

VOLUME 14 | APRIL 2024

# ASPIRE

ACHIEVEMENTS IN SPORTS, PROJECTS, INDUSTRY, RESEARCH AND EDUCATION

ISSUE  
04

DEPARTMENT OF MECHANICAL ENGINEERING



SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING  
RAJIV GANDHI SALAI(OMR), KALAVAKKAM, CHENNAI, TAMIL NADU, INDIA

# From the HoD's desk.....



**Dr. K S Vijay Sekar**  
Professor and Head,  
Department of Mechanical Engineering

We are happy to bring out the April edition of Aspire!!!

In the Nobel laureate's section, we feature, Ferenc Krausz, who was awarded the 2023 Nobel physics prize for his pioneering work on electron dynamics.

It's that time of the year when the annual cultural extravaganza – Instincts 2024 unfolds and brings joy to the student community with its carnival atmosphere soaked in competitive and festive spirit.

At the department, it was a busy bee of activities, with two International conferences – one on Mechanical Design (ICMechD'24) and the other on Automation and Robotics (ARAM32024) was organized with the enthusiastic participation of students, researchers, and keynote speakers drawn from a diverse work culture such as Nepal and Singapore as well as experts from IITM, IIITM, and Industry. The department also organized a workshop on Energy & Sustainability with experts from CII IGBC and Anna University, Chennai delivering lectures.

A third-year student shares his experience in organizing events for an International youth-run organization – AIESEC, which has a presence in more than 100 countries. An II-year student shares his journey on an Industrial tour to Cochin Shipyard. Another third-year student shares his experience in organizing an Int conference.

An alumnus of the 2023 batch writes about his journey from SSN Mech to Kellogg's Brown and Root company. Along with this issue, we are also bringing an annexure to the ARAM international conference.

Hope you liked what we did in March, as we march on to April with renewed vigor and zeal!!

Wishing all a warm April..... where the heat might get to our physical selves, but not to our soaring spirits.

Best wishes,  
KSV

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# Ferenc Krausz: Era of attosecond physics

Ferenc Krausz, born in 1962 in Mór, Hungary, is a distinguished physicist renowned for his groundbreaking experiments with attosecond pulses of light. In 2023, Krausz was awarded the Nobel Prize in Physics alongside French physicists Pierre Agostini and Anne L'Huillier for their pioneering work in this field, revolutionizing the study of electron dynamics within atoms and molecules.



Krausz's academic journey began at Eötvös Loránd University in Budapest, where he studied theoretical physics before earning a diploma with distinction in electrical engineering from Budapest University of Technology in 1985. He then pursued doctoral studies at Vienna University of Technology, obtaining a doctorate in laser physics with distinction in 1991, followed by a postdoctoral habilitation degree in 1993.

Throughout his career, Krausz held various prestigious positions, including director of the Max Planck Institute of Quantum Optics and chair of the Department of Experimental Physics and Laser Physics at Ludwig-Maximilians-Universität München in Munich. His pioneering experiments in attosecond science, particularly the generation of isolated attosecond pulses lasting 650 attoseconds, marked a significant advancement in the field.

In recognition of his groundbreaking contributions, Krausz was elected as a fellow of the Optical Society of America in 2009. He has received numerous accolades, including the Knight's Cross of the Order of Merit of Hungary in 2012 and the King Faisal International Prize for Science in 2013. Krausz's remarkable achievements culminated in the 2023 Nobel Prize in Physics, solidifying his legacy as a trailblazer in the study of attosecond physics.



## Instincts 2024 : Viva la Fiesta

SSN Institutions and Shiv Nadar University Chennai jointly hosted the National Level Cultural Extravaganza, "Instincts'24", on the 7th, 8th, and 9th of March 2024. The carnival-themed annual fest was tagged as "Viva la Fiesta".

The Inauguration ceremony on the first day was graced by Mr. Pradeep Kumar, a singer and music composer, and Mr. Sathish Muthukrishnan, an actor. The second day saw a mesmerizing performance by the Masala Coffee Band during the Proshow, that charged up the audience's minds and souls. The final day was a DJ night featuring VDJZen, the official DJ of the Chennai Super Kings team, whose visual scenes and DJ skills were an absolute treat to the audience.

Overall, the three-day cultural fest was a resounding success and was the talk of the town. A huge shout-out to the entire organizing team of Instincts'24 for putting together an amazing event.



## ICMechD '24

The Third Edition of the International Conference on Mechanical Engineering Design, also known as ICMechD'24, was held on 21 and 22 March 2024 by the Department of Mechanical Engineering at SSN College of Engineering. This conference aimed to bring together students from various colleges to present their research papers on different topics, including Mechanical Design, Materials, and Tribology Design Concepts.

The event kicked off with a presidential address from Dr. Jayabal K, Professor & Dean of Academics, IITDM, Kanchipuram, who highlighted the importance of innovation in the field of mechanical engineering. During his speech, he also released the book of abstracts, which contained summaries of all the research papers presented at the conference.

On the first day of the conference, students from various colleges took to the stage to present their research papers. They discussed their findings and shared their knowledge on various topics related to mechanical engineering, including Mechanical Design and Materials. The students' presentations were well-received by the audience, who appreciated their efforts and applauded their hard work.

The second day of the conference featured a talk by Dr. Ram from IIT Madras on tribology design concepts. Dr. Ram discussed the importance of tribology in mechanical engineering and its role in developing new products and technologies. His talk was followed by more research paper presentations by students who delved deeper into the subject of tribology and presented their research findings. Overall, the International Conference on Mechanical Engineering Design 2024 was a great success, providing a platform for students to share their research and learn from their peers. The conference was a testament to the importance of innovation, collaboration, and knowledge-sharing in the field of mechanical engineering.





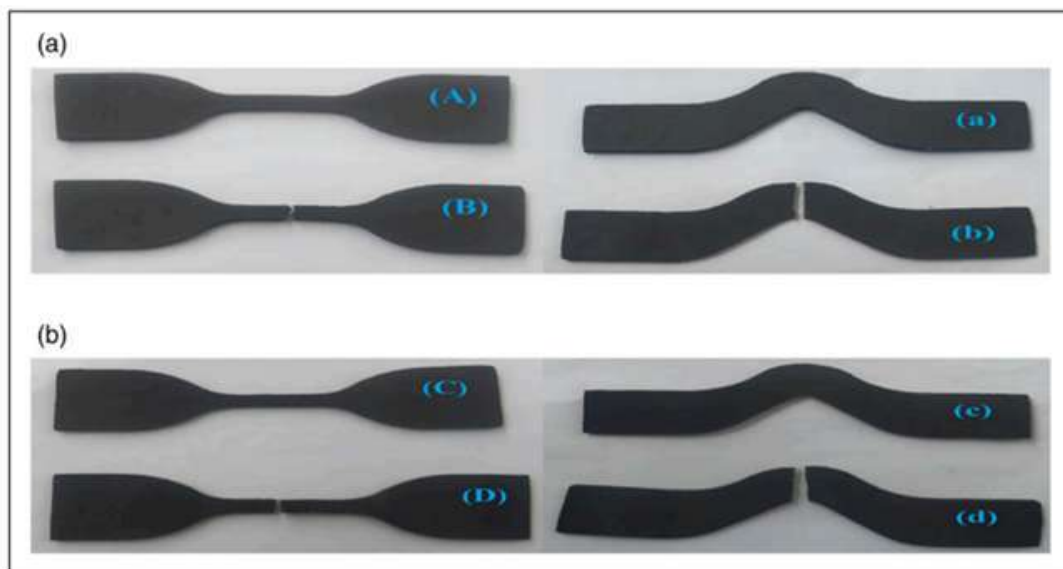


## International Journal Publication - SCI /Clarivate Indexed



P. kaliyappan, M. Dhananchezian "Investigation of mechanical properties and microstructural analysis of polymeric waste strengthened hybrid composites." *Journal of Elastomers & Plastics* 55 (6), pp. 977 – 999.

Clarivate Impact Factor: 1.7



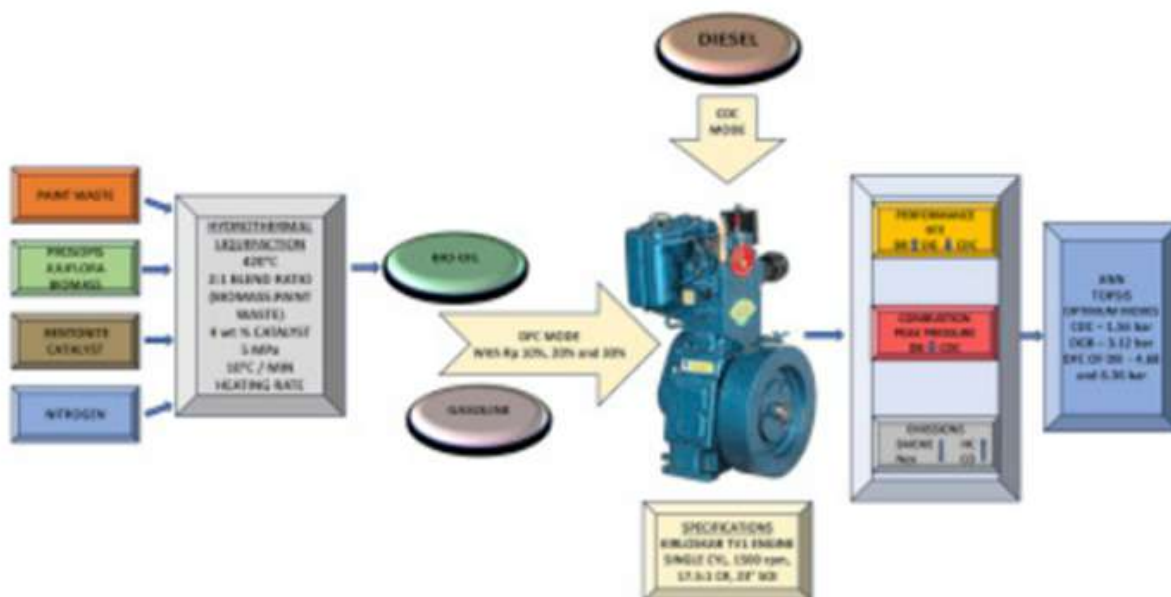
**Figure 2.** (a) Pure NR sample images of a tensile specimen of (A) before cut and (B) after cut, tear specimen of (a) before cut and (b) after cut. (b) NR/BR/SBR/GTR sample images of a tensile specimen of 40 phr of GTR (C) before cut and (D) after cut, tear specimen of 40 phr of GTR (c) before cut and (d) after cut.

## International Journal Publication - SCI /Clarivate Indexed



B. Jayakishan, S. Rajkumar, G. Nagarajan. Experimental investigation and optimization of dual fuel combustion using diesel/gasoline and Bio-oil extracted from Co-thermal liquefaction of paint/ biomass wastes: An approach towards waste to energy. Journal of Cleaner Production. 447, 141396.

Clarivate Impact Factor: 11.1





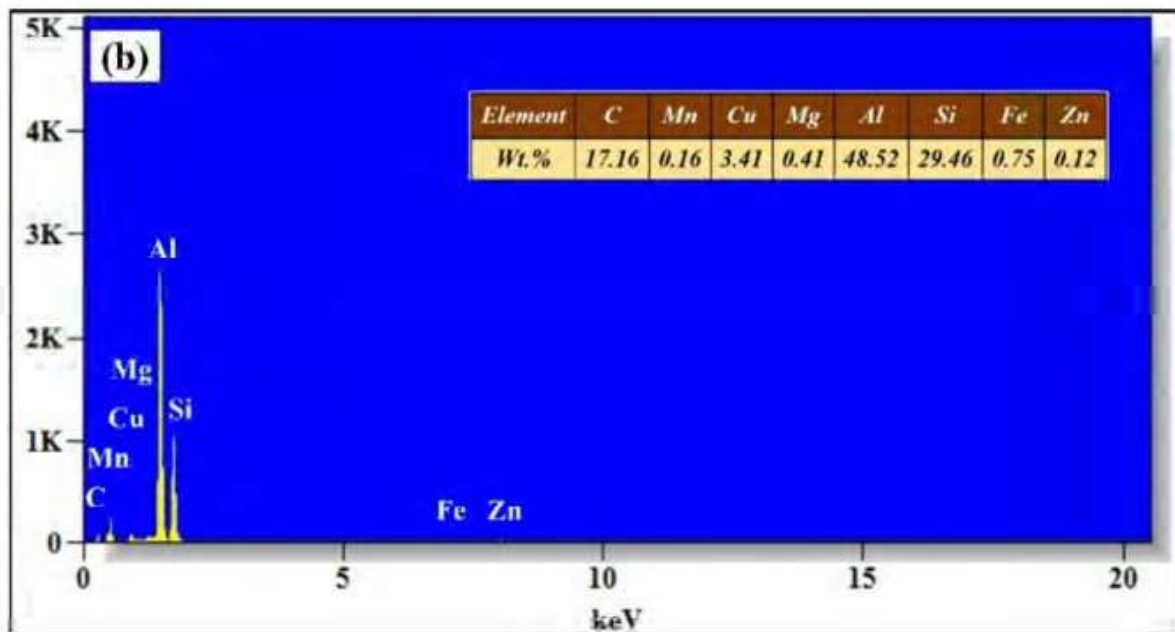
## International Journal Publication - SCI /Clarivate Indexed



S. Annamalai, B. Anand Ronald, D. Ebenezer. "Slurry erosive wear behaviour of SiC-reinforced Al 2124 composites: Effect of impingement angle and impact velocity." International Journal of Surface Science and Engineering. Vol. 18, No. 1, 1-21.

Clarivate Impact Factor: 1

(a)



(b)

## Scopus Publication

Nalla Mohamed. M, Nitish Aadithya. L. An Insight into Harvesting Sustainable Electrical Energy from Sound Hazards Using Piezoelectric Materials. MDPI-Engineering\_Proceeding..volume 61.

Scopus Impact Factor: 0.7

## National Workshop on Energy & Sustainability

National Workshop on Energy & Sustainability was organized on 6th March 2024. Dr. A. S. Ramana, Workshop convener delivered the welcome address. Dr. K. S. Vijay Sekar Prof. & Head, Mechanical Engineering Department highlighted importance of the workshop. Ms. Nivedita Dileep Associate Counsellor, CII IGBC, Chennai in her inaugural address dealt on the green buildings' certification process, benefits, and case studies. Dr. S. Kalaiselvam Prof. & Head, Department of Applied Science & Technology, Anna University, Chennai explained the role of nanotechnology and Phase change materials in enhancing energy efficiency of thermal systems. Dr. S. Rajkumar Asso. Prof., Dept. of Mechanical Engg., lecture focused on energy conservation aspects in buildings. Dr. R. Prakash, Workshop convener actively coordinated the events. Workshop focused on sustainability features and participants were enriched by knowledge shared by the speakers. Dr. B. Jayakishan, Workshop convener proposed vote of thanks.



**Ms. Nivedita Dileep, Associate Counsellor, CII IGBC**



**Dr. S. Kalaiselvam, Prof., Anna University**



**Dr. S. Rajkumar, Asso. Prof., SSNCE**

## Faculty Development Program on “Materials: A Futuristic Approach”

The Faculty Development Program on “Materials: A Futuristic Approach” was conducted for 5 days, 12 to 16 Feb 2024. The objective was to empower faculty members to integrate the latest advancements in materials science into their teaching, research, and mentorship activities. The program delved into various emerging materials, and technologies, including nanomaterials, biomaterials, and smart materials, among others. By leveraging interdisciplinary perspectives and industry partnerships and emphasizing sustainability, scalability, and adaptability, this forward-looking initiative equips educators with the tools and strategies needed to inspire the next generation of materials scientists and engineers.

Various eminent speakers were invited from IIT's, Industry, R&D labs, and other prominent Institutions to share their research expertise in novel materials technologies. Approximately 25 participants, mainly faculty members, research scholars, and students from various engineering colleges and industries attended the program.



Prof. S R Bakshi, IIT Madras, Dr. M Murali, Kalasalingam Academy of Research and Education, Prof. P Ramkumar, IIT Madras



Dr. C. Karthik, IIITDM, Kancheepuram, Dr. R Karunanithi, Crescent institute of science and tech, Mr. N. Rangarajan, Pricol, Former gen. Manager





Prof. Rohit Batra, IIT Madras, Dr. GowthamaRaj, University College Cork, Ireland

## Non Teaching Staff activities

<b>22/03/2024</b>	Mr. Balasundaram. Palanisamy attended one day workshop *National Workshop on High Performance Arc Welding Processes & Industrial Practices* on 22.03.2024 (Friday) 09.30 am to 12.30 pm in Mechanical Seminar hall, Mechanical Department.
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## Workshops organized

<b>07/03/2024</b>	Dr. A S Ramana, Dr. R. Prakash, Dr. S. Rajkumar & Dr. B. Jayakishan Associate Profs. organized National Workshop on Energy & Sustainability on 6.3.24
<b>23/03/2024</b>	Dr. S R Koteswara Rao, Dr. KL. Hari Krishna, Dr. A K.Lakshminarayanan conducted one day National Workshop on "Additive Manufacturing" on 15.03.2024
<b>23/03/2024</b>	Dr. S R Koteswara Rao, Dr. KL. Hari Krishna, Dr. A K Lakshminarayanan conducted one day Workshop on "High Performance Arc Welding Processes & Industrial Practices" in association with Lincoln Electric Pvt. Ltd, Chennai on 22.03.2024

## Webinars conducted

<p><b>25/03/2024</b></p>	<p>Dr.M.Nalla Mohamed organized a guest lecture titled'Synthesis and Characterization of Al7071 alloy' delivered by Dr.R.Karunanithi, Associate Professor, Crescent Institute of Science &amp; Technology, Chennai, for 2nd year students on 11.03.24</p>
<p><b>25/03/2024</b></p>	<p>Dr.M.Nalla Mohamed organized a guest lecture titled' Processing and Characterization of Mg Alloy and its applications" delivered by Dr. M.Thirumurugan, Associate Professor, Crescent Institute of Science &amp; Technology, Chennai, for 2nd year students, on 11.03.24</p>

## Events attended

<p><b>20/03/2024</b></p>	<p>Dr. S A Srinivasan, Assistant Professor has participated in Two day Technical workshop and training on "Decarbonisation Strategies for Automotive and Aviation: Technologies and Challenges" organized by Automotive Research Centre in association with School of Mechanical Engineering, Vellore Institute of Technology - Vellore on March 11, 2024 and March 12, 2024</p>
<p><b>23/03/2024</b></p>	<p>Dr. B. Jayakishan, AP/Mech., has attended a certified webinar on “Introduction to Powertrain Design” held on 9th Mar 2024 conducted by the Imperial Society of Innovative Engineers, India.</p>
<p><b>20/03/2024</b></p>	<p>Dr. S.A.Srinivasan, Assistant Professor, has participated in a One Week National Level Online Faculty Development Programme (FDP) on “ADDITIVE MANUFACTURING TECHNOLOGY” organized by Mechanical Engineering Department, Sandip University, Nashik from 04/03/2024 to 09/03/2024.</p>

## Scholar info

<p><b>19/03/2024</b></p>	<p>Dr. R.Prakash, ASP/Mechanical conducted the Viva Voce examination for his part-time research scholar, Mr.M Senthamil Selvan on 01.03.2024.</p>
<p><b>21/03/2024</b></p>	<p>Dr. S. Rajkumar, ASP/Mech conducted the PhD public viva voce examination for his part time research scholar Mr. T. Anandavelu on 18.03.2024.</p>
<p><b>23/03/2024</b></p>	<p>Dr. KL. Hari Krishna &amp; Dr. S R Koteswara Rao conducted Ph.D public viva voce of their Research Scholar Mr.N. Sivashanmugam on 11.03.2024 at 10.00AM</p>

## International Journal Publications

<p><b>01/03/2024</b></p>	<p>S. Annamalai, B. Anand Ronald and D. Ebenezer published a paper titled “Slurry erosive wear behaviour of SiC-reinforced Al 2124 composites: Effect of impingement angle and impact velocity” in the International Journal of Surface Science and Engineering.</p>
<p><b>01/03/2024</b></p>	<p>B. Jayakishan, S. Rajkumar and G. Nagarajan published a paper titled “Experimental investigation and optimization of dual fuel combustion using diesel/gasoline and Bio-oil extracted from Co-thermal liquefaction of paint/ biomass wastes: An approach towards waste to energy” in the Journal of Cleaner Production.</p>
<p><b>18/03/2024</b></p>	<p>Nalla Mohamed. M, Nitish and Aadithya L published a paper titled “An Insight into Harvesting Sustainable Electrical Energy from Sound Hazards Using Piezoelectric Materials” in the journal MDPI-Engineering _Proceeding.</p>



## About AIESEC AND GGIG

*By: Krishnaa Sudhir, Third Year*

AIESEC is a youth-run organization which is present in 100+ countries and 20+ cities in India. It was started in 1948 and has 70+ years of legacy. We work towards the 17 Sustainable Development goals and we try to make the work a better place. AIESEC Chennai conducted an event named Global Goals Impact Games on 10th March which is related to the third Sustainable Development Goal, “Good Health and Well Being”. The event was a futsal tournament with a total of 16 teams participating. It was held in FC Marina, Kilpauk.

As a member of the business development team, I was tasked with finding players as well as partnerships for the tournament. I successfully managed to obtain one team registration, namely Shadows FC. It was a pleasure working and coordinating with them as they were very responsive. I also managed some of the logistics on the day of the tournament. I found the entire experience valuable and helpful in developing my interpersonal skills. I also gained valuable insights on how to obtain and maintain partnerships.



# Industrial visit to Kerala

*By: S Kishore Kumar, Second Year*

The industrial visit and tour in Kerala offer a unique opportunity for students to gain practical insights and firsthand experience in industry while exploring the rich cultural and natural heritage of the region. The tour encompasses visits to key industrial establishments across different sectors, including manufacturing, tourism, agriculture, and technology.

Students have the chance to interact with industry professionals, observe production processes, and learn about the production and repairing process of various ships in the **SEA BLUE SHIPYARD** industry and the tour provides a comprehensive overview of Kerala's diverse industrial landscape.

In addition to the industrial aspect, the tour also includes visits to prominent tourist attractions, historical sites, and cultural landmarks across Kerala. Students will immerse themselves in the vibrant local culture, explore the scenic backwaters, lush hill stations, and pristine beaches, and indulge in the authentic Flavors of Kerala cuisine.

Throughout the tour, experienced guides and facilitators will accompany the students, providing informative commentary, organizing interactive sessions, and ensuring a safe and enjoyable experience for all participants. By combining education with recreation, the industrial visit and tour in Kerala offer a holistic learning experience that fosters personal and professional growth while showcasing the beauty and potential of "**God's Own Country.**"



## Organizing a conference...

*By: Aniruth Sridhar S, Third Year*

Earlier this year, the Department of Mechanical Engineering at SSN College of Engineering hosted the Third Edition of ARAM<sup>3</sup>, an international conference dedicated to Robotics, Artificial Intelligence, Mechatronics, Materials, and Management. The two-day event, held on March 28th and 29th, was graced by several eminent guests, including Dr. Bikash Gurung, President of Robotics Association, Nepal, and Dr. Swaminathan, Founder & CEO of Silicic Innova Technologies, Pvt. Ltd.



ARAM<sup>3</sup> also provided a platform to school students to showcase their robotics projects, and the most innovative projects were honored with prizes. On the second day, Dr. Xie Ming, Associate Professor at Nanyang Technological University, Singapore, delivered a talk on the latest trends in Artificial Intelligence. Moreover, the conference provided an opportunity for students to present their research papers on various topics, which were reviewed by session chairs. Overall, the two-day conference proved to be an enlightening experience for all the young and ambitious attendees.

Please refer the appended annexure on the ARAM conference with this issue for a more detailed outlook on the conference.



## Alumni Spotlight

*Featuring: Srinivas Sridhar, Batch of 2023*

Hello, Dear Readers,

How are you all doing? I hope each of you is thriving and keeping your spirits high. As for me, I'm here bursting with excitement to catch up and share a little slice of my journey with you all. My name is Srinivas, and my voyage began at SSN Institutions in 2019. College life started as expected, but then COVID-19 struck, altering our reality in unforeseen ways. The transition to online classes, labs, and exams was challenging, to say the least. Yet, amidst the chaos, we adapted, finding new ways to learn and connect.



As I progressed through my studies, projects became my passion. Collaborating with friends like Dharshanraj, Rufus, and Vigneshwaran brought joy and camaraderie to my college experience. One standout moment was leading an internal-funded project, made possible by the support and guidance of Sureshkumar Sir. Presenting our work to a large audience was nerve-wracking, but the sense of accomplishment was immeasurable.

Post-graduation, the job hunt began. Rejections became a familiar companion, each one stinging a little more than the last. But I refused to let setbacks define me. After months of perseverance, I received the offer I had been dreaming of – an Associate Technical Professional position at Kellogg's Brown and Root (KBR), specializing in the Piping Department. The elation I felt upon receiving that offer was beyond words.

Nine months into my role at KBR, I find myself continually learning and growing. The theoretical knowledge gained in college is now being applied in real-world scenarios, and it's both thrilling and humbling to see it all come together. To anyone out there facing challenges, I implore you: don't lose heart. The path to success is rarely straightforward, but with determination and resilience, you can overcome any obstacle that comes your way. Thank you for allowing me to share my journey with you. Here's to embracing the challenges life throws our way and emerging stronger on the other side.

Warm regards,  
Srinivas

## *No Competition, No Progress*

### Vanguard: Unite, Strategize and Overcome

Link: [Register here](#)



### ACE Virtual Ideathon

Link: [Register here](#)



## *From the desk of Ramki – Aspire to Inspire*

From Ramki

Happy Morning – Aspire to Inspire



The world discipline sounds like an alarm bell in people's minds. The dictionary defines the word 'Discipline' as regulations, order, systematic training.

Discipline also means giving yourself no choice or fall-back options, being tough on yourself, etc. Apart from all these meanings and definitions, we assign a sense of pain and sacrifice to it.

Standing on the terrace of their house, a man and his nine-year old son were flying a kite. Looking at the kite high up in the sky the little boy remarked, "Dad, the kite can actually go still further up in the sky, but it is stuck there only because of the string. Before the boy could say anything else, the man suddenly took a blade and cut the string. Instantaneously, the kite came crashing down. The child was shocked. With a lot of assertiveness, the father looked in the eyes of his son and said, "No son, it is the other way round. Actually, it is only because of the string that the kite reached that height and was enjoying the freedom of the skies. Without the string, the kite cannot go up and stay there." That string is what I am referring to as discipline. It is our discipline that takes us to the top and helps us to stay there, enjoying all the rewards of being on top.

An hour of disciplined exercise gives us the freedom to enjoy good health and fitness in the remaining hours. At least half an hour of prayer regularly gives us peace of mind and a stress-free life. A disciplined time for the family means freedom from complaints and cribbing. A disciplined work schedule means freedom from pending and stressful work. Financial discipline means freedom from a cash flow crisis.

Freedom is the not the right to do as we please, but the liberty to do what we ought to do. Rules are framed to make our freedom full and fair. Voluntary sacrifice of personal rights is the basis of peaceful social life. There is no liberty without limitations, no freedom without responsibility.

#WishingMostAndMore

Have a great day & wonderful weekend



**Dr. M S Alphin**



**Dr. Satheesh Kumar G**



**Kavya S**



**Harish S**



**Abirami Subbiah**



**Magari Ramasamy**



**Mithila V**