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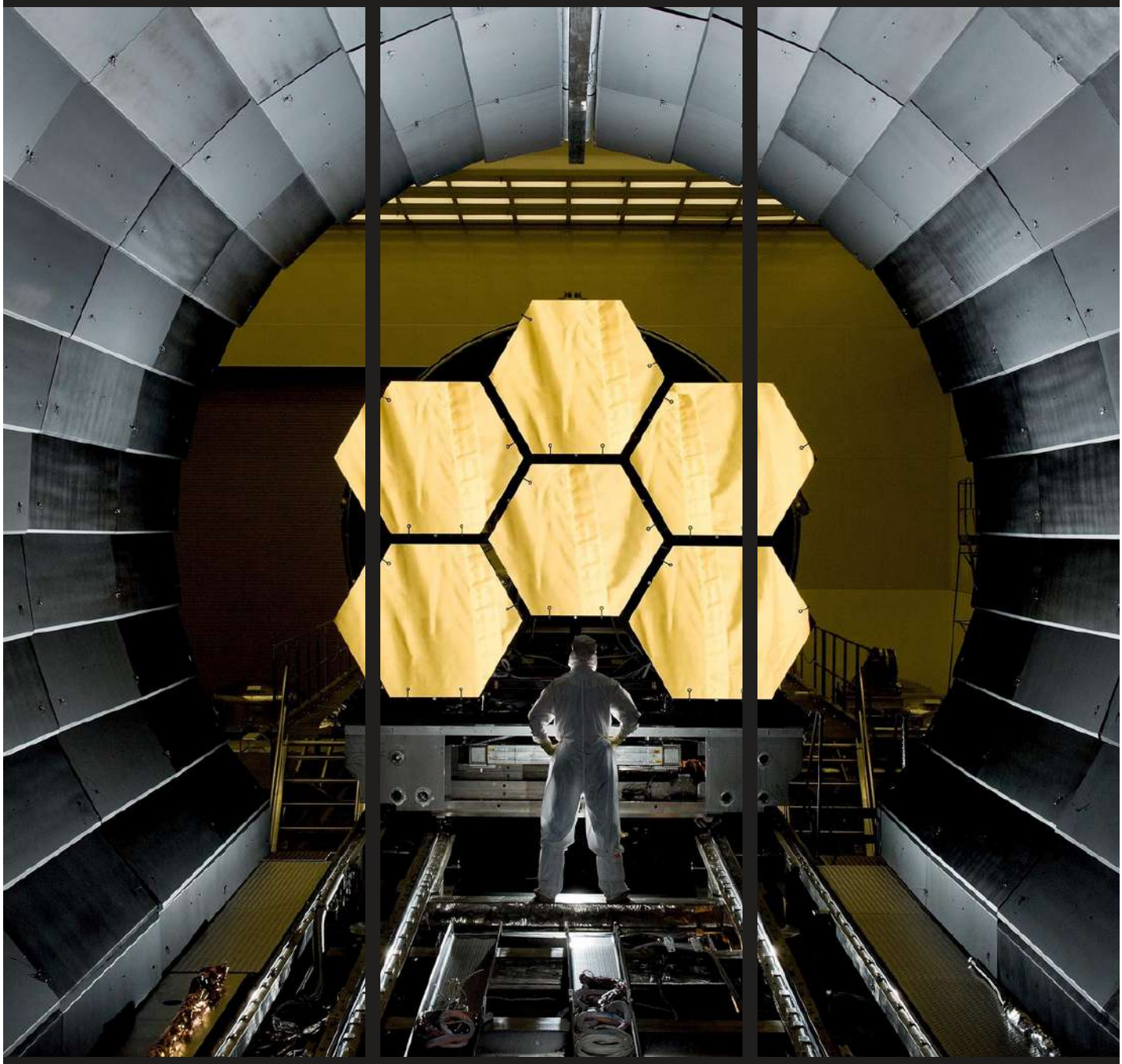
ASPIRE

ACHIEVEMENTS IN SPORTS, PROJECTS, INDUSTRY, RESEARCH AND EDUCATION

MONTHLY NEWSLETTER OF THE DEPARTMENT OF MECHANICAL ENGINEERING



SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

RAJIV GANDHI SALAI (OMR), KALAVAKKAM, CHENNAI, TAMIL NADU, INDIA

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

From the HoD's Desk...

We are delighted to bring you the November edition of Aspire!!

We profile Iranian activist Narges Mohammadi, who was awarded the Nobel Prize for Peace, 2023 for her fight against oppression of women and for promoting human rights.

Invente23 was welcomed with open arms by the student community, and it was their moment to exhibit their technical prowess as well as their organizational skills. At Mechanical, students displayed their leadership, project management and technical skills to conduct a plethora of events.

The placement season continues strongly with companies like Dow chemicals, Daimler, Saint Gobain and L&T recruiting our students. Publication in good impact factor journals continues with the mech team.

Prof Kannan, from Arizona State University, USA visited SSN to talk about the MS Clean Energy program and discuss potential collaboration opportunities. Faculty and students attended the wind energy conference and one of our faculty was invited as a mentor for a research workshop. Mech student shares his experience in organizing an Int. conference in IITM and experience in go kart competition. Thanks to SNU Noida as well as SNF for providing the racing team accommodation on campus during the event.

Our alumni share their journeys outside SSN as a Bosch engineer, University of Michigan graduate student and express their gratitude to their alma mater.
Happy November to All!!

Best Wishes,
KSV
vijaysekarks@ssn.edu.in

Narges Mohammadi: Nobel Peace Prize 2023

Narges Mohammadi has been awarded the 2023 Nobel Prize for Peace, “For her fight against the oppression of women and her fight to promote human rights and freedom for all”.

Narges Mohammadi is an Iranian human rights activist and journalist who has gained international recognition for her courageous efforts to promote human rights, particularly in the face of significant challenges and adversity. Born on the 21st of April, 1972, in Zanjan, Iran, she has dedicated her life to advocating for various social and political causes, including women's rights and the abolition of the death penalty. She began her career as a journalist and worked with various reformist publications and media outlets in Iran. She was an advocate for freedom of the press and used her platform to raise awareness about important social and political issues in the country.

One of the critical aspects of Mohammadi's activism has been her involvement in advocating for women's rights. She has been a vocal critic of discriminatory laws and practices against women. She has actively participated in campaigns to improve women's rights, such as those related to divorce and custody issues, as well as women's participation in public and political life. Her resilience in the face of adversity and her determination to continue her work despite personal risk have made her an inspiring figure in the global human rights community.

Narges Mohammadi's life and activism serve as a powerful example of the ongoing struggle for human rights and social justice in Iran. Her dedication to women's rights, her opposition to the death penalty, and her fearless pursuit of a more just and equitable society have made her a symbol of resilience and courage in the face of adversity.

Invente '23: Innovation Incarnated

INVENTE'23, the annual technical extravaganza of SSN College of Engineering, happened on the 6th and 7th of October 2023. Encompassing over Eight technical and Two Non-technical events, this time the department of Mechanical Engineering had truly created a creative array which engaged its audience effectively. These thought-provoking events had indeed pushed boundaries and has ignited creativity at its best.

Technical events:

- **Mechathlon** – Master core concepts through a series of exhilarating challenges.
- **Bottle Rocketrix** – Design and launch your very own rockets, aiming for new heights.
- **Hovercraft** – Conquer land and water as you design and navigate your own Hovercraft.
- **Blitz GP** – Let your need for speed reign supreme on the track as you push your racing cars to the limits.
- **Drone Racing** – Take to the skies and showcase your aviation racing skills as you navigate drones through challenging circuits.
- **Robo Wars** – Witness your creations come to life and battle for supremacy.
- **Project Presentation** – Share your ground-breaking innovations with the world.
- **Paper Presentation** – Showcase your research papers on a prestigious platform.

Non technical events:

- **Squid Game** – Test your survival skills in a real-life Squid Game.
- **Murder Mystery** – Unleash your inner Hercule Poirot and solve a captivating murder mystery.

The event was indeed the future of technology and innovation. This symposium witnessed massive active participation from the crowd as well.

invente '23
Innovation Incarnated

For detailed information about the event, please refer the attached Annex.

A Champion in the Making

Aditya surya from the mechanical department has bagged a bronze medal in senior men solo dance also a silver medal in the senior couple dance in the Asian roller skating championship 2023. This prestigious competition was held at the Beidaihe roller skating center, China from 18th October till 28th October. This is indeed truly a proud moment for our college as such. And we wish him the best for getting more accolades on his way.

Mechanical Engineering - Class of 2024

Bastian, Roshini and Varun got placed in DOW Chemicals.

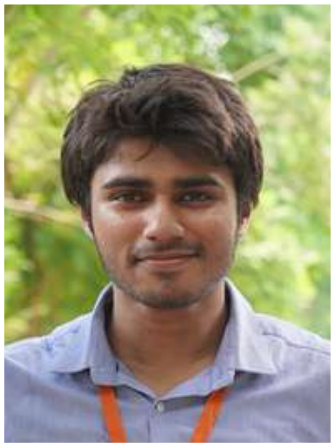
Bastian Bobby

Dow Chemical Company, American chemical and plastics manufacturer that is one of the world's leading suppliers of chemicals, plastics, synthetic fibers, and agricultural products.

Roshini

Varun

Arnav Garg got placed in Facilio



Facilio is a company that develops management software. Facilio harnesses IoT to connect and unify your teams, systems, and equipment across multiple facilities.

Harish Kumar got placed in Saint Gobain

Saint-Gobain designs, manufactures, and distributes materials and solutions which are key ingredients in the wellbeing of each of us and the future of all.

Nikhil got placed in Larsen and Toubro Ltd.

Larsen & Toubro Ltd, commonly known as L&T, is an Indian multinational conglomerate company, with business interests in engineering, construction, manufacturing, technology, information technology and financial services.

Shruthik got placed in Everstage Inc.

Everstage sets up seamless data management for accurate commission calculations, and ensure data security with advanced access control.

Vaitheeshwaran got placed in McDermott International

McDermott is a premier provider of engineering and construction solutions to the energy industry.

Muhammad Jasoor got placed in Worley

Worley is a leading global provider of professional services in the energy, chemicals and resources sectors.

Aswin Balan and Venkatanathan got placed in KBR India Pvt Ltd.

Aswin Balan

KBR, Inc. is a U.S. based company operating in fields of science, technology and engineering. KBR works in various markets including aerospace, defense, industrial and intelligence.

Venkatanathan

Siddanth and Thirusurya got placed in Daimler

Siddanth

Daimler is one of the world's largest commercial vehicle manufacturers, with over 40 production sites around the globe and more than 100,000 employees.

Thirusurya

International Journal Publication - SCI /Clarivate Indexed

Naveenprabhu, Venkateswaran, and Mariappan Suresh. "Performance studies on a water chiller equipped with natural fiber cooling pad based evaporative condenser." *Industrial Crops and Products 201 (2023)*: 116923. Clarivate Impact Factor: 5.9

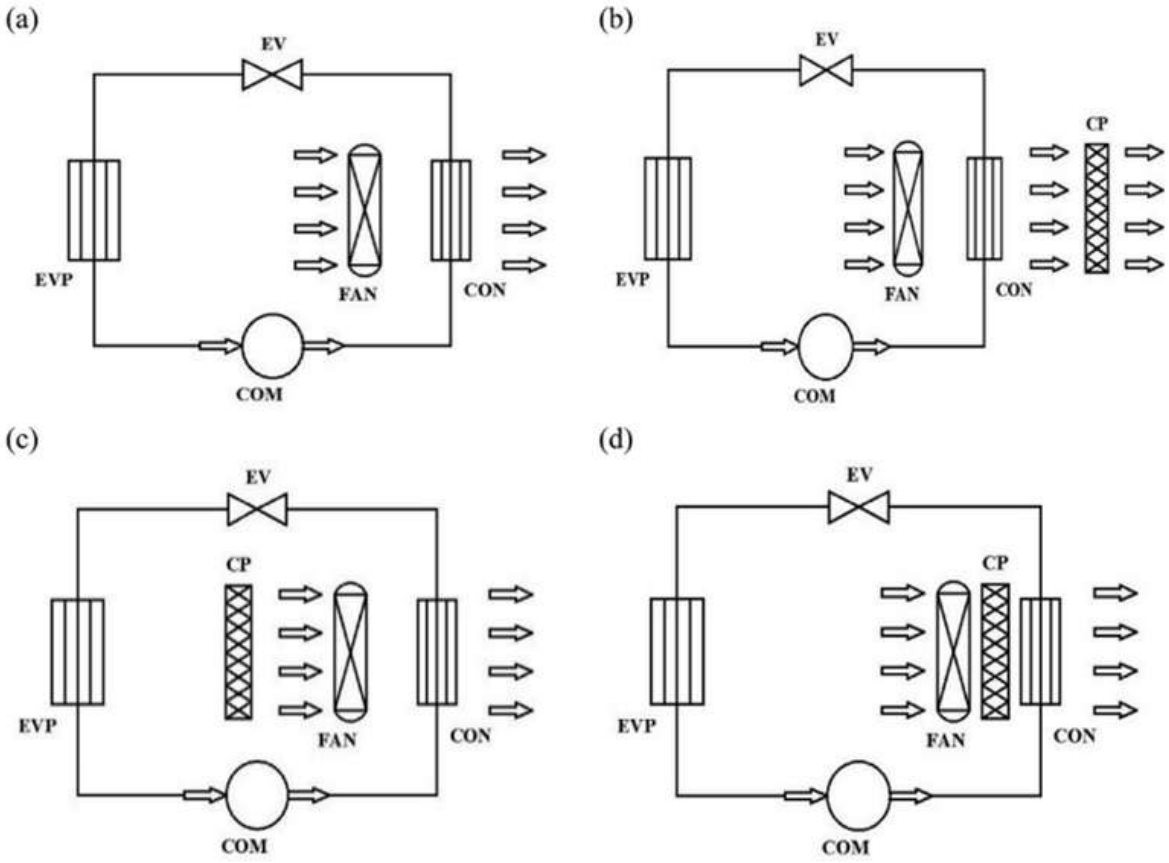


Fig. 1. **(a)** Schematic of a traditional vapor compression refrigeration system (VCRS). **(b)** Schematic of a conventional vapor compression refrigeration system (VCRS). **(c)** Schematic of VCRS with the cooling pad placed before the fan and condenser. **(d)** Schematic of VCRS with the cooling pad placed in between the fan and condenser. **(e)** Experimental arrangement of evaporative cooling with cooling pad and different kinds of cooling pads.

International Journal Publication - SCI /Clarivate Indexed

Gobivel, K., and K. S. Vijay Sekar. "Assessment of Johnson-Cook material constitutive parameters in finite element simulation of machining Al–SiC metal matrix composite." *Journal of the Brazilian Society of Mechanical Sciences and Engineering 45.11 (2023)*: 567. Clarivate Impact Factor: 2.2

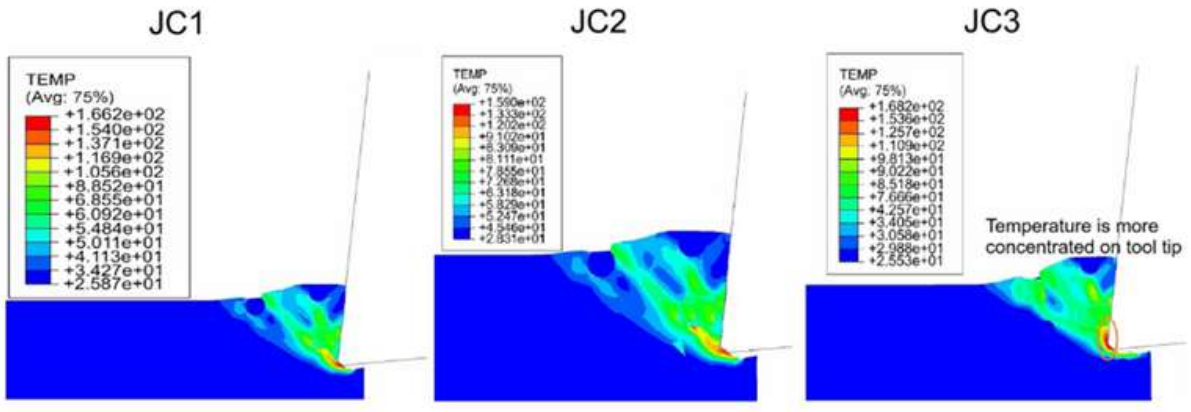


Fig. 14 Predicted cutting temperature simulation at 'v' 150 m/min and 'f' 0.079 mm/rev

International Journal Publication - SCI /Clarivate Indexed

B. Anand Ronald, KN, Mohammed Riaz Khan, G. Kishore, V. Lokesh, and R. K. Mullaivananathan. "INFLUENCE OF THE BUILD AXIS AND ANGLE ON THE PROPERTIES OF 3D PRINTED PLA." *Materials and Technology 57, no. 5 (2023)*: 495-499. Clarivate Impact Factor: 0.638

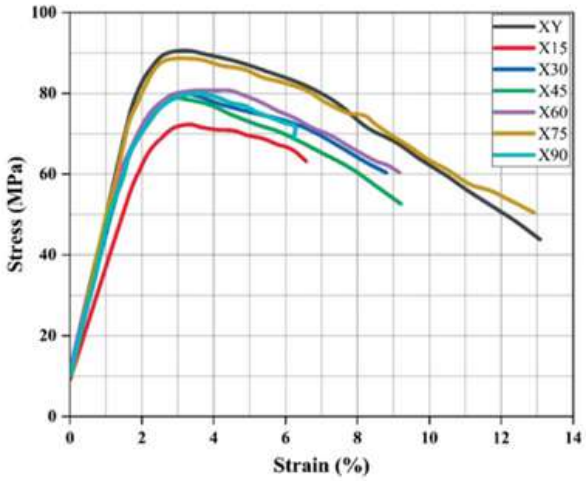


Figure 6: Flexural stress-strain graphs for X-samples

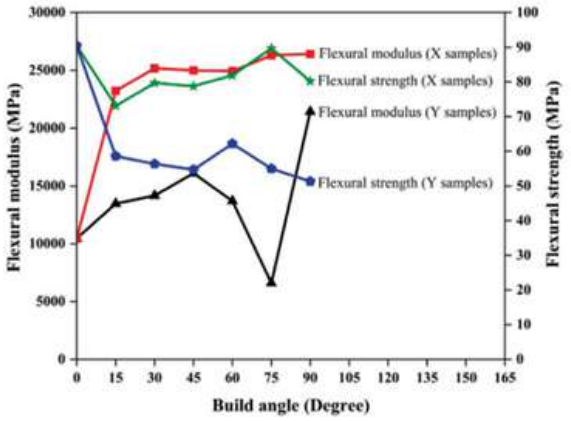


Figure 8: Comparisons of the flexural modulus and flexural strength values of the samples printed at different angles for X- and Y-orientations

International Journal Publication - SCI /Clarivate Indexed

Arun, A., K. Rajkumar, and S. Santosh. "Fiber laser cutting study on ternary NiTiV shape memory alloy." *Materials and Manufacturing Processes (2023)*: 1-10. Clarivate Impact Factor: 4.8

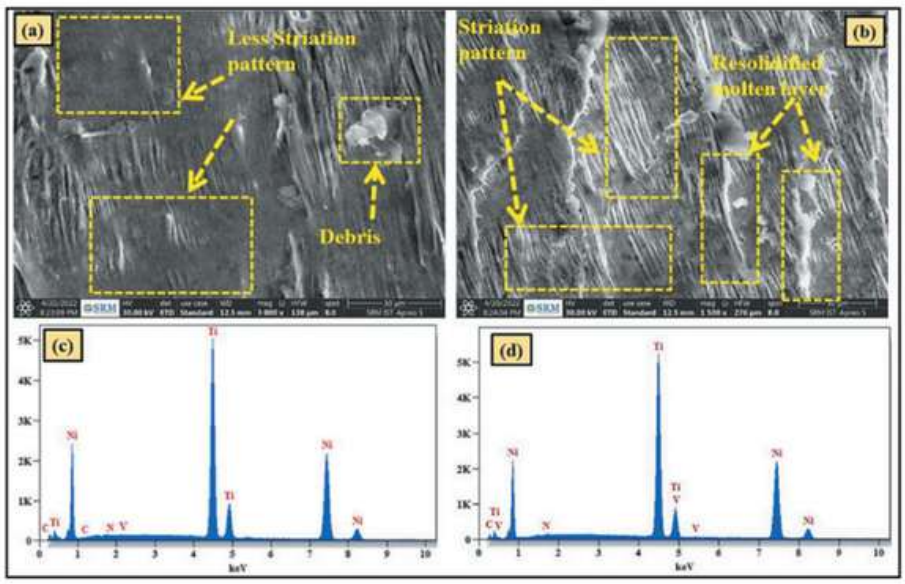


Figure 4. (a, b) the surface morphology of laser machined samples low and high parameter (c, d) EDX for laser machined $Ni_{50}Ti_{48}V_2$ SMA for low and high parameter conditions.

International Journal Publication - SCI /Clarivate Indexed

Dhiman, Brajesh, Divya Zindani, Debkumar Chakrabarti, and Gurdeep Singh. "A user-centric assessment of solar-photovoltaic-home-lighting systems in rural parts of Assam, India." *Energy for Sustainable Development 76 (2023)*: 101290. Clarivate Impact Factor: 5.5

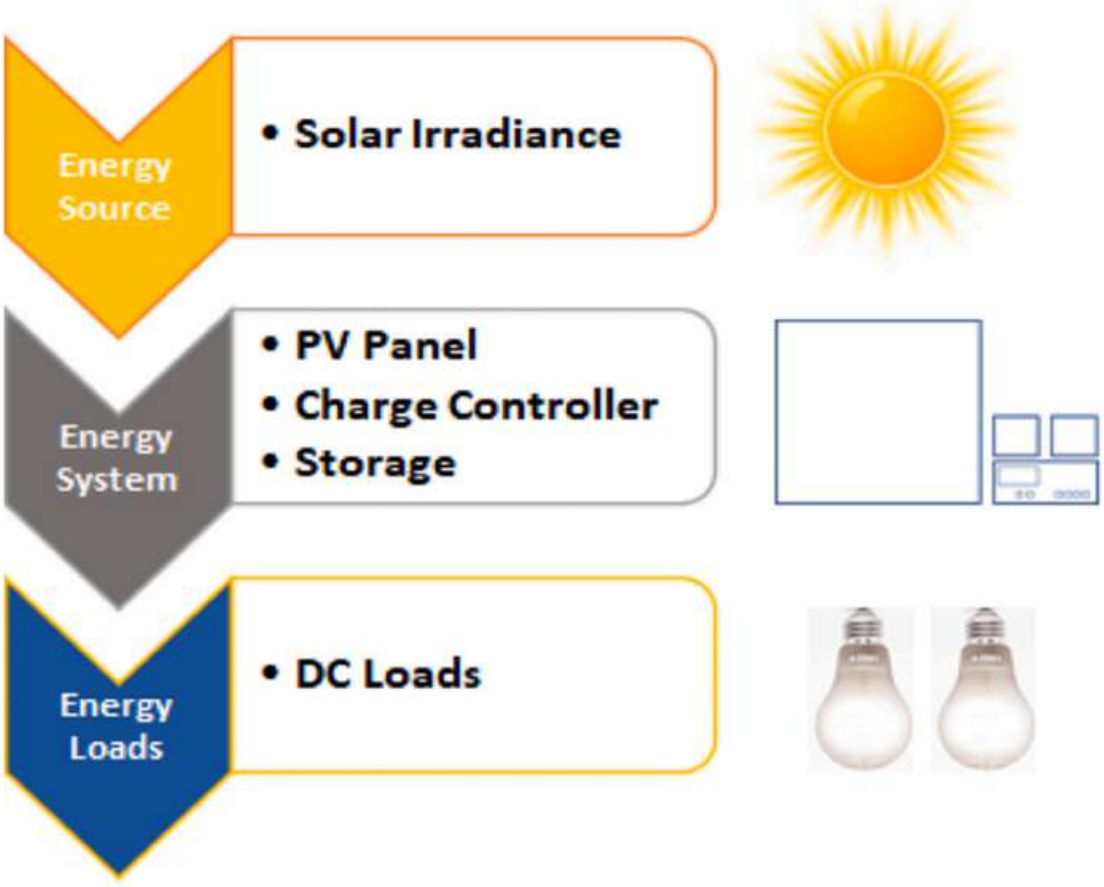


Fig. 1. A solar-powered home lighting system is shown diagrammatically.

International Journal Publication - SCI /Clarivate Indexed

Santosh, S., and S. Srivatsan. "Unravelling the use of silica recovered from waste foundry sand in sustainable water jet machining of a copper-based ternary shape memory alloy." *Materials Today Sustainability 24 (2023)*: 100553. Clarivate Impact Factor: 7.8

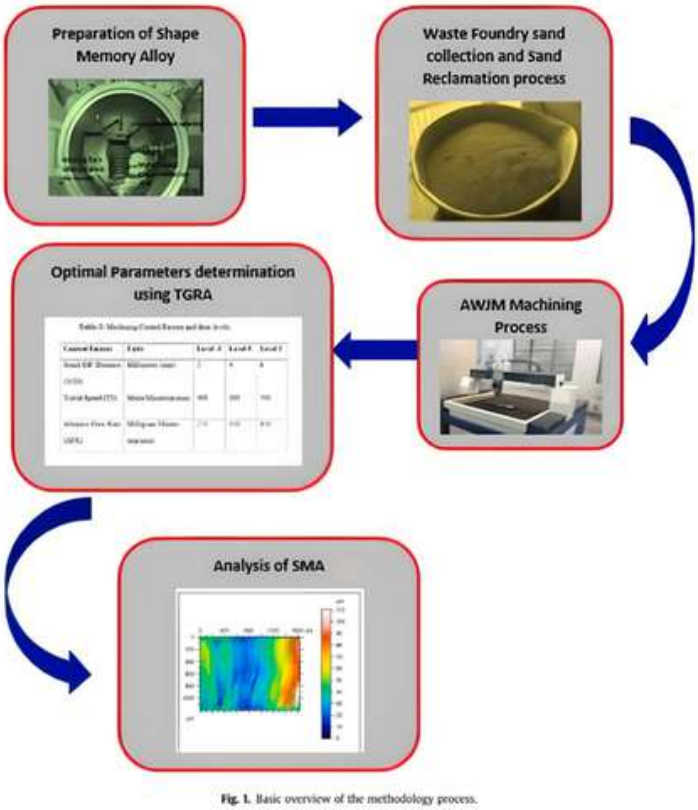


Fig. 1. Basic overview of the methodology process.

Scopus Publication

Annamalai, S., B. Anand Ronald, and D. Ebenezer. "The Effect of Processing Techniques and Operating Parameters on the Erosion Wear Behavior of Particle-Reinforced Metal Matrix and Surface Composites: A Review." *Journal of Bio-and Tribo-Corrosion 9, no. 4 (2023)*: 73. Scopus Impact Factor: 3.117

Professor. A M Kannan, Arizona State University, visits SSN

On October 5th, SSN Institute had the privilege of hosting Professor Arunachala Kannan, a distinguished educator, and Principal Scientist at ZEVX, Arizona, along with his affiliation to the Ira A. Fulton Schools of Engineering at Arizona State University. Professor Kannan's visit was marked by a significant agenda to introduce a new Master's program in Green Energy at Arizona State University. This visit not only served as an informative session but also opened up avenues for potential research collaborations with the faculty members at SSN. Professor Kannan's primary objective for visiting SSN Institute was to provide a comprehensive overview of the newly established Master's program in Green Energy at Arizona State University.

This program promises to be a game-changer in sustainable energy and is poised to attract aspiring students with a passion for environmental sustainability and innovative technologies. Economic viability, green energy education, and research were also part of the discourse, highlighting the economic benefits, job creation, and the need for modernized energy grids. Attendees were introduced to the program's application process, which is open until December 15th, offering an excellent opportunity for Indian students to further their education in green energy.

Attendees – Dean, HOD's of MECH/EEE/CHEM and relevant faculty and higher studies students.

In addition to discussing the master's program structure, Professor Kannan delivered an engaging lecture on Green hydrogen systems. Further, he delivered the integration of renewable energy sources and energy storage solutions, emphasizing the importance of advanced batteries and energy management systems to address the intermittency and reliability challenges associated with renewables. Professor Kannan also shed light on the environmental and societal benefits of green energy, including reduced carbon emissions, cleaner air quality, and a decreased reliance on fossil fuels. Moreover, he touched upon recent technological advancements in green energy, ranging from enhanced energy efficiency to innovative materials for solar panels and wind turbines.

Economic viability, grid modernization, green energy education, and research were also part of the discourse, highlighting the economic benefits, job creation, and the need for modernized energy grids. Finally, he acknowledged the challenges and obstacles that the green energy sector faces, including issues related to energy storage, infrastructure, and resource availability, underscoring the multifaceted nature of transitioning to sustainable energy solutions.

WindEnergy Conference

Windergy India 2023 is the preeminent industry platform for the wind energy sector, featuring conferences and exhibitions of the most recent innovations. Dr. Micha Premkumar, along with PG energy students Mr. E Bharath and Mr. E Surya Prakash, participated in Windergy India 2023, a 5th international conference and exhibition at the Chennai Trade Centre on October 6, 2023. The theme of the conference was "Power of Wind 2.0 – Energising the Future of India." This event is sponsored by the Ministry of Power, the Indian government, the Ministry of New and Renewable Energy, and the National Institution for Transforming India. This event seeks to serve as a forum for knowledge sharing, networking, and showcasing the latest wind power industry developments. This networking event will provide an opportunity for collaboration between the most influential players in the wind power industry through the discussion of vital topics.

Research Mentor for the Research-O-Pedia 5.0 workshop

Dr. Divya Zindani had the honor of being invited as a research mentor for the Research-O-Pedia 5.0 workshop held at the Unitedworld Institute of Design (UID), Karnavati University, Gandhinagar, Gujarat from October 26, 2023, to October 28, 2023. This event brought together faculty members and research scholars specializing in industrial design, communication design, fashion and lifestyle, and interior design. During the event, he provided guidance and motivation to these dedicated individuals, encouraging them in their endeavors to publish their ongoing research work.

Journey to Placements

By: Vaitheeshwaran, Final Year

Greetings to everyone! This is Vaitheeshwaran, a final year student from the Mechanical Department.
I'd like to tell you about my placement experience at McDermott International..

It was a pool recruitment process in which people from seven different colleges participated. The entire recruitment took place in one day at their company's office.

The day began with Pre-Placement Talk in which they briefed us about the company and our roles. Try to take notes as sometimes that might ask questions related to it in your personal interview.

The entire recruitment process consisted of 3 rounds:
1) Aptitude and Technical test
2) Group discussion
3)Technical & HR Interview

ROUND 1: Aptitude and Technical test
It was a pen paper test which consisted of 60 questions of which 50 questions were from technical concepts and 10 questions were from aptitude part. The difficulty level of the questions from the technical side were pretty standard while the aptitude was very easy. The entire test had negative marking and it consisted of both theoretical and numerical questions. Majority of the technical questions were from HMT, Fluid Mechanics, Strength of Materials, Metallurgy, Manufacturing Process and Engineering Graphics.

ROUND 2: Group Discussion
After one hour, the results were announced and 15 people were shortlisted from a pool of 60 candidates from mechanical departments across all institutions. Each Panel consisted of 3 members from McDermott. They gave us two topics for the GD and told us to pick one of them.
TOPIC 1: Is shopping online a good thing or a bad thing?
TOPIC 2: Is Gadgets Connecting or Separating people?
We Chose the second topic and the entire GD took place for about 20 minutes and finally the company officials asked each one us to conclude about their take on the topic.

ROUND 3: Technical and HR Interview

About an hour later, we were called for the technical and HR interview. The entire interview took place for about 30 minutes. There were 3 panel members in our interview process. At first I was asked to introduce about myself. Make sure your self-introduction is crisp and concise. Later, I was questioned about my projects and my internships. After that, they asked me a bunch of questions about my online courses and the design and simulation software's stuff that I mentioned in my resume. Make sure that the information on your resume is complete and you have a complete knowledge over it. They then proceeded to ask me a variety of questions about my subjects of interest which is fluid mechanics and heat transfer. Please be meticulous with the subject of interest that you describe as I was asked to write down the formulas and explain it. Finally, they concluded the interview by asking me some basic HR questions which you can find it in various websites like INDIABIX,WORKABLE,etc.

After the final round, the candidates were allowed to leave the campus, and the results of the recruitment process were announced within a week. Overall, McDermott had a thorough and organized recruitment process which gave the candidates an opportunity to demonstrate their expertise in their technical and human resource skills

Organizing a Conference

By: Venkatanathan, Final Year

Greetings everyone! This is M A Venkatanathan, Final Year student in Mechanical Department.

I am here to share with you all my experience of interning in the organizing committee of "4th Edition of Heat treatment and Surface Engineering – Conference & Expo - 2023". This 3-Day International Conference & Expo was organized by the American Society of Metals (ASM) International, Chennai Chapter.

I got this opportunity through a LinkedIn post, in which there was an opening for an intern for the conference. Subsequently I emailed the author of the post, Mr. Shankar Subburathinam from Caterpillar, enquiring about the opening and showing my enthusiasm to join as an intern. Further, I had a few calls with the organizing team, and amidst tough competition from students of various premier institutions, they announced that I was perfect for the role and gave me the offer.

My role included:

- Contacting potential delegates (both local and International), for invited lectures and keynote talks, inviting them for the conference.
- Organizing meetings on a regular basis.
- Documentation.
- Designing posters and managing the social media handles of ASM Chennai Chapter, etc.

The job was a very demanding one, since I had to work with industry experts as well as academicians with 30+ years of experience, and the expectations that had to be met on a daily basis were huge. But, as they say, the pressure of producing valuable outcomes makes you work harder and makes your thinking more critical, and that helped me in prioritizing my tasks and managing both my academics as well as my internship.

I joined the committee last December and I have been working with the team for the past 10 months. As the conference dates approached closer, the pressure just skyrocketed. Handling of each and every detail about the conference & expo was placed on my shoulders, and even a small mistake in the tally could have led to losing a potential delegate.

The 3-day conference & expo took place at Chennai Trade Centre, Nandambakkam, Chennai on September 28-30, 2023. 140+ technical papers in the domain of Heat Treatment, Surface Engineering and Advanced Materials and Manufacturing were presented, 60+ stalls were put up, 500+ delegates attended the conference and 3000+ business visitors attended the expo. There were a lot of struggles but, with the guidance of my superiors and help from the volunteers, we were able to pull off the event and the 3-Day conference & expo was declared a grand success.

Overall, this was a really rewarding experience since I got to meet a lot of industry people and gained multiple connections, and helped improve my organizing skills.

I would like to thank Dr. S. Santosh, who helped me get this opportunity to work for the conference. I would also like to thank Dr. D. Ananthapadmanaban and Mohammed Akmal, Final year Mechanical Engineering student, for supporting the organizing team during the conference & expo. I would also like to thank the Department of Mechanical Engineering, SSNCE for helping me in completing this internship.

Last but not the least, I would like to thank Mr. Shankar Subburathinam from Caterpillar, who stood by me and guided me throughout the internship period, providing valuable lessons on both professional and personal level.

One Team, One Dream

By: Apex Racing, Official Gokarting team of SSNCE

The Apex Racing Go Karting Team from SSN had a strong presence at the Indian Karting Race 23, held at Galgotia University, Noida. With a team comprising 23 members, they achieved remarkable success. Their innovative approach earned them a 2nd place in the innovation round, while their management team secured the 2nd place for their business presentation. Additionally, the team was honored with the ISIE Future Award, receiving a substantial prize of ₹5000 for their promising future in the racing world.

After their setback in IKR, the team is fully determined to redeem themselves at the Indian Karting Championship (IKC) which is scheduled to take place on February 2024.

Alumni Spotlight

Featuring: Sam Kamal Subramanian, Batch of 2016

Greetings! I'm Sam Kamal Balasubramanian, an aspiring individual with a rich tapestry of work experience, a deep passion for technology and design, and a strong commitment to functional safety. I hold an Engineering Management degree from Northeastern University in Boston, a place that has played a pivotal role in shaping my academic and professional journey.

Previously, I had the privilege of working at Bosch as a Senior Design Engineer, a role that enriched my understanding of product development and engineering, and prepared me for my future endeavors. I'm thrilled to embark on a new adventure as a Product Safety Engineer at Valeo, where I will contribute my expertise and enthusiasm to ensure that the products we create are not only cutting-edge but also adhere to the highest safety standards. My journey has been enriched by the education and mentorship I received at SSN College . I extend my heartfelt thanks to SSN for providing me with the knowledge and skills that have been the foundation of my career.

I also wish to express my deep appreciation to the professors at SSN who have been instrumental in shaping my academic and professional growth. Their guidance and insights have been invaluable, and I carry their lessons with me as I continue to evolve in the world of product development and engineering.

Recently, I had the privilege of attending the MIT Product Conference, a transformative experience that left me inspired and invigorated. The conference boasted an impressive lineup of speakers and a highly engaged community of attendees. What truly stood out for me was the panel discussion on 'Product and Society: Building Mindful Products.' It was a profound moment of enlightenment as I listened to product leaders from various industries share their journeys and the complex challenges they've encountered in the pursuit of creating products that are not only commercially successful but also ethical and socially responsible.

Thank you for taking the time to get to know me a little better, and I am eager to embark on this exciting journey with Valeo and the broader professional community.

Alumni Spotlight

Featuring: Cynthia Joy, Batch of 2016

Hi, my name is Cynthia Joy.(batch of 2022).Currently, I am doing my masters degree in industrial and operation from the University of Michigan and I would like talk about my summer experience at CHEPS. The past summer brought me the fantastic opportunity to join the dynamic team at CHEPS, delving into the world of healthcare through the lens of engineering. What an exhilarating journey it has been!

Working within the healthcare sector as an engineer was a true thrill, offering me a unique perspective on the industry. I had the privilege of harnessing an array of powerful tools, from Python, and Jira to Tableau and Power BI, allowing me to unveil insights and drive impactful decisions.

One standout moment was finally attending a lecture by the esteemed Dr. Amy Cohn, an experience that enriched my understanding of the field. But what truly made this summer exceptional were the remarkable connections I formed, both with the dedicated staff and the brilliant students which added an enriching layer to my journey.

At the heart of it all were the projects that fueled my passion. From tackling the challenge of reducing In Basket burden at Michigan Medicine to contributing to PATH (Prenatal Plan for Appropriate Tailored Healthcare) by collaborating with Dr.Alex Peahl , every moment was an opportunity to make a real impact.

Handling real-time data was both exhilarating and humbling. A few datasets were incredibly massive, to the extent that they overwhelmed my laptop's capabilities! However, these experiences allowed me to conquer the realm of big data, equipping me with the skills to navigate these challenges and offer data-driven insights that matter.

As I reflect on this transformative summer, I can proudly say that I've unlocked a new level of proficiency in dealing with intricate data and employing the right tools to craft informed data-driven recommendations. Here's to the learnings, the growth, and the future endeavors that lie ahead!

I followed my passion for data science and data analytics and so do I wish your path also to be. Thanks to SSN and the mechanical engineering dept have been a pillar of support till date and I feel extremely lucky to be a part of this family.

Competition Update

NO Competition, No Progress

Reacathon:

Link: Register here

MICA

Start Your Own Startup (SYOS)

Link: Register here

Corporate Wisdom

From the desk of Ramki -– Aspire to Inspire

From Ramki
Happy Morning – Aspire to Inspire

If two people are trying to climb a mountain together, what is the most important things they need to get to the top?
Is it
• Equipment
• Training
• Teamwork
• Favorable weather conditions
Well, they need all of these for sure. But the most important thing is the MOUNTAIN itself, they need a clear GOAL!

Too often, we get obsessed with the equipment and the training but have no clear goals. The best mountain climbing equipment is of little use if you don't have a mountain to climb. When you have you own mountain to climb, everything changes.
• You get your sense of purpose
• You begin to want to climb that peak.
• You become disciplined.
• You get up early.
• You brave the cold.
• You watch your diet.
• You seek out experts.
• You read the books

All because you have a mountain to climb and a peak to conquer. Equipment's, Skills, Competence, Training everything comes later depending on the mountain you want to climb. So instead of complaining about your equipment or your training and worrying about buying more sophisticated gadgets, set your goals first. Ask questions "what is that I want ", and next one "How do I get there?" Get the answers for these.

Next things take time and write down your goals today

"The best mountain climbing equipment is of little use, if you don't have a mountain to climb".

#WishingMostAndMore
Have a great day & wonderful weekend
R. Ramakrishnan
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