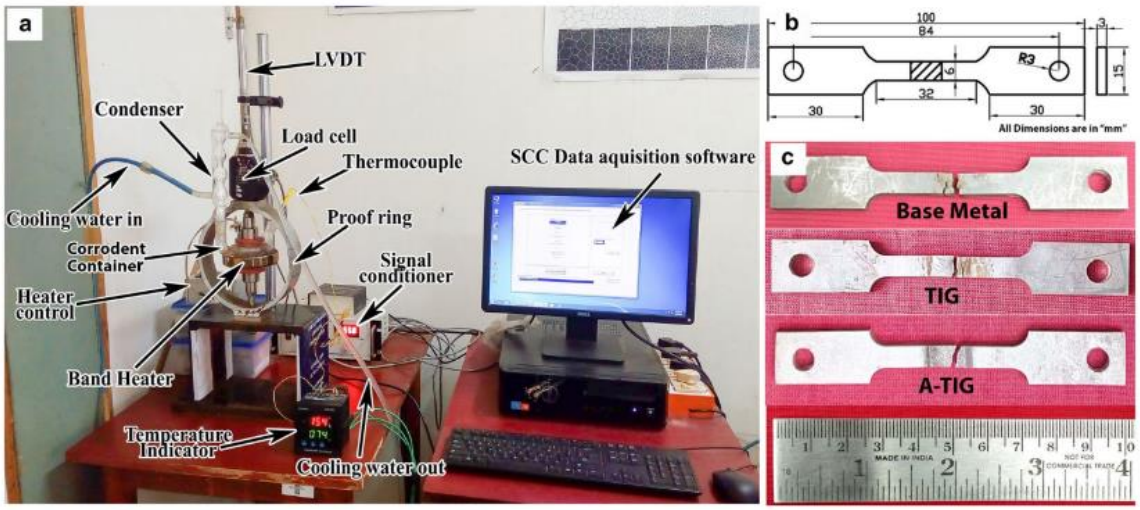


Fig. 1 **a** Constant load boiling $MgCl_2.6H_2O$ experimental setup **b** dimensions of the SCC sample **c** SCC samples after the experiment (60% of the YS condition)

International Journal Publication - SCI /Clarivate Indexed

Praveen, R., SR Koteswara Rao, G. Selvakumar, and R. Damodaram. "High-velocity projectile impact behaviour of friction stir welded AA7075 thick plates." *Defence Technology* (2023). Clarivate Impact Factor: 4.035

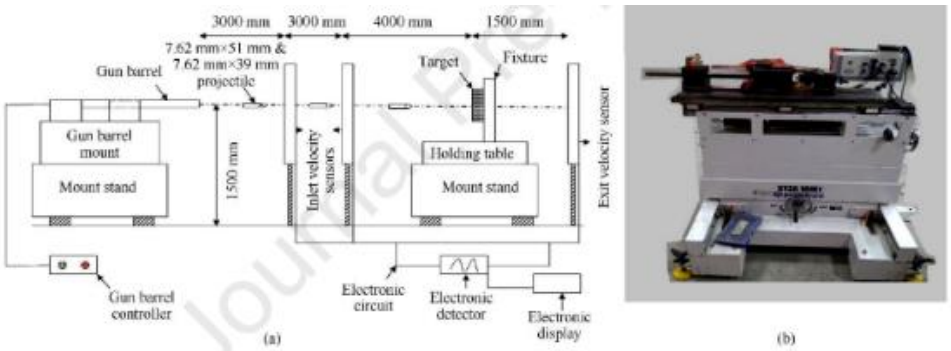


Fig. 2. (a) Schematic experimental ballistic test setup; (b) Photo view of an automated gun barrel.

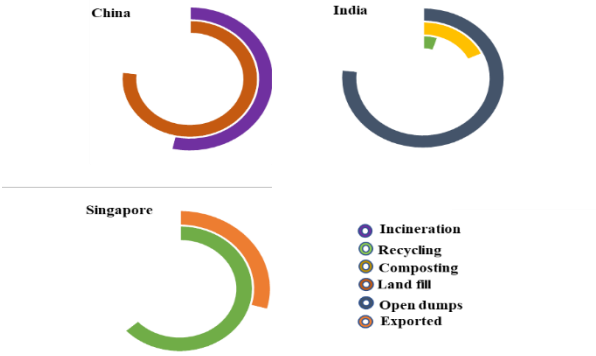
Fig. 3. Photograph of projectiles (a) 7.62 mm×39 mm steel core projectile; (b) 7.62 mm×51mm lead core projectile.

International Journal Publication - SCI /Clarivate Indexed

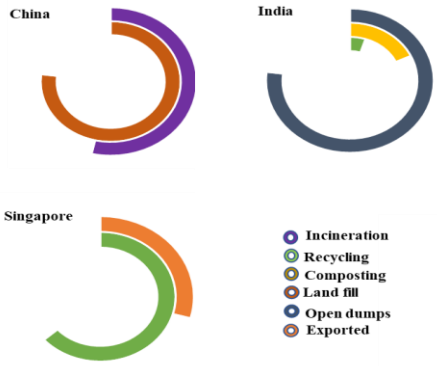
Vaishnavi, Mahadevan, Prasad Mohan Vasanth, Sundararajan Rajkumar, Kannappan Panchamoorthy Gopinath, and Yuvarajan Devarajan. "A critical review of the correlative effect of process parameters on pyrolysis of plastic wastes." *Journal of Analytical and Applied Pyrolysis* (2023): 105907. Clarivate Impact Factor: 6.437

PUBLICATION WITH A PG STUDENT IN "JOURNAL OF ANALYTICAL AND APPLIED PYROLYSIS", ELSEVIER (CLARIVATE ANALYTICS IMPACT FACTOR OF 6.437)

doi: doi.org/10.1016/j.jaap.2023.105907 This paper can be downloaded at https://authors.elsevier.com/c/1gcagbaW~3qV5



Doughnut charts for Plastic Waste Management methods in Asian countries



Location and operational status of pyrolysis plants in India

Plastics contribute significantly to the plight of an ideal solid waste management system, and the dilemma of its safe disposal upon harnessing its untapped potential still looms large. An appropriate answer to such a predicament is an energy conversion technology that deems both economically and environmentally profitable. Pyrolysis of plastic wastes has been attempted for commercialization unsuccessfully throughout the last decade, owing to substandard economization of the process and non-compliance of its products to emission standards. Though the pyrolysis technology and the parameters involved have been extensively studied, a gap exists in the practical implementation due to its complex mechanism involving many variables that play a significant role in products' yield, distribution and the system's overall performance. The present work strives to statistically analyze the effect of feedstock and other operational parameters on pyrolysis oil yield and quantify their impacts utilizing Pearson Correlation Coefficient (PCC). The intensity and significance of the impact of the operational parameters are studied, and a ranking system is attempted to help in the technology's successful priority-optimization technique and implementation. The results suggested that the reaction temperature is the most critical parameter with positive PCCs of 0.857 and 0.855 for pyrolysis and co-pyrolysis respectively. The percentages of Carbon and Hydrogen, residence time, heating rate (HR) and amount of catalyst exhibited positive correlations with oil yield. Among the negatively correlated parameters, moisture content in feedstock presented with a high PCC of -0.830, followed by particle size. This work presents a collective statistical quantification that aids us in priority based optimisation of the pyrolysis process.

Scopus Publication

Lakshminarayanan, A. K., S. Vishwa, and Srecharan Selvam. "Unraveling the role of micro-arc oxidation process factors on the corrosion resistance of magnesium alloy microtubes." *Materials Today: Proceedings* 72 (2023): 2450-2455. Scopus Impact factor: 0.355.

FACULTY WRITE-UP

DR G SATHEESH KUMAR REPORTS ON THE HCL VALUE ADDED COURSE ON 'SERVICE ROBOTICS'

A 2-credit value-added course on 'Service Robotics' was completed by HCL for 5th-semester students between August 2022-December 2022. It was a 30-hour course, partly done at SSN and partly at the HCL campus. For the first batch, 15 students were nominated from 5 branches (CSE, IT, Electrical and Electronics, ECE, and Mech) as requested by HCL:

The selection guidelines were shared with the department heads and the consolidated list was shared with HCL. List of student nominations were handed over to HCL team in July 2022. However, since there were more requests from interested students and hence the actual numbers were increased to 17. The actual course duration was between 30.08.2022-02.12.2022 (36 hours). The date of final evaluation was 17.01.2023 and was done in hands-on mode.

Some highlights of the course to share:

- The classes happened only once in a week bet 1.30 pm-3.00 pm. On three days mostly on Saturdays, 8 hours sessions were held at the HCL campus
- Since 5 department students were attending, rolling days were suggested from our end to ensure minimum loss on all ends
- Laptops were issued to the students for utilization until the end of the programme
- A total of 17 students from 3rd year, across five departments, attended the programme
- Course content: ROS, Gazebo and OpenCV, which would help build a strong career in Robotics
- Course certification would be jointly issued by HCL and SSN

We would like to thank the HCL team coordinators Dr. Annamalai & Dr. Koteswaran, the course instructors Mr. Thillai, Mr. Pavan and Mr. Aswin for successfully completing the programme. Thanks are due to Prof. Shashikant Albal, SACE who spearheaded the joint efforts on behalf of SSNCE. We thank our Principal and our management for permitting the programme to be pursued. We also would like to thank the Heads of the Department for coordinating and permitting the students to attend the programme. Special thanks to Dr. K. S. Vijay Sekar, HOD/Mech for overseeing the activities and timely support. Thanks are due for COE for consolidating and releasing the results. Heartfelt thanks to Mr. Krishnan and other SACE staff members along with IT(Infra) for continuous and diligent support extended throughout the programme. It is expected that the same course would be repeated every academic year as a part of ongoing collaborative activities between SSNCE and HCL.

Course Coordinators:
HCL: Dr. Annamalai & Dr. Koteswaran
SSNCE: Dr. Satheesh Kumar Gopal

A GUEST LECTURE FOR THIRD YEAR STUDENTS

Dr. M. Nalla Mohamed, and Dr. D. Anandapadmanabhan jointly organized a guest lecture on 16.02.23 to third year A section Mechanical Engineering students in association with ASM students' chapter. Dr. K. S. Vijay Sekar, Professor and Head presided over the function. The topic of the lecture was "Technology Trends: Since 2022". Members of the ASM students chapter also participated.

The lecture was delivered by Mr. Balakrishnan, Director -Operations, Viruksa Manufacturing Solutions Ltd, Chennai. The guest touched upon the latest trends in Mechanical Engineering like AI, Machine Learning, Materials Science, Sustainable Manufacturing and Robotics. The talk was inspiring to the students as it explained the avenues where Mechanical Engineers would fit in the post COVID and post 2022 situation.

Mr. Balakrishnan was also open to holding workshops and value-added courses for the benefit of students. During the question answer session, the students were interactive and some of them wanted to contact Mr. Balakrishnan by e-mail.

Feedback from the students about the Lecture:

- Bastian Bobby

It was pretty good. Got to know some opportunities available to mechanical engineering that I was not aware of previously. I'm impressed with the varied interests that lie ahead.

- Charu Prabha

This guest lecture gave us useful insights into the current trends in the mechanical field. It helped us gain a new perspective on the opportunities open for us. Thank you for arranging this guest lecture.

- Harish Anand

Today's session was highly informative and allowed students to get an insight on prospects and career opportunities. We look forward to having more sessions like these.

- Mathusha Rao

The session made me understand today's technological world's different views and trends. It helped me gain a better perspective. I'm excited to see why lies ahead. The emphasis on skill collection and recognition really made me think. The guest lecture was very clear.

- Mukund Kode

The question which lingers the majority of today's mechanical engineers was answered in the lecture. I left the hall with a peace of mind that I had many opportunities to plunge into.

DR KSV REPORTS ON THE VISIT TO RANE NSK STEERING SYSTEMS

A team from SSN (Mech/EEE/ECE) led by Dr Chandran K, CEO SSN incubation, and the Vice Principal - Dr. S Radha, visited RANE NSK Steering systems on the 6th of February to explore mutually fulfilling consulting opportunities. The Mechanical team, with myself and Dr. Vimal SamSingh visited the steering column assembly plant (manual and electric) and had a detailed look at the various processes there. RANE shared some of the areas in which we could contribute related to automation and sensors and we have readily agreed to collaborate and take things forward. They were kind enough to investigate internship opportunities for our PG students and are formally looking at an MOU in this regard. I presented the Mechanical department's overall research capabilities and Dr. Vimal presented some of his projects on use of sensors in

automotive and biomedical areas. The discussions were fruitful, and the RANE team has been invited to visit SSN for further progress in this regard. Thank you to the RANE group for hosting us and for Dr Chandran for facilitating the opportunity.

DR KSV REPORTS ON BEING JURY MEMBER AT CII – YOUNG MANUFACTURING MANAGERS COMPETITION.

CII TN organized the second edition of the Young Manufacturing Managers competition on February 25th at Chennai. The event showcased the problems and solutions of today's manufacturing world presented through the lens of marquee TN manufacturing companies like Hyundai, Titan, Ashok Leyland, Saint Gobain etc. CII has envisaged the competition as a platform for young managers to exhibit their talent and leadership skills, thereby winning recognition of their potential to excel and lead. This year the Theme for the competition was "Manufacturing Competitiveness for a Sustainable Future with a focus on Cost, Quality & Sustainability". The Competition is restricted to Young Managers under 35 years of age with the Team leader having a minimum of 5 years Industrial experience. It was a day that was replete with cutting edge solutions to current problem areas and each team participated with enthusiasm and vigor. The event was well organized by CII and culminated in prizes being awarded to the best teams on the day. From SSN, our Principal Dr VE Annamalai, myself and Dr Parthiban, Prof/Chemical department were part of the jury team.

GDC I-NITIATE WORKSHOP ORGANIZED BY IFOUND

- REPORT BY DR. SATHEESH KUMAR GOPAL

I-NITIATE is a flagship programme of the Gopalakrishnan Deshpande Centre for Innovation & Entrepreneurship (GDC) based out of IITM Research Park.

The workshops were conducted over 30 hours of interaction in four calendar days (21.02.2023-24.02.2023) at the IITM and SSN College of Engineering campuses. 12 teams from SSN participated in this programme while there were many observers from across the institute and external members also. Each team could have both students and external members as a part of it. The objective of this program is to enhance the entrepreneurial capabilities of the participants so that they can better appreciate the commercialization process of research through startups.

A Teacher's Dilemma: Once a noble profession when profit and loss was used only to teach Mathematics and any talk related to business is a no-go zone for Engineering education over a technical discussion, unless the course demands. Being teachers there were so much hesitation from our end to enter the entrepreneurship arena. A few questions asked by different faculty members:

- What % of profit is morally ok?
- Would society question the teachers for talking business in classrooms?
- The advantage of Freedom of failure in Academics is lost as an entrepreneur.

Many more moral questions were met with practical but convincing answers/leads. Personally, I believed that business had no role in a (tech) teacher's life, but this belief is thoroughly shaken now.

Learning Crux: As researchers, we were very confident about our work and believed that my product would be absorbed in the market as it is. Halfway through the programme, we understood that our ideas would not sell. We also understood that an idea not put into action is mere hallucination.

Technologists are supposed to solve societal problems.
Successful commercialization is directly related to societal problems.
Hence technologists becoming entrepreneurs is more likely a win-win situation!
Workload and other concerns were also discussed but have a long way to go for a mature understanding to evolve. The role of founding members is very important in the evolution of a startup, but the lesser things to juggle, the better the outcome could be.

The Team: The strength of the GDC team was the highlight of the program. Mr. Subbu, Mr. Raghu, Mr. KV. Ananth and Mr. Rajiv were too cohesive and coordinated from start to end. Very smooth yet power-packed delivery. No moment was dull, and not a word uttered was out of context. Might take a few weeks to assimilate all the content discussed for a hard head like me.

Their Programmes: I-NITIATE program is structured as a fast-paced boot camp that will enable experiential learning for the participants. It will serve as a preparatory launchpad for participant teams to rapidly develop their entrepreneurial thinking and qualify for their advanced programs such as I-NCUBATE or I-NSPIRE.

Path Forward: Kudos to our iFound team to have brought GDC on board at this juncture. A wise move indeed! It is heartening to see them grow from strength to strength with every effort of theirs.

Dr. Arun Prakash, Mr. Don Gideon (ME 2nd year) and Mr. Dileep (UG 3rd year) also attended the event from our department. We have understood that the path of entrepreneurship is a path less travelled for its ruthless pain and daunting challenges. Each of us look forward to the path ahead eagerly. We all would like to thank the HOD, Principal, iFound team and the management for the freedom bestowed to explore.

DR. A S RAMANA ATTENDS A WEBINAR ON UNIVERSAL HUMAN VALUES IN EDUCATION CONDUCTED BY UGC - AICTE

Universal Human Values in recent years have gained importance owing to increase in indiscipline at all levels of the society. To promote harmony in all sections of society and with nature, UGC- AICTE has undertaken implementation of value-based education from skill-based education and as part of the initiative a six-day online FDP was organized. There were interesting and informative lectures dealing with complexities and solutions in understanding self, family, society and nature. There were tutorial sessions as well to discuss issues about transforming present level of competence to the level of completeness of right understanding and right living. UHV 2 FDP enhanced my knowledge on living in harmony with self, others and nature to have happiness and prosperity in continuity. I plan to share my learnings among students, faculty and society at large.

INDUSTRIAL COLLABORATION

Dr K.S. Vijay Sekar, Prof and Head/Mech, and Dr Vimal Sam Singh visited RANE NSK STEERING SYSTEMS on Feb 6th, 2023 to explore mutual consulting opportunities along with Dr Chandran, CEO SSN incubation, VP Dr. Radha and HODS of EEE/ECE.

FDP/PROGRAMMES ATTENDED

Dr. A S Ramana, Associate Professor, attended six-day UGC - AICTE Incorporating Universal Human Values in Education Webinar, UHV II FDP from 13.02.2023-18.02.2023.
Dr. Micha Prem Kumar attended a workshop on the Basics of CFD & OpenFOAM on 01.02.2023
Dr. B. Anand Ronald, attended the National Webinar on Materials Characterisation (NWMC) 2023 conducted by GVP College of Engineering, Vishakapatinam, Andhra Pradesh from 6 - 10 Feb 2023.
Dr. Satheesh Kumar Gopal attended the Gopalakrishnan Deshpande Centre for Innovation & Entrepreneurship (GDC) I-NITIATE workshop organized by iFound between 21.02.2023-24.02.2023 at the campuses of IITM and SSN College of Engineering.
Dr K.S. Vijay Sekar/Prof and Head / Mech attended the two-day leadership Conclave organized by the Shiv Nadar Foundation at the SSN-SNU Chennai campus on Feb 17th and 18th, 2023.

EXTERNAL RECOGNITION

Dr.S.R.Koteswara Rao delivered an invited lecture on "Wire arc additive manufacturing using twin filler wire welding systems" at Defence Metallurgical Research Laboratory (DMRL), Hyderabad on 25-01-2023, as part of their Continuing

Education Program (CEP) conducted for Scientists working at different DRDO laboratories.

Dr S.R.Koteswara Rao chaired a conference session on "Solid State Welding" at the National Welding Seminar (NWS2022) conducted by The Indian Institute of Welding at Chennai Trade Centre during 19-21 January 2023

Dr.S.R.Koteswara Rao was invited for 1st DC meeting for Internal full time scholar on 25 Jan 2023 in VIT Chennai Campus

Dr. Satheesh Kumar Gopal is appointed Department Advisory Board panel member for Department of Robotics and Automation, Karpaga Vinayaga College of Engineering and Technology, Chengalpattu. The first meeting happened on 06.02.2023, 3.30 pm through online platform.

Dr. Satheesh Kumar Gopal delivered an invited talk on 07.02.2023 on the title 'IMPLICATIONS OF ROBOTS: HEALTHCARE AND ASSISTIVE TECHNOLOGIES' at the International Symposium on the topic "Enabling AI and Robotics in Physiotherapy Practice" on 7th & 8th February 2023 organized by the Faculty of Physiotherapy, Dr. M. G. R. Educational and Research Institute, Deemed to be University, Chennai.

Dr. Satheesh Kumar Gopal delivered an invited talk on the title 'Research challenges & Innovation in Robotics' on 10.02.2023 by the Centre for Faculty Development - Physical Mode – Six Day FDTP on "Recent Trends in Electronics, Signal Processing and Networking (RTESPN2023)" between 06th - 11th February 2023.

Dr. S. Santosh, AP/Mech was invited as a topical advisory panel member in MDPI Compounds journal

Dr. S. Santosh, AP/Mech was invited to be a topical advisory panel member in journal of manufacturing and materials processing (MDPI)

Dr. S. Santosh was selected as an Early Career Advisory Board (ECAB) Member in the Extreme Mechanics Letters journal (Elsevier) which has an impact factor of 4.728.

Dr. M. Selvaraj delivered guest lecture on 'Engineering Mechanics' organized by Sri Vidya College of Engineering and Technology, Virudhunagar on 16 December 2022

Dr. A.K. Lakshmi Narayanan, ASP/Mech delivered a guest lecture on "Friction stir welding in industrial applications" at the department of production technology, Madras Institute of Technology (MIT) Chrompet, Chennai on 24.02.2023

Dr K.S. Vijay Sekar/Prof and Head/Mech was invited as a Jury member for the Young manufacturing managers competition organized by CII Tamil Nadu in Hotel Crowne Plaza, Chennai.

Dr K.S. Vijay Sekar / Prof/ Mech was invited as Judge for the Innovation Challenge 2k23-Project expo organized by AVIT Chennai.

OTHER

Dr A S Ramana Associate Prof. reviewed a technical article in International Journal of Energy Sector Management on 20.02.2023
Dr K.S. Vijay Sekar/Prof/Mech attended the valedictory function of I-nitiate organized by SSN iFound in collaboration of GDC, IITM on February 24th, 2023 at SSN MBA Seminar Hall.
Dr K.S. Vijay Sekar/Prof and Head/Mech was invited by the SSN Entrepreneurship cell to act as a judge for the intercollege debate competition held on Feb 10th, 2023 at ECE central seminar hall.

WEBINARS CONDUCTED

Dr. M. Nalla Mohamed, and Dr. D. Anandapadmanabhan jointly organized a guest lecture on 16.02.23 to third year A section Mechanical Engineering students in association with ASM students' chapter. The topic of the lecture was "Technology Trends: Since 2022". The lecture was delivered by Mr. Balakrishnan, Director - Operations, Viruksa Manufacturing Solutions Ltd, Chennai.

Student Write-Up

S.NO	DATE	ACTIVITY DONE DURING THE MONTH
		SECOND YEAR
1)	02/02/2023	Preethi R • Attended hands on robotics by AtumX • Elected as ambassador PSE Kriya team
2)	02/02/2023	Sarvesh Baskar • Attended hands on robotics by AtumX
		THIRD YEAR
3)		Srivatsan S • Industrial Exposition
	23/02/2023	ATTENDED CATERPILLAR WOMEN STUDENTS DAY AND INDUSTRIAL VISIT DAY1-Thiruvallur Facility 1. V.S.ROSHINI 2. SHWETHA.R 3. SHRUTHI.V 4. ROSHITA AHMED.N 5. KAVYA 6. SHAKTHI SHREE S 7. SUJAANA A
	24/02/2023	DAY2-WTC 1. SHWETHA.R 2. SHRUTHI.V

		3. ROSHITA AHMED.N 4. SUJAANA A 5.MATHUSHA RAO 6.S.CHARU PRABHA

MOHANRAJ P , IV-YEAR WRITES

First Round:

A resume-based shortlist was done for the first round, which had 31 students from the Mechanical and EEE departments. The first round was conducted virtually. The online test had two sections, namely Aptitude and Technical questions. The aptitude section consisted of basic verbal, analytical, and logical questions. I would prefer you to practice various questions that are available on the internet. The technical section had questions about Mechanical Engineering basics. Focusing on thermodynamics, the strength of materials, or having a handbook will do good.

Second Round:

After the first round, 19 students were selected for the next round. The second round was conducted virtually by the Technical Panelist and HR. The process was started by the panelist introducing the company profile. Then I introduced myself to them. The entire interview questions were based on my resume. They asked me to explain everything I have put in my resume. They work on projects by providing designs through various software. Having good knowledge of AutoCAD, and Ansys could be an advantage. All the technical questions were from thermodynamics basics. Then they asked me to discuss my Mini Project, which I did in my third year. The other questions were about my interests, achievements, and hobbies. At last, I asked them about my role and their recent projects, which

sounded very nice. I hope my Placement experience will help you. Have patience and keep trying ,as the right things take time. ALL THE BEST!!!!!!

RAHUL KUMAR RAUNIYAR , IV-YEAR WRITES

Hi, I am Rahul Kumar Rauniyar. I got an offer from Ramboll. The offer is for 6 month's internship which will be converted into full-time based on performance. I am going to share my experience with the hiring process and the , process is fully virtual. Hiring Process. 1. Resume Shortlisting In this round, based on the resume we sent to the company, they selected 30 students (23 from Mechanical and 7 from EEE) for the next round. So, preparing your resume carefully and matching the company profile is important. For Mechanical students, the profile is more related to Thermodynamics and refrigeration i.e. Heat Transfer. 2. Preplacement Talk 3. Online Test: In this round, the test is 1 hour 45 minutes long and consists of 2 sections. There were 70 questions to be solved in the given time duration. The test consists of aptitudes and fundamental questions related to Thermodynamics, Heat Transfer, material strength, and another core subject. 4. Interview This is the final round and out of 30 students, 14 students from Mechanical (not sure about EEE students) got selected for this round. In this round, the interview starts with an introduction part and then continues to projects. The interview questions are mainly based on the resume and project. And few questions were asked about Thermodynamics, as I mentioned as my favorite subject. After a week, they announced the result, and 5 students got selected and I am among them. It was a great experience and was released when I saw my name on the selected student list.

Mech Marvel

Amazing Innovation 231

SOLAR BALLOON!

A solar balloon is a balloon that gains buoyancy when the air inside is heated by solar radiation, usually with the help of black or dark balloon material. The heated air inside the solar balloon expands and has lower density than the surrounding air. As such, a solar balloon is similar to a hot air balloon. Usage of solar balloons is predominantly in the toy market, although it has been proposed that they be used in the investigation of planet Mars, and some solar balloons are large enough for human flight. A vent at the top can be opened to release hot air for descent and deflation.

Raising the air temperature inside the envelope makes it less dense than the surrounding (ambient) air. The balloon floats because of the buoyant force exerted on it. This force is the same force that acts on objects when they are in water and is described by Archimedes' principle. The amount of lift (or buoyancy) provided by a hot air balloon depends primarily upon the difference between the temperature of the air inside the envelope and the temperature of the air outside the envelope.

Insolation is a measure of solar radiation energy received on a given surface area in a given time. It is commonly expressed as average irradiance in watts per square meter (W/m2). Direct insolation is the solar irradiance measured at a given location on Earth with a surface element perpendicular to the Sun's rays, excluding

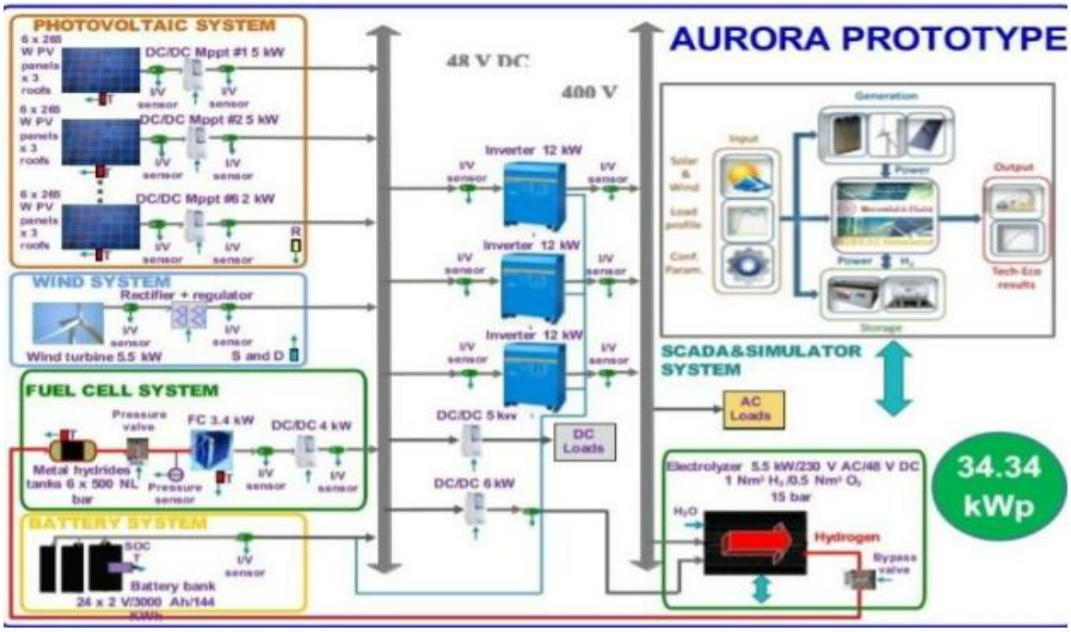
diffuse insolation (the solar radiation that is scattered or reflected by atmospheric components in the sky). Direct insolation is equal to the solar constant minus the atmospheric losses due to absorption and scattering. While the solar constant varies with the Earth-Sun distance and solar cycles, the losses depend on the time of day (length of light's path through the atmosphere depending on the Solar elevation angle), cloud cover, moisture content, and other impurities.

The first 100% solar weather probe, named Ballon ORA, was launched from the French Antarctic Dumont d'Urville Station in January 2011 by a joint team of students, scientists and engineers. The idea was to assess the feasibility of using solar balloons as probes in remote area, where saving the use of lifting gas, helium or hydrogen, would be precious. The flight was a success, approaching 46,000 ft (14,000 m). The savings do not only concern the lifting gas in itself. The ORA Balloon alleviates the need for the transportation, in and out, of the heavy gas canisters.

Amazing Innovation 232

AURORA PROJECT: A RENEWABLE ENERGY GENERATION SYSTEM

In



essence, the Aurora Project is an environmentally-friendly renewable energy

generation system which has 4 electricity generators: photovoltaic, wind, battery and fuel cell that includes an electrolyser for H2 and oxygen in situ production from water. The H2 is stored in metal hydride and it feeds the fuel cell. The resulting medical oxygen can be purified to be used in field hospitals, disinfection, etc. Aurora can be remotely monitored, controlled, and even reprogrammed via WiFi, cable, mobile phone or radio from a Control Center. Besides, all Aurora systems around the world can be managed from this center. Aurora can also have a social application for NGOs, catastrophes, emergencies, or any other applications where a generator is required.

The wind and photovoltaic systems are continuously generating energy as long as there is a renewable source available, be it solar and/or wind. When the demand for charges is inferior to the available power and the batteries are already fully charged, the electrolyser starts to produce H2 to be stored. When the demand is higher than the available power in the wind and photovoltaic generators, the battery systems give support to compensate for the deficit. If the batteries reach the discharge level previously set by the control system, the fuel cell starts working to avoid surpassing it.

Alumni Write-Up

JOBIN BABU |MASTERS IN MANUFACTURING ENGINEERING| BATCH 2015-17 SHARES…

Jobin babu completed M.E. from SSN College of Engineering in 2017 and is now working as a Senior Analyst in Flex (GBS Trade Compliance Team) .

His work experience is worth to be noted. He previously worked as a Junior Process Executive at Redington Gulf for about 2 years. In addition to this, he also served as a Sales Engineer at Sinewave Systems. He graduated B.E in Mechanical from C.S.I institute of Technology. He is skilled in Microsoft Excel, SAP Procurement, Software

Configuration Management, SAP PM Module, and SAP Materials Management (SAP MM).

Here are a few words that he shared walking down the memory lane…

If there is heaven on earth, it is here, it is here, it is here at SSNCE !!

From Heartwarming welcome by lush green carpet to snow white empire resembled buildings seated with Professors of astonishing knowledge.

From a captivating Clock Tower to a sports complex that nurtured so many talents. From a beautiful carnival like INSTINCTS to enlightening conferences.

What else is needed to make a college day so memorable? It's a collective effort by Staff and Students that paved the way to build such a great institution.

I try to embrace these cherishing moments that always exhilarate me.

COMPETITIONS UPDATE

"NEVER LET THE SUCCESS REACH YOUR MIND"

Managerial Quiz:

Link: Link To Register

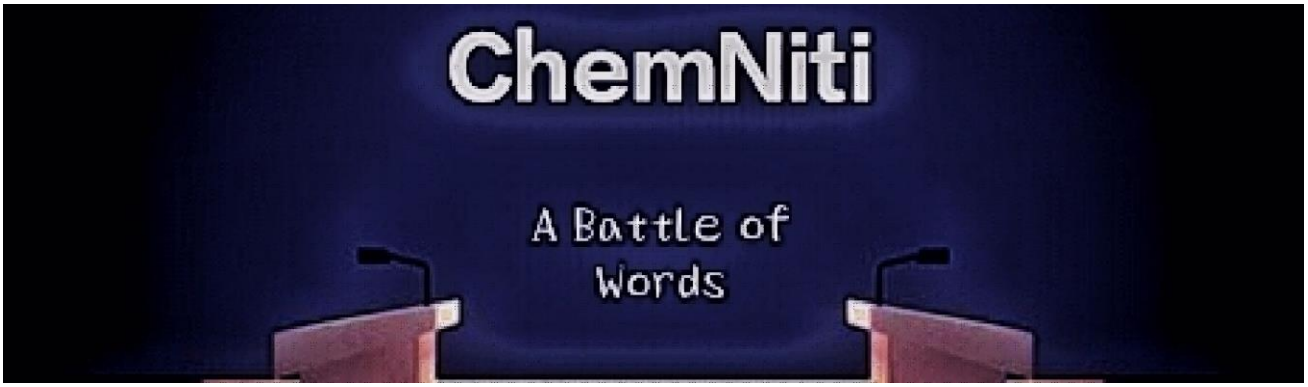
Innovation Challenge: TATA Motors:

Link: Link To Register

APOGEE 2023

A Debate:

Link: Link To Register



CORPORATE WISDOM

From the desk of Ramki -– Aspire to Inspire

From Ramki

Happy Morning – Aspire to Inspire

The Dead Sea, also known as the Salt Sea, is a salt lake bordering Jordan to the east and Israel and the West Bank to the west. It's a hyper saline lake that is truly one of Earth's unique places.

1. The Dead Sea is 67 kilometers (42 mi) long and 18 kilometers (11 mi) wide at its widest point. It lies in the Jordan Rift Valley and its main tributary is the Jordan River

2. The surface and shores of the Dead Sea are 423 meters (1,388 ft) below sea level, making it Earth's lowest elevation on land.

3. The Dead Sea is 377 m (1,237 ft.) deep, making it the deepest hyper saline lake in the world. A hyper saline lake is a landlocked body of water that contains significant concentrations of sodium chloride or other mineral salts, with saline levels surpassing that of ocean water.

4. With 33.7% salinity, the Dead Sea is one of the world's saltiest bodies of water. Although Lake Assal (Djibouti), Garabogazköl and some hypersaline lakes of the McMurdo Dry Valleys in Antarctica (such as Don Juan Pond) have reported higher salinities. No life in this sea, no fish , no vegetation, no sea animals . Nothing lives in the dead sea .

5. The Dead Sea's unusually high salt concentration means that people can easily float in the Dead Sea due to natural buoyancy. In this respect the Dead Sea is similar to the Great Salt Lake in Utah in the United States.
The Sea of Galilee is just north of the dead sea. Both the Sea of Galilee and the dead sea get their water from the same source- The River Jordon. And yet, the two are very, very different.
Unlike the Dead sea , the sea of Galilee is resplendent with rich, colorful marine life. There are lot of plants and colorful fishes too.
Two seas, same region, same source of water, and yet while one is full of life and other is dead. How Come ?
The reason is

1) The River Jordan flows into the Sea of Galilee and flows out again. The water simply passes through the seas – in and out and that keeps the sea healthy and vibrant, teeming with marine life.

2) But the Dead Sea is so far below the mean sea level that it has no outlet. Water flows in from the Jordan , but does not flow out. There are no outlet streams, It is estimated that millions of gallons of water evaporate from the Dead Sea every day, leaving it salty, too full of minerals , unfit to support marine life.

The dead sea takes water from the River Jordan and holds it. It does not give .
Result ? No life at all.
Think about it
As you set out on your journey in life, learn a lesson or two from the tale of two seas. Life is not just about getting, it is also about giving. We need to be a bit like the Sea of Galilee.

We are fortunate to get wealth, knowledge, love, respect and more. But if we don't give , we could end up certainly like the dead sea. The love , respect, and knowledge could all evaporate. Just like the water of the dead sea.
I am sure to see several great leaders who are passionate teachers. They enjoy sharing their knowledge and experiences. Good leaders are givers.
Make sharing a habit

Open the taps, unclog the outlets. And you will open the floodgates to growth and happiness

#WishingMostAndMore

Have a garbage –free day ! Wonderful week !

R.Ramakrishnan

GMR Group India, Email:r.ramakrishnan@gmrgroup.in

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