ASPIRE

ACHIEVEMENTS IN SPORTS, PROJECTS, INDUSTRY, RESEARCH AND EDUCATION

MONTHLY NEWSLETTER

DEPARTMENT OF MECHANICAL ENGINEERING

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JULY 2023

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

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

FROM THE HOD'S DESK...

We are delighted to share the July edition of Aspire!!

We profile Douglas Warren Diamond, who was awarded the 2022 Nobel Memorial Prize in Economic Sciences for his pioneering work on banks and financial crises.

SSN moved up in the NIRF 2023 rankings securing 45th rank in Engineering category and 80th rank in overall category, cementing its status as one of the top ranked private institutions in the country.

SSN student Rohit secures a spot to represent India in the World university games, China in swimming. Mechanical students score well in GATE exams, securing all India ranks. Mathusha Rao, a Mech student, won the prestigious Faurecia scholarship, from the world's seventh largest automobile supplier, belonging to the FORVIA group.

The NBA team visited the mechanical department to audit the ME Manufacturing program and the faculty members put their best foot forward to showcase the PG program. Students share their experience in NPTEL as well as in securing the Faurecia scholarship. Alumni share their experiences outside SSN and relate how the institution has shaped their journey.

Have a great July month ahead!!!

KSV | *vijaysekarks@ssn.edu.in*

HE WHO STUDIED THE ROLE OF BANKING SYSTEM IN ECONOMY: DOUGLAS DIAMOND

Douglas Warren Diamond (born October 25, 1953) is an American economist. He is currently the Merton H. Miller Distinguished Service Professor of Finance at the University of Chicago Booth School of Business, where he has taught since 1979. Diamond specializes in the study of financial intermediaries, financial crises, and liquidity. He is a former president of the American Finance Association (2003) and the Western Finance Association (2001-02).

Diamond is best known for his work on financial crises and bank runs, particularly the influential Diamond–Dybvig model published in 1983 and the Diamond model of delegated monitoring published in 1984.

Since 1979, Diamond has taught at the University of Chicago Booth School of Business. He has held the Merton H. Miller Distinguished Service Professorship since July 2000, having previously held the Theodore O. Yntema Professorship.

In the early 2010s, Diamond was repeatedly floated as a contender for the Nobel Memorial Prize in Economic Sciences. He was again named as a contender for the prize in 2013 by economist Hubert Fromlet, *The Wall Street Journal* and Catherine Rampell, writing for *The New York Times.*

On October 10, 2022, Diamond received the Nobel Memorial Prize in Economic Sciences jointly with long-time collaborator Philip H. Dybvig and former Chair of the Federal Reserve, Ben Bernanke. Much of the work for which the prize was awarded stems from work Diamond and Dybvig published in the early and mid-1980s.

CAMPUS UPDATE

SSN MOVES UP THE NIRF RANKING

SSN has moved up by 3 ranks from 48th rank to 45th rank in the NIRF ranking (National Institutional Ranking Framework). NIRF ranking has 4 categories – RPC, TLR, GO, OI and Perception. It separately has a score TLR- 67.69; RPC- 41.08; GO- 66.34; OI- 53.21; Perception- 15.43. The institution also ranked 80th in overall category. This was an improvement from the previous rank of 96th.

CHAMPION IN THE MAKING

Rohit Ben of second-year Civil Engineering, an avid swimmer, and a constant overachiever is all set to make our college proud again. He has been selected to represent the Indian university team at the forthcoming World University games, which will be held in China from 28th July to 8th August 2023. We wish him all the very best to outshine as always.

GATE EXAM TOPPERS

Sriram R has passed out with flying colors and has achieved **All India Rank 2** in GATE' 23 exams in Aerospace Engineering.

Along with him, who has surpassed and outshined in the GATE'23 exam is Vishnu B of Mechanical Engineering with All India Rank 33. He has attained a GATE score of 812. We wish both the best ahead of them in their career.

Wishing you the best and plenty of success

Wishing you the best and plenty of success

DEPARTMENT UPDATE

UG STUDENT LANDS FAURECIA SCHOLARSHIP

One of our UG MECH 2024 Batch students, Ms. Mathusha Rao has been selected for the Faurecia Interior Systems, India – Scholarship Program 2024. The scholarship was for Female talent in the third year of an Engineering Degree in 2023 (Mech/ Design/Automobile branches only.). Faurecia is a company of the FORVIA group, the world's 7th largest automotive supplier (https://www.faurecia.com/). SCHOLARSHIP OVERVIEW: Sponsorship of Academic fees (4th year).

PROCESS OVERVIEW: 1) Online test: 273 applications Nationwide were shortlisted for the online test. Ms. Mathusha Rao and Ms. Charu Prabha (also a UG MECH 2024 Batch student) were amongst the 49 candidates to have successfully passed the online test. 2) In-person interview and group discussion: The following rounds were conducted at the company's Pune HQ. 1st round of Technical Interviews. 2nd round of Group Discussion. 3rd/Final round of presentation/ 1-1 interview with Senior Manager & HR. The competition was intense, and the decision-making process was rigorous. Ms. Mathusha Rao made it to the final list of eleven selections for the Faurecia Interior Systems, India – Scholarship Program 2024. We congratulate her dedication, achievements, and potential during the entire process.

PLACEMENT UPDATE M.E. MANUFACTURING ENGINEERING 2023

JEFRIN HARRIS W B
M.E Manuf. 2023

Cognizant/ Renault Nissan/ Federal Bank

RATHNA SABHAPATHY
M.E Manuf. 2023

TATA Consultancy Services

KARTHIKEYAN K
M.E Manuf. 2023

Federal Bank / SKOLAR

SURESH KRISHNAN
M.E Manuf. 2023

Danfoss Industries Pvt Ltd / SKOLAR

Sri Sivasubramaniya Nadar College of Engineernng

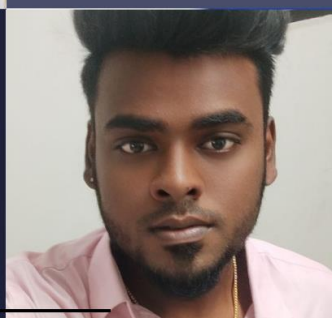
PLACEMENT UPDATE M.E. MANUFACTURING ENGINEERING 2023

ARUN K
M.E Manuf. 2023

SKOLAR / City Union Bank

RAJESHWARAN TAMILARASAN
M.E Manuf. 2023

SKOLAR



M.E MANUFACTURING ENGINEERING PLACEMENT OF CURRENT OUTGOING BATCH 2023

International Journal Publication - SCI /Clarivate Indexed

Monish, P., K. L. Krishna, and K. Rajkumar. "Manufacturing and characterisation of magnesium composites reinforced by nanoparticles: a review." *MATERIALS SCIENCE AND TECHNOLOGY* (2023). Clarivate Impact Factor: 2.06

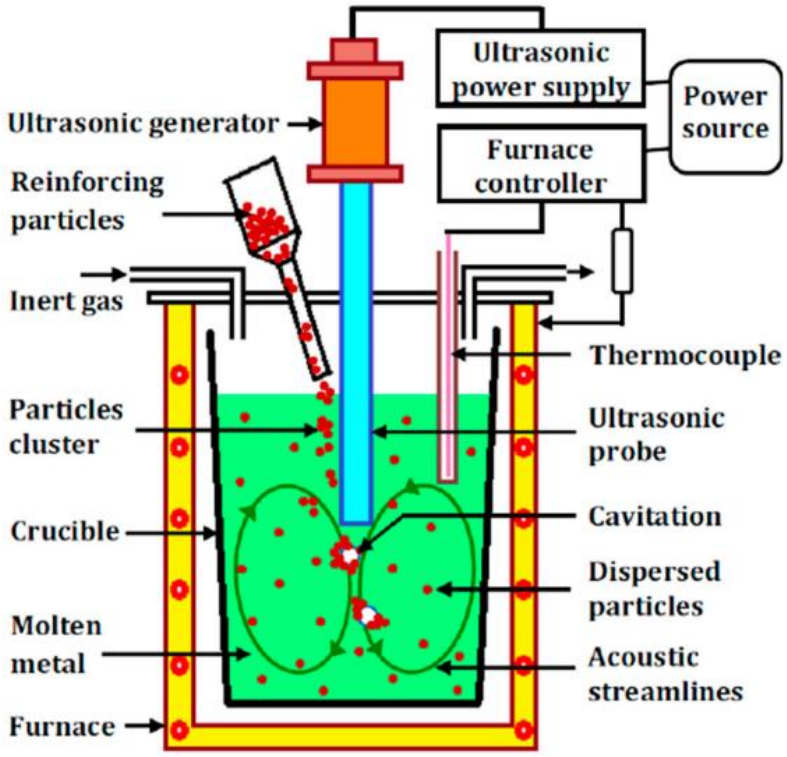


Figure 1. A schematic representation of a basic contact-type ultrasonic cavitation-based system configuration for use in composite fabrication is provided [35].

International Journal Publication - SCI /Clarivate Indexed

Krishnan, Anirudh Venkatraman, and Manoj Gupta. "Strength enhancement and retention in magnesium subjected to uniaxial compression using centralized partial drill holes." *Engineering Research Express* 5, no. 2 (2023): 025058.Clarivate Impact Factor: 0.28

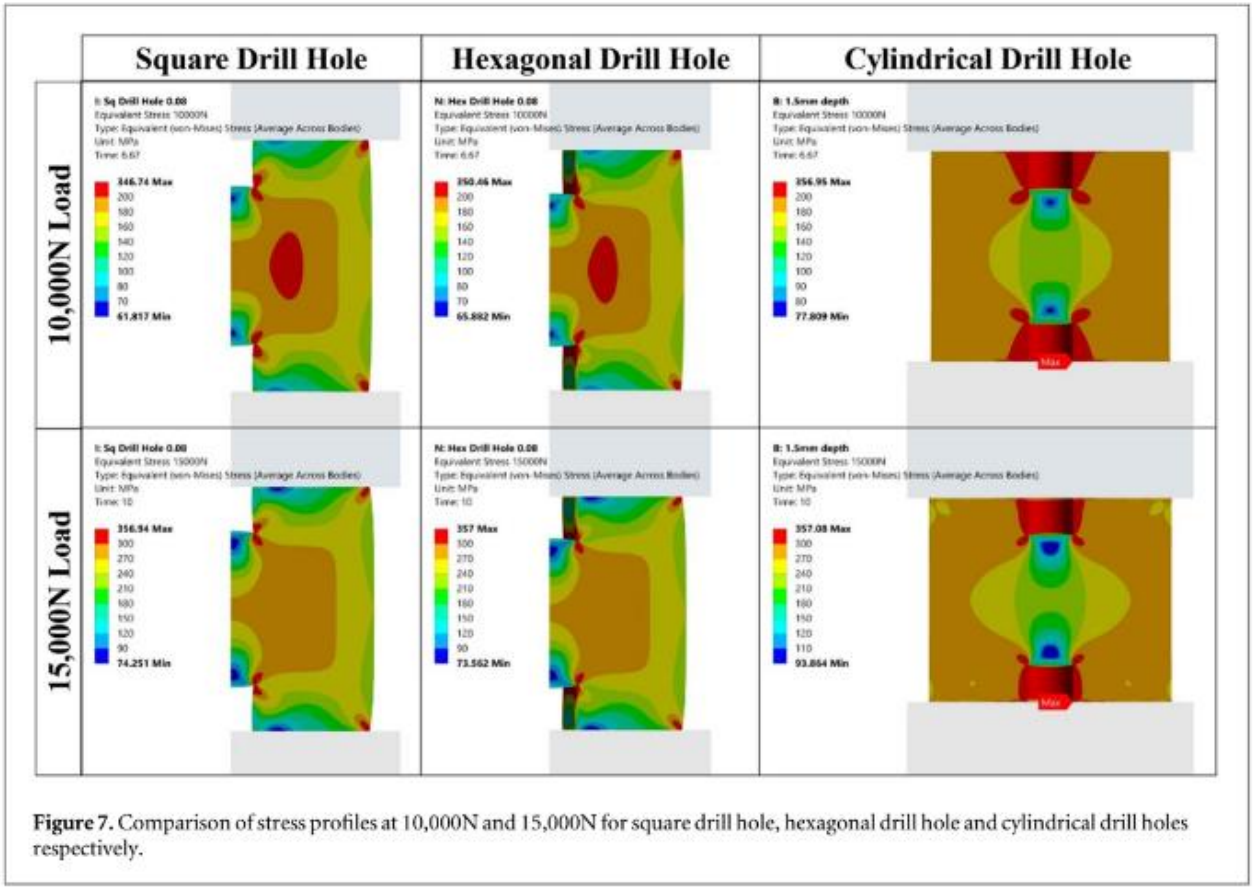


Figure 7. Comparison of stress profiles at 10,000N and 15,000N for square drill hole, hexagonal drill hole and cylindrical drill holes respectively.

International Journal Publication - SCI /Clarivate Indexed

Balasubramaniyan, C., K. Rajkumar, and S. Santosh. "Enhancement of machining and surface quality of quaternary alloyed NiTiCuZr shape memory alloy through ultrasonic vibration coupled WEDM." *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications* 236, no. 4 (2022): 816-833.Clarivate Impact Factor: 2.459

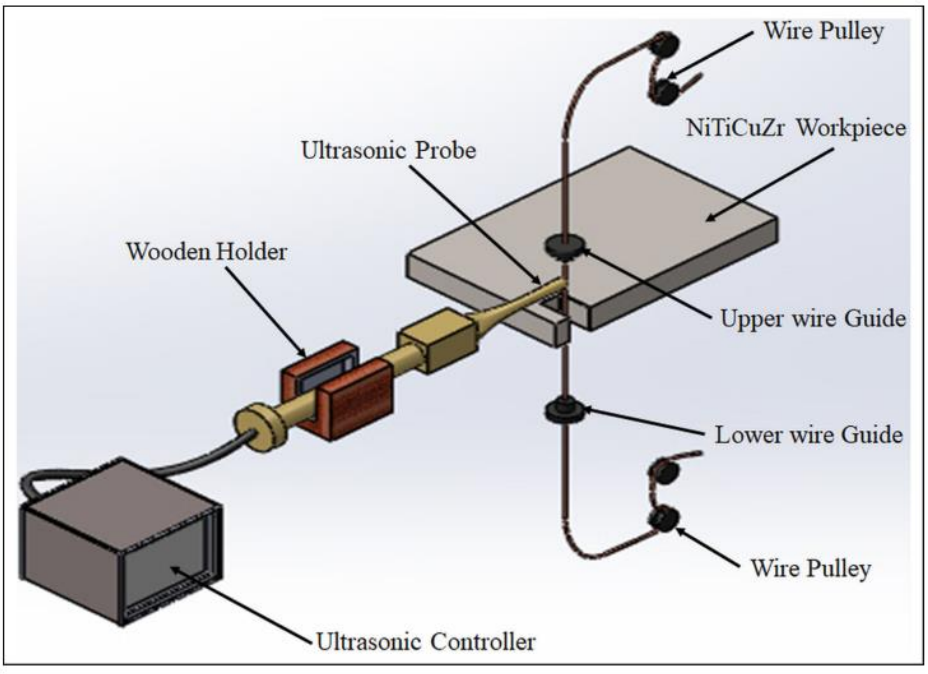
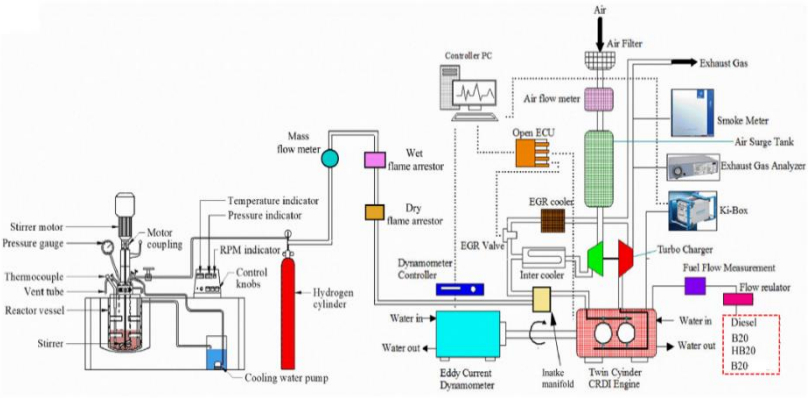


Figure 2. Schematic diagram of ultrasonic assisted WEDM setup.

International Journal Publication - SCI /Clarivate Indexed

Narayanan, Deepak, N. Vinithkrishna, Sundararajan Rajkumar, Jeyaseelan Thangaraja, M. Sivagaminathan, Yuvarajan Devarajan, and Edwin Geo Varuvel. "Techno-economic review assessment of hydrogen utilization in processing the natural gas and biofuels." *International Journal of Hydrogen Energy* (2022). Clarivate Impact Factor: 7.139



The automobile sector dominated by conventional fossil fuels made a huge impact on human lives and strengthened the economy of many countries. However, the harmful emissions from the engines have contaminated the environment and induced severe climate changes; hence the emphasis is being laid on low carbon fuels that emit lower emissions and greenhouse gases. In this regard, hydrogen (H_2) is considered as a no-carbon fuel; however, safety and storage are the main concerns. Therefore, the H_2 can be potentially utilized with compressed natural gas (CNG) to form hydrogen-enriched compressed natural gas (HCNG) and processed with biofuels to produce hydrogenated biofuels. HCNG emits 20% lower carbon dioxide, 30% less carbon monoxide and 25% reductions in NOx emissions compared with CNG. The hydrogenated biodiesel fuels exhibit higher cetane numbers and better storage stability. However, the practical challenge is to render them economically affordable with minimum carbon footprints. Thus, the current review is aimed to provide comprehensive detail on the potential of hydrogen in fuel formulation techniques and their effect on engine performance, emission characteristics and various hydrogen production methods viz. blue and green hydrogen. Further, this review highlights the techno-economic characteristics of hydrogen utilization and economic characteristics of the low carbon fuels (both liquid and gaseous fuels) for sustainable mobility.

FACULTY EVENTS

NBA ACCREDITATION FOR M.E MANUFACTURING

A Panel from National Board of Accreditation visited the department for M.E manufacturing engineering accreditation and the faculty members put their best foot forward to showcase the PG program.

NON-TEACHING STAFF ACTIVITIES

20/06/2023	"Mr. Balasundaram Palanisamy / Lab Assistant / Mechanical / Completed Alison course of Introduction to quality control tools _ Industrial Analytics lab_1 related on 02.06.2023 at 10 am"
20/06/2023	Mr. Nagarajan S/Lab Instructor/ Department of Mechanical Engineering, Involved in Admission Duty for First Year B.E/B.Tech, Admissions 2023-2024 during 22-05-2023 to 08/06/2023.

SCHOLAR INFO

17/06/2023	Dr. S. Rajkumar, ASP/Mech conducted the Synopsis DC Meeting for his part time research scholar, Mr. T. Anandavelu, on 14.06.2023.
20/06/2023	Dr. L. Poovazhagan, ASP/Mech. convened the Ph.D viva-voce ORAL examinations for his part-time research scholar, Dr.A.Arun on 19.06.2023.
20/06/2023	Dr. L. Poovazhagan, ASP/Mech. conducted the synopsis DC Meeting for his part-time research scholar, Mr. Amith. S.C on 06.06.2023.
20/06/2023	Dr. L. Poovazhagan, ASP/Mech. conducted the confirmation DC Meeting for his full-time research scholar, Mr. Ravanneswarran G R on 09.06.2023.
21/06/2023	Dr. R. Prakash ASP/Mech conducted DC Meeting for Suggesting the Panel of Experts for Oral Examination for Mr. Chilambarasan L (Reg.No. 18142991310) on 06.06.2023.

21/06/2023	Dr. R. Prakash ASP/Mech conducted the Synopsis DC meeting of part time research scholar Mr. M. Senthamil Selvan, (Reg No 16122997207) on 08.06.2023.

FDP ATTENDED

21/06/2023	Dr. R Prakash attended Five Days workshop on "ANSYS Multiphysics Event (Virtual mode)" from June 12th to 16th at NIT Puducherry, Karaikal

INTERNATIONAL JOURNAL PUBLISHED

15/06/2023	Dr. Anirudh Venkatraman Krishnan and Manoj Gupta published a paper on "Strength enhancement and retention in magnesium subjected to uniaxial compression using centralized partial drill holes" in the journal **Engineering Research Express.**
20/06/2023	C Balasubramaniyan, Dr. K Rajkumar, Dr. S Santosh published a paper on "Enhancement of machining and surface quality of quaternary alloyed NiTiCuZr shape memory alloy through ultrasonic vibration coupled WEDM" in the journal **Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications.**
24/06/2023	Deepak Narayanan R, Vinithkrishna N, Dr. S Rajkumar, J Thangaraja, Sivagaminathan M, Y Devarajan, Edwin Geo published a paper on "Techno-economic review assessment of hydrogen utilization in processing the natural gas and biofuels" in the **International Journal of Hydrogen Energy.**

EXTERNAL RECOGNITION

22/06/2023	Dr.D.Ananthapadmanaban has been invited as an Editorial Board member of the Journal of Computational Intelligence in Materials Science, AnapUb Publications.
24/06/2023	Dr. Satheesh Kumar Gopal attended the Eight BOS meeting of the B.E Robotics and Automation program, Rajalakshmi Engineering College conducted on 26.06.2023 at 10.30 A.M (Online mode).

23.06.2023	Dr KS Vijay Sekar, Prof and Head/Mech, was invited as Board of studies member in the departments of mechanical and automobile engineering, at Velammal Engineering College, Chennai on 23.06.2023

OTHER

23/06/2023	Dr. K. Jayakumar, Associate Professor attended an online webinar on "Recent trends in composite materials" on May 28. 2023 organized by SRM Madurai College for Engineering and Technology.

STUDENT WRITE-UP

S.NO	DATE	ACTIVITY DONE DURING THE MONTH
1)	26/01/2023-29/04/2023	*SECOND YEAR* JAGANNATHAN S Completed nptel course on "Understanding Incubation and Entrepreneurship ".
2)	24/06/2023-	*THIRD YEAR* MATHUSHA RAO Selected for FAURECIA scholarship

JAGANNATHAN S FROM SECOND YEAR MECH WRITES....

This is Jaganathan S from mechanical engineering of batch 2021-25 have completed the nptel course named Understanding Incubation and Entrepreneurship. This was a 3 credit course conducted for 12 weeks. The course was related to design engineering and it explains and teaches us a lot about entrepreneurship and incubation in design field. The course was taught by Prof. B.K. Chakravarthy from IIT Bombay. His insights and knowledge about the course made me understand the concepts easily. This course helps the students get to know about entrepreneurship and Incubation in design field. Hope this helps you to get an idea about the Nptel course named Understanding Incubation and Entrepreneurship.

MATHUSHA FROM THIRD YEAR MECH WRITES....

On June 24th, 2023, I was offered the Faurecia scholarship 2024. This destination was a result of an incredible journey over the past month. On June 6th, Faurecia sent out mails to various institutions all over India for a list of possible female candidates interested in participating in the scholarship challenge. After an initial screening, a few students were required to take an online test. The exam tested topics from various subjects in mechanical engineering, a majority from design and FEM. They even tested basic mental ability and English.

From the online exam, 50 of the top scorers were selected for an in-person interview. The interview took place in the Faurecia R&D center in Pune, Maharashtra.

On the day of the interview, we were greeted by a kind HR Team who gave us on overview of the company and its ideals. Next, we had a technical interview, where a group of 2-3 top engineers of the company tested us on various practical and theoretical skills. 22 students were selected after this round. The next round was a group discussion moderated by three of the top managers. Finally, the HR team questioned us about our goals and ideas for our future.

After a nerve-racking break, they announced the results. I was one of the 11 females chosen to get a part of our final year fees paid (1.25 Lakhs or whatever lesser).

This journey was unique and different as I got the opportunity to interact with aspiring mechanical engineers from various states. The differences in our learning styles, syllabus and environment didn't stop us from interacting due to our passion. It is something I'm really grateful for.

MECH MARVEL

Amazing Innovation 233

CANDY THAT CAN SAVE LIVES

If you've ever had a relative or a good friend with Alzheimer's or dementia, you'll know that even something as simple as staying hydrated can get extremely difficult. They might forget to drink water, not feel thirsty, or they might be unable to swallow thin liquids. And according to the Alzheimer's Society, "some medications and dementia-related illnesses can also make dehydration worse."

This is something that Lewis Hornby knows all too well, his grandmother Pat, an Alzheimer's patient, was once rushed to the hospital and diagnosed with a severe case of dehydration. Lewis decided to try and figure out a way to get Pat to drink more water. His solution, called Jelly Drops, are simple but incredibly creative.

Jelly Drops are basically droplets of water surrounded in a thin layer of gelling agents and electrolytes. They come in six bright colours, which draw the attention of the dementia patients, who often believe they're pieces of candy. The solid shapes are also much easier to handle and ingest than a glass of water, and they take longer for the body to break down, increasing absorption.

Lewis studied at the Royal College of Art and is only 24 years old, he created Jelly Drops as part his Innovation Design Engineering degree, but he intends to "to make Jelly Drops ready to purchase as soon as possible."

Lewis won the Helen Hamlyn Centre Design Award and the Dyson School of Design Engineering DESIRE Award for Social Impact for this Jelly Drops. He's also partnered with Alzheimer's Society through their Innovation Accelerator and raised $10,000 through a crowdfunding page.

Amazing Innovation 234

DRESSES THAT CAN FIT THROUGH AGES

When Ryan Yasin bought a gift of clothing for his newborn nephew, the baby had outgrown it by the time it was delivered. Yasin, a master's student in London's Royal College of Art's Innovation Design Engineering program, was inspired by the problem of short-lived kids' garments, and wondered if it would be possible to design clothing that could grow along with children.

He started experimenting and realized that by pleating synthetic fabric in a particular pattern, it was possible for a piece of clothing to stretch in both directions. He sewed a prototype–a pair of tiny pants–and formed the pleats by heating up the fabric around a special Mold in his oven at home. The prototype worked: It fit both his baby nephew and his two-year-old niece.

A new line of gender-neutral, waterproof outerwear called Petit Pli, under development now, uses the same concept. Kids can go through six or seven sizes in their first two years; so, can the brand's new jacket, which fits children from 6 months old to 36 months. In theory, parents can reduce consumption and waste.

The grid-like folds on the outerwear point downward, both so rains can easily run off and crumbs won't get caught in the folds when kids have lunch. When it's not in use, the jacket is tiny enough to fit in a parent's pocket. The fabric is strong enough that it can last as long as a child can wear it, but if the clothing does wear out, because it uses a single material, it's also recyclable. Yasin is investigating a take-back system that would recycle fibres from old clothing into new garments.

ALUMINI WRITE-UP

B R VIMAL KUMAR BHARATHI OF MECH'2022 SHARES...

Before I talk about my experience in SSN, I would like to thank all my professors, non-teaching staff, friends, and management for providing a conducive environment for learning and development. SSN truly provided a holistic learning opportunity for me. Apart from basic academics, we were regularly encouraged to participate in social and technical events. Clubs like NSS and SSN SAE provided scope for interacting with different people. From the very first year since I joined SSN, I have been an active member of NSS. Through activities like coastal cleanups and forest walks, I learnt to look at our environment and ecology in a more responsible way. I also got to interact with seniors and work in organic farming, which provided a very rare opportunity to learn the feel of our soil. From the very first year, I observed that staff were helpful and eager to direct a student into his/her desired career path. I found very good professors who cleared all my doubts and guided me through my goals. From the second year, when we entered the mechanical engineering department, I started working with SSN SAE team and learning engineering hands on. A lot of seniors helped us understand the process of design and development of go-karts and student formula cars. In the department, on the other hand, I interacted with professors and apart from academic work, started reading their publications. I participated in the BFKCT go-kart competition during my second year and Formula Bharat in my 3rd year. These experiences magnified my interest in mechanical engineering, and they played a major part in my job placement. Once again, I thank everyone in our college who is working hard to make the students discover themselves.

Thanks,

B R Vimal Kumar Bharathi,

Associate Engineer, Caterpillar Inc.

JOBIN BABU OF BATCH ME MFG'2017 SHARES...

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

S RAJA (MECH'15 AND PHD'21) - POSTDOCTORAL RESEARCHER IN THE UNIVERSITY OF CALIFORNIA, LOS ANGELES, USA

Dr. S Raja Completed Mech'15 and PhD in the year 2021 from Sri Sivasubramaniya Nadar College of Engineering (Anna University) under the guidance of Dr. Alphin M S, completed postdoctoral research at IIT Madras 2023, and now joined as a Postdoctoral Researcher at, the University of California, Los Angeles, USA, Henry Samueli School of Engineering and Applied Science. Research work done at SSN and association with US professors made this possible to achieve.

COMPETITION UPDATE

"NO COMPETITION, NO PROGRESS"

Case Study:

Link: REGISTER_HERE

Hackatopia:

Link: REGISTER_HERE

Article Writing:

Link: REGISTER_HERE

CORPORATE WISDOM

From the desk of Ramki -– Aspire to Inspire

From Ramki

Happy Morning – Aspire to Inspire

I often meet people who are stuck in one area of their life or another. They want a break-through, but they can't seem to get traction. Contrary to what they think, it's not about having:

More Money, more time, the right contacts, or better luck. Instead, it almost always is about overcoming an invisible barrier that exists in their own head.

The barrier isn't something external. It's something internal—something they have created in their own mind.

Years ago, I heard a speaker talk about a research project conducted by a marine biologist. It seems he put a barracuda in a large tank. He then released smaller, bait fish into the same tank. As expected, the barracuda attacked and ate the smaller fish.

Then the researcher inserted a piece of glass into the tank, creating two separate chambers. He put the barracuda into one and new bait fish into the second. The barracuda immediately attacked. This time, however, he hit the glass and bounced off. Undaunted, the barracuda kept repeating this behaviour every few minutes. Meanwhile, the bait fish swam unharmed in the second chamber. Eventually, the barracuda gave up. The biologist repeated this experiment several times over the next few days. Each time, the barracuda got less aggressive, until eventually he got tired of hitting the glass and stopped striking altogether. Then the researcher removed the glass. The barracuda, now trained to believe a barrier existed between him and the bait fish, didn't attack. The bait fish swam unassailed, wherever they wished.

Too often, we are like the barracuda. The barrier isn't "out there." It only exists inside our heads. Think how many other barriers have turned out to be only mental obstacles:

The sound barrier. Pilots didn't think it was possible to fly faster than 768 miles an hour (the Speed of Sound at sea level). Then Chuck Yeager officially broke the sound barrier on October 14, 1947.

The four-minute mile. Runners didn't think it was possible to run a mile in less than four minutes. Then, in 1954, Roger Bannister ran it in 3:59.4.

The two-hour marathon. Endurance athletes didn't think it was possible to run a marathon in less than two hours. Now several athletes are on the verge of breaking Geoffrey Mutai's world-record of 2:03.02.

The reason why most of us don't accomplish more is because we set our goals inside our mental barriers, where it's safe. (That's why it's called "The comfort zone.")
But if you want to get unstuck and start getting traction again, you must set your goals on the other side of the barrier. You don't have to get crazy, but you do have to stretch yourself and push past the invisible barrier in your head. This is the secret to achieving break-through results.

Moral of the story…

Just like the barracuda, most of us stop ourselves from trying again just because we have experienced failures in the past. We think that since we failed before, trying again would be futile as the result would probably be the same. We prefer to die rather than try, just like the barracuda. We have been conditioned not to try anymore because of the fear of failure. To be successful we must get rid of this limiting belief, and accept a new and empowering belief, "the future does not equal the past". What's past is just history, the future will be different. If we have failed earlier, we need not worry, just stand up and try again. It doesn't mean that we are going to fail all the time. So, let's not get hit by the phobia, of losing again. Success will not come in the first try. We use the 'trial and error method' to achieve success; this means that if we have not failed before, you are not going to discover how to succeed.
Please keep asking yourself a Question: What goal do you currently have that is outside your comfort zone?

#WishingMostAndMore

Have a wonderful day & great weekend!

R. Ramakrishnan

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