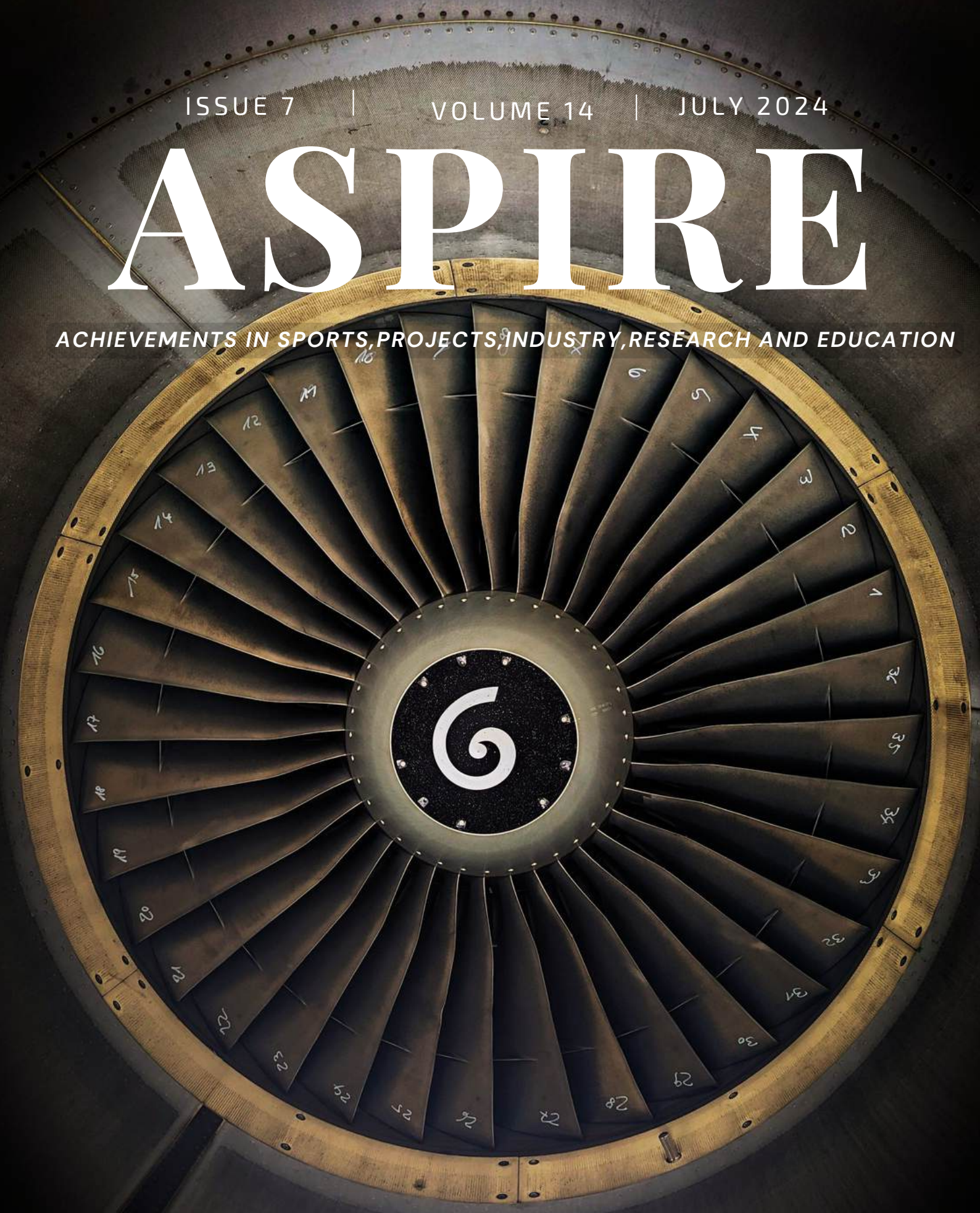
ISSUE 7 | VOLUME 14 | JULY 2024

ASPIRE

ACHIEVEMENTS IN SPORTS,PROJECTS,INDUSTRY,RESEARCH AND EDUCATION



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 share the July edition of Aspire!

We profile Carolyn Bertozzi, who won the 2022 Nobel Prize in Chemistry for her pioneering work studying biological processes in living organisms that help counter infectious diseases.

It's heartening that SSN students secured internships at Carnegie Mellon University and SNU Delhi-NCR honoured meritorious XII std students. Mechanical students were offered internships from Precision Equipment, a company based in Chennai

The department organized a workshop on recent trends in material processing and our ME Manufacturing students visited 3D Monotech, a company that specializes in Additive manufacturing. A final year student shares his experience in his final year project on biofuels being chosen as one of the 1000 best project ideas from 8500 entries in the Naan Mudhalvan Niral Thiruvizha organized by the TN Government.

One of our Mech alumni from the 2024 batch shares his journey in getting admitted to Northeastern University, while an alumnus from the 2018 batch shares his experience being a Research engineer at Google DeepMind.

Best Wishes for a heartwarming July,
KSV
vijaysekarks@ssn.edu.in

CAROLYN BERTOZZI: INNOVATOR IN BIOORTHOGONAL CHEMISTRY

Carolyn Bertozzi, born in 1966 in Boston, Massachusetts, has established herself as a pioneering figure in chemistry and biomedicine. Her innovative contributions to bioorthogonal chemistry have revolutionized the way scientists study biological processes in living organisms. What sets Bertozzi apart is her relentless pursuit of developing chemical tools that allow for the precise manipulation of biological molecules within their natural environments.

Bertozzi's academic journey began at Harvard University, where she earned her undergraduate degree in chemistry in 1988. Her passion for chemistry and its potential to impact biology led her to the University of California, Berkeley, where she completed her Ph.D. in 1993 under the guidance of renowned chemist Mark Bednarski. It was during this time that Bertozzi developed a keen interest in glycobiology, the study of complex sugars on the surfaces of cells, which would become a central theme in her research.

After completing her postdoctoral work at the University of California, San Francisco, Bertozzi embarked on a groundbreaking academic career. She joined the faculty at the University of California, Berkeley, where her innovative research began to gain significant recognition. One of her most notable achievements is the development of bioorthogonal chemistry—a set of chemical reactions that can occur inside living organisms without interfering with native biochemical processes. This breakthrough has enabled scientists to label and track biomolecules in real time, providing unprecedented insights into cellular functions and disease mechanisms.

SSN STUDENTS SECURE PRESTIGIOUS INTERNSHIPS AT CARNEGIE MELLON UNIVERSITY

Shivani Jasmin Kunjithapatham, Shreyas Sai R, Bhavana Anand, Sanjai Balajee, Mitul Krishna, and Sasmitha Baskaran from the SSN College of Engineering 2025 batch have embarked on a prestigious journey by commencing their internships at Carnegie Mellon University, USA, on June 18, 2024. This significant achievement reflects their academic excellence and dedication. The internship at such a renowned institution will provide them with invaluable exposure to advanced research and professional development opportunities. We extend our heartfelt congratulations to these outstanding students and wish them a successful and enriching experience. Their accomplishments bring pride to SSN and inspire their peers to pursue excellence.

SHIV NADAR UNIVERSITY,DAINIK JAGRAN FELICITATE CLASS 12 TOPPERS

Shiv Nadar University Delhi-NCR, in collaboration with Dainik Jagran, honored over 500 students who scored above 90% in their Class 12 board exams with certificates and medals at the Young Students' Excellence Award function on June 19 at Delhi's NDMC Convention Centre. Special guests included Professor Rajive Kumar (AICTE), Mr. Kapil K Tripathi (Ministry of Science and Technology), and Mr. Ajay Chaudhry (Delhi Police). Dr. Rajeev Kumar Singh emphasized focus, empathy, and resilience as keys to success. The event highlighted the achievements of students, with over 87% passing the exams. Shiv Nadar University also announced liberal scholarships, including a new Rs 4 lakh scholarship for meritorious female B.Tech. students and the School Topper's Scholarship.

International Journal Publication - SCI /Clarivate Indexed

Sakthivel GVR, Nalla Mohamed M. ”Effect of snail shell powder addition on mechanical and microstructure behaviour of mercerized roselle fiber reinforced epoxy resin-based hybrid composite”. Physica Scripta. Volume 99, Number 7, 1-14.

Clarivate Impact Factor: 2.9

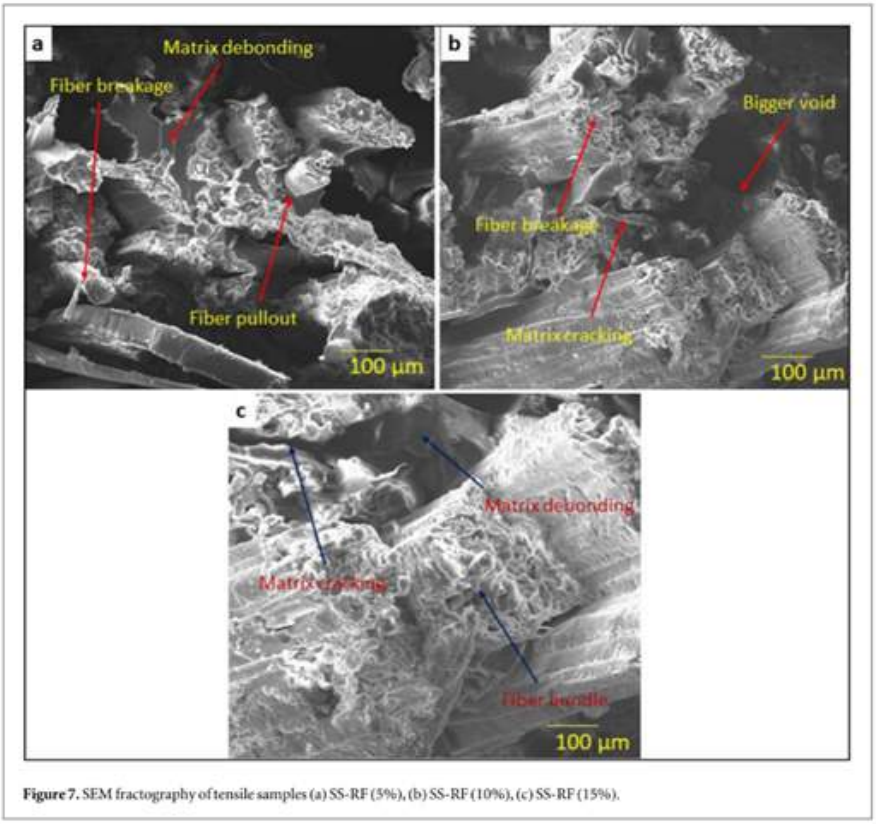


Figure 7. SEM fractography of tensile samples (a) SS-RF (5%), (b) SS-RF (10%), (c) SS-RF (15%).

MECHANICAL ENGINEERING – CLASS OF 2025

PRECISION EQUIPMENTS :

SRIVARSAN SIVAKUMAR

RAHUL P

ABHISHEK KUMAR

ONE DAY WORKSHOP ON RECENT TRENDS IN MATERIAL PROCESSING

The One Day workshop on *Recent Trends in Materials Processing* was conducted on 07/06/24 by the Department of Mechanical Engineering. **Coordinators**: Dr B.Anand Ronald, Dr.R.Damodaram and Dr.DAnanthapadmanaban. The participants were a mix of faculty, research scholars and students from outside and within the institution.

Dr.B.Anand Ronald handled the morning session. He gave a brief overview of additive manufacturing. The chronology of events leading to AM was discussed. Pros and cons of AM, Classification, process chain, and applications of AM in different domains, especially automotive, healthcare, jewelry, foundry, and aerospace. The session was held from 9.00 AM to 10.30 A.M.

r. B.Damodaram conducted the second session. He touched upon defects in subtractive manufactured parts and how to manage the defects using AM. Especially, he dealt with residual stresses and distortion. The session was held between 11.00 AM to 12.30 PM.
We are happy to see some participation from ASM students, chapter members and our technical staff.

INDUSTRIAL VISIT TO 3D MONOTECH Pvt. Ltd., Ambattur, Chennai

On May 24, 2024, the students of M.E. Manufacturing Engineering from SSN College of Engineering embarked on an enriching industrial visit to 3D MONOTECH Pvt. Ltd., located in Ambattur, Chennai. This visit was orchestrated under the guidance of our esteemed faculties, Dr.Anand Ronald and Mr. Ponmuthu Raja from the Mechanical Engineering department. We were warmly welcomed and led by the company's senior manager, Mr. Arul Reegan, who provided the students with an extensive tour and invaluable insights throughout our visit. The primary aim of this visit was to offer students practical exposure to industrial processes, effectively bridging the gap between academic knowledge and real-world applications.

The objectives of the visit were multifaceted, focusing on understanding the various machines and technologies used in Additive Manufacturing, observing their implementation, comprehending safety measures and regulations in an industrial setting, and interacting with industry professionals to gain practical insights into career opportunities. These objectives were meticulously planned to ensure that we could glean as much information and experience as possible from the visit.

3D MONOTECH Pvt. Ltd. is a notable entity in additive manufacturing, renowned nationally and internationally for its innovative 3D and 2D printing products. Established in 1999 as a pioneering startup, the company has since evolved into a significant player in the manufacturing sector. The students were impressed by the variety of additive manufacturing techniques employed by the company, encompassing both polymer-based and metal-based manufacturing. This exposure introduced the students to various cutting-edge techniques and technologies, showcasing the company's excellence and innovation in the field.

PhD PUBLIC VIVA-VOCE SUPERVISED BY DR.L.POOVAZHAGAN

The PhD public viva voce examination of Mr Amith was held on 17.05.2024. Both the examiners appreciated the quantum and quality of work carried out by the scholar. Indian examiner also mentioned that it is one of the best PhD thesis he has evaluated. Mr.Amith successfully defended his PhD viva voce by answering the queries raised by the participants and examiners The title of PhD thesis is “A STUDY ON ALUMINIUM AND MAGNESIUM METAL MATRIX NANOCOMPOSITES DEVELOPED BY VARIOUS ULTRASONICATION ASSISTED CASTING TECHNIQUES”.

SCHOLAR INFO

30/05/2024	Mr Prathap Singh, part-time research scholar of Dr.D.Ananthapadmanaban, Associate Professor submitted his thesis to Anna University on 30/05/24
12/06/2024	Dr. M. Dhananchezian, ASP/Mech conducted the DC meeting for the submission of a synopsis for his part-time research scholar, Mr. P. Kaliyappan on 12.06.2024.
05/05/2024	Dr K.S. Vijay Sekar's PhD scholar Mr. K Gobivel submitted the thesis to Anna University on 05.05.2024.

SANCTIONED PROJECTS

03/06/2024	The project “Design, Development and Configuration of an automated delivery BOT” has been sanctioned an amount of Rs.26,00,000/- by Aerovista Dynamics - Netherlands-based Company. The PI and Co-PI are Dr. Kavitha M(ASP/MBA), Dr. Vimal(ASP/Mech), Dr. C Aravindan, (Professor/IT) Dr. Vasuki P, ASP/IT, Dr. Sakthi Abirami (AP/ECE)

PATENTS

25/06/2024	Dr.R.Vimal Samsingh (ASP/Mech), Pranav Shankar , Rahul B, Sathyaseelan, and Rakesh (Student /Mechanical Engineering) - Passed Out - 2022) were granted Patent for their product "WEATHER BASED CRUISE CONTROL MODULE FOR AUTOMOBILES ". Patent No: 541771

NON-TEACHING STAFF ACTIVITIES

20/06/2024	Mr.S.Nagarajan / Lab Supervisor / Mechanical Department attended the one-day Workshop on "Developments in Additive Manufacturing Technologies" on 7 June 2024 conducted by the Department of Mechanical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Chennai.
20/06/2024	Mr.S.Nagarajan / Lab Supervisor / Department of Mechanical Engineering involved in Admission duty for First Year B.E / B. Tech Admission 2024-2025 during May - June 2024.
20/06/2024	Mr.J.Ponmuthuraja / Senior Lab Assistant/ I attended the One Day Workshop on “Developments in Additive Manufacturing Technologies” on 07 June 2024 conducted by SSN College of Engineering, Chennai.
20/06/2024	Mr.P.Nandakumar/ Senior Lab Assistant/ I attended the One Day Workshop on “Developments in Additive Manufacturing Technologies” on 07 June 2024 conducted by SSN College of Engineering, Chennai.
20/06/2024	Mr.Giridharan M/Lab Instructor/Mech attended one day workshop ''Developments in Additive Manufacturing'' at Sri Sivasubramaniya Nadar College of Engineering on 07 June 2024.
27/06/2024	Mr.Balasundaram P, Assistant Lab Instructor (MECHANICAL) passed all subjects in the second semester with an O grade (90%) for the course ME Manufacturing part-time in AVIT College, Pyanoor, Kanchipuram.

INDUSTRY COLLABATION

25/06/2024	Dr. Alphin M. S (ASP/Mech) and Dr.R.Vimal Samsingh signed Sponsored Research and Development Agreement with TRUMPF Metamation.

INTERNATIONAL JOURNAL PUBLICATION

27/06/2024	Sakthivel GVR, Nalla Mohamed M published a paper titled “Effect of snail shell powder addition on mechanical and microstructure behaviour of mercerized roselle fiber reinforced epoxy resin-based hybrid composite” in Physica Scripta.

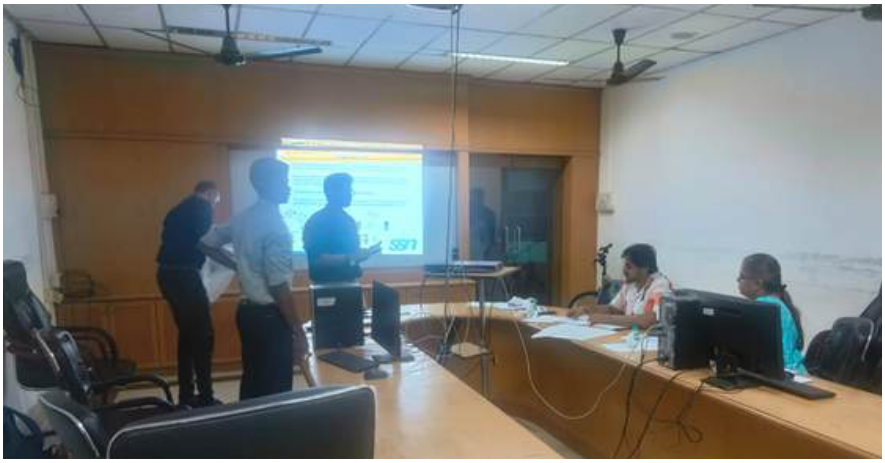
ROHAN KUMAAR FROM THE FOURTH-YEAR WRITES....

I am Rohan Kumaar, a final-year student (2020-2024). Along with my teammates Priyan M. and Sarrvesh S., I recently participated in the Naan Mudhalvan Niral Thiruvizha 2024. As part of this initiative, we received a grant of Rs 10,000 from the Government of Tamil Nadu. This funding supported our final-year project, where we explored biofuels derived from plant biomass. Our proposal was selected among 8,500 entries from across Tamil Nadu and was shortlisted in the top 1,000 project ideas.

We conducted extensive research by reviewing numerous journal papers and identified two plant samples from our college campus with the potential for commercial biofuel production. Using a thermochemical conversion process known as Hydrothermal Liquefaction (HTL), we successfully converted these feedstocks into sustainable bio-oil. Under the theme of waste management, we sourced ETP sludge (non-biodegradable) from a textile industry and utilized it as a catalyst in the HTL process. Our findings demonstrated an increased yield compared to using a conventional catalyst (Bentonite).

The research outcomes were presented by us and Dr. S. Rajkumar to a 2-member panel at Anna University on 25.06.2024 for further scrutiny and evaluation. Throughout this journey, we encountered numerous challenges and practical difficulties in applying real-life applications and performing validation tests. However, we gained invaluable experience in meeting deadlines and demonstrating progress throughout the evaluation process.

We extend our heartfelt gratitude to our project guides, Dr. B. Jayakishan and Dr. S. Rajkumar, whose guidance from day one was instrumental in our success. The Naan Mudhalvan initiative provided an excellent platform for students like us to showcase our talents, and we are deeply thankful to our department for this opportunity.



VINEETH FROM THE SECOND YEAR WRITES...

Hi all!
This is Vineeth from 2nd year, writing here about my experience of completing the "Fundamentals of Automotive Systems" NPTEL Online Certification Course. The course was handled by Prof. C. S. Shankar Ram, from the Indian Institute of Technology Madras and covered the detailed concepts of various systems of a typical automobile. This 12-week course has got 3 credits in our curriculum.

The "Fundamentals of Automotive Systems" course is meticulously crafted to cater to students, engineers, and automotive enthusiasts who wish to delve deep into the workings of vehicles. This course covers a broad spectrum of topics: Engine Fundamentals, Transmission Systems, Steering and Suspension Systems, Brake Systems, Emission Control and Alternative Fuels.

I deeply believe that this course will help our fellow people to understand the concepts of automotive systems in a much-detailed manner.


Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

B VINEETH

for successfully completing the course

Fundamentals of Automotive Systems

with a consolidated score of 97 %

Online Assignments	25/25	Proctored Exam	72/75

Total number of candidates certified in this course: 770

Prof. Devendra Jalihal

Jan-Apr 2024

(12 week course)

Prof. Andrew Thangaraj

Indian Institute of Technology Madras

swayam

Roll No: NPTEL24DE03S3534091146 To verify the certificate No. of credits recommended: 3 or 4

MADHAV SAI OF MECH'24 SHARES...

I am S. Madhava Sai, a proud alumnus of SSN, where I completed my B.E. in Mechanical Engineering. My journey in the field of engineering has been driven by a keen interest in the intersection of technical expertise and managerial acumen.

During my undergraduate studies, I was particularly captivated by subjects such as operations research, product development and management, and industrial practices. These areas sparked a profound interest in the strategic and operational aspects of engineering projects.

Initially, I aspired to pursue an MBA after my engineering degree. However, I soon realized that my true passion lay in blending the technical rigour of engineering with the strategic insights of management. This realization led me to the master's program in Engineering Management at Northeastern University. The flexibility to tailor my coursework to align with my interests and career goals was a significant factor in my decision.

Moreover, I am excited about the opportunity to interact with a diverse international student community at Northeastern. I believe that these interactions will not only broaden my perspectives but also significantly enhance my communication skills, an essential asset in today's globalized professional landscape.

With a strong foundation in mechanical engineering and a growing expertise in management, I am eager to contribute to and learn from the vibrant academic and professional environment at Northeastern University.

SRIDHAR OF BATCH 2018 SHARES...

Sridhar – (2014-2018 batch), Research Engineer-3, Google DeepMind

Hello! I'm Sridhar, working in the general area of machine learning applied to robotics. There are a lot of interesting areas in robotics - mechanical design, mechatronics systems, and control theory, but I won't go into them too much as my experience in those are limited. As far as finding out which area is interesting to you, I would suggest diving into a practical robotics project that involves several components.

For me, this was a simple line-following robot, and a little more complicated application involving hand gesture recognition. Sometimes it's not very clear even after this, so it's okay to dive into one of them and switch at a later stage.

There are a lot of online answers as to how to get started with ML, so I won't go too much into that. I would strongly suggest trying to find a mentor once you've identified your area of interest - it could be a person in the industry or a professor.

Broadly, I would say there are two approaches to learning- the top-down approach and the bottom-up approach. The top-down approach involves getting into the practice of things and picking up fundamental knowledge when required. The bottom-up approach involves studying the core math and lower-level details first and then focusing on applications afterwards.

It's much easier to stay motivated in the top-down way, but the bottom-up approach has its advantages. In an area like machine learning, math is critical, and I would suggest focusing on a strong mathematical foundation. At the same time, it's important not to get lost in the weeds, and this is where a mentor can help you. Strong programming skills will develop over time with more and more practical projects.

Try to get internship experience in the industry, possibly at a startup, or a research project with a professor at an early stage. Practical exposure is critical and can also help shape your interests in particular areas in the field.

For me interning at a startup in my second year gave me much-needed broad knowledge and exposure to robotics and helped shape further experiences.

As far as picking an MS program is concerned, there are a lot of online guides, and I don't think I can do it much justice in this short response. SSN provides lots of opportunities, both in terms of being flexible, as well as having structured mechanisms that foster creativity, so I would encourage you to make use of that well.

Most of all, make sure you enjoy the robotics experience! I would encourage picking up meaningful projects, collaborating with peers across departments, and broadening your knowledge via internships in various cities/universities. I am happy to chat more if we connect on LinkedIn.

No Competition, No Progress

AI/ML Hackathon 1.0:

Link: Register here

Johnson & Johnson Imagivators Season 3:

Link: Register here

StrategiX 2024 : The National Case Challenge

Link: Register here

VCATI Ace Challenge 2024:

Link: Register here

VISION
CONCEPT AVIATION TRAINING INSTITUTE

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 are 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!

But we need to have our mountains. Our own goals. When you have your 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, Skills, Competence, Training everything comes later depending on the mountain you want to climb. So instead of complaining about your equipment or you're training and worrying about buying more sophisticated gadgets, set your goals first. Ask questions like "What is that I want ", and the next one is "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
GMR Group India, Email: r.ramakrishnan@gmrgroup.in

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