ASPIRE

Achievements in Sports, Projects, Industry, Research and Education

Monthly Newsletter

Department of Mechanical Engineering
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Sri Sivasubramaniya Nadar College of Engineering

SSN

Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamil Nadu, India

Erwin Schrödinger: The man who battled physics with probability

"The task is, not so much to see
what no one has yet seen;
but to think what nobody has yet thought,
about that which everybody sees."

When celebrating the works of luminaries in the modern field of Quantum Mechanics, it is impossible to deprive Erwin Schrodinger of the centre stage. Born in Vienna (12 August 1887), the Austrian physicist contributed to the wave theory of matter and laid the foundation for the fundamentals of Quantum mechanics. Consequently, he was awarded the Nobel prize in physics in 1933 for formulation of the Schrodinger equation; indispensable in the study of semiconductors, spectroscopy and telecommunication.

Schrodinger's journey in academia began at his youth, when was deeply influenced by Arthur Schopenhauer and reading his works inspired him with colour theory and philosophy which he pursued throughout his life. From 1914 to 1918 he saw military service during the first world war. Then he went to the university of Zurich in 1921 and remained there for the next six years, formulating his famous works on Quantum physics.

The solutions of Schrodinger's equation, unlike most others in the scientific realm, were wave functions and were only probabilities to physical events pertaining to subatomic particles. But later on, he raised objections to the path Quantum field was heading, owing to misconception by his contemporaries.

One such notorious objection is the thought experiment of cat in the box which later on came to be known as Schrodinger's cat; a cat is locked in a box with a radioactive vial, which upon decay would trigger the Geiger counter, incidentally releasing a poison. If the decay of the radioactive substance was to be governed by Niels Bohr's interpretation of quantum mechanics, the cat would be dead and alive at the same time. Schrodinger devised this thought experiment in order to demonstrate how misinterpretations of quantum mechanics principles could yield absurd results.

Beyond physics, Schrodinger's versatility echoed across biology, chemistry and other disciplines of science, notably for his 1944 work 'What is life?'. This renowned book, based on Schrodinger's lectures, went on to influence a new generation of future Nobel laureates: Francis Crick and James Watson.

Campus Update

Apple WWDC 2021 challenge winner from SSN

Sabesh Bharathi of Sri Sivasubramaniya Nadar College of Engineering, Chennai, is a winner of the Apple Worldwide Developers Conference (WWDC) 2021 challenge. The second-year Information Technology student secured a winning spot along with 350 scholars from 35 different countries. Until 2019, Apple rewarded winners with a WWDC ticket to the conference at Apple Park, Cupertino, California, which is otherwise priced at $1,599. All the WWDC winners could gather to witness the most exquisite software pre-releases in the world.

SSN helped me in many ways. The college opened my eyes to many opportunities. At SSN, the focus is never just on academics and exam learning. They push you to get out of your comfort zone and try out new things. Although iOS development was not taught in college, they did provide a lot of other resources whenever I reached out to them. I really need to thank SSN for that. After learning about this challenge, I fell in love with it, and SSN showered me with the support I needed. Read more

M. E/ M.Tech Admission 2021 in SSN

Apply Admissions Online: https://apply.ssn.edu.in

Apply Now! Visit: www.ssn.edu.in

Shiv Nadar Elevated

HCL

Shiv Nadar elevated to Chairman Emeritus, passes the Managing Director baton to C Vijay Kumar.

Shiv Nadar
Chairman Emeritus & Strategic Advisor to the Board, HCL Technologies

C Vijay Kumar
MD & CEO
HCL Technologies

SHIV NADAR
Chairman Emeritus and
Strategic Advisor to the Board
of HCL Technologies

Shiv Nadar is one of the pioneers of the computing and IT industry in India. In 1976, he founded the HCL Group, leading the computing revolution as India's original garage start-up. Under his guidance, HCL has continued to ride the waves of the changing global IT landscape for over 45 years. While HCL started off as a technology hardware company, manufacturing the country's first indigenous computers and introducing them to the Indian consumer, it eventually evolved into a more comprehensive software services global organisation. HCL is, in fact, one of the few global IT companies founded in the 1970s that remains in existence to date.

A visionary, Shiv Nadar made HCL an engine of innovation and invention turning dreams into reality. Under his leadership, HCL is credited with the first 'Made in India' IT product innovations – the first 8-bit microprocessor-based computer in 1978, the first Relational Database Management System in 1983 before some of its global peers, client-server architecture in 1984, world's first fine-grained multi-processor UNIX installation in 1989, among others. A pioneer in Remote Infrastructure Management, HCL was instrumental in implementing and managing the infrastructure backbone of one of India's tallest financial institutions – the National Stock Exchange. HCL played a key role in supporting India's telecom revolution through the creation of the largest mobile distribution network with Nokia. HCL Technologies, which spun out of HCL's R&D unit, is currently the third largest IT Services firms headquartered out of India.

With his strategic vision and leadership, HCL Technologies has achieved the distinction of the Number 1 position in 2 out of the 4 large service lines that power the Indian IT services industry - Engineering & R&D Services and Infrastructure Management Services. Its stellar success in next generation Digital Services and its recent foray into Software Products, helped HCL Technologies surpass the $10B revenue milestone in FY21. With this, HCL Technologies is now among the top 10 global IT Services firms in the world.

Throughout his career, he always acknowledged that building successful institutions is dependent on forging result-oriented partnerships and creating new knowledge. He steered HCL to create several valuable joint ventures and alliances with marquee partners & customers such as Hewlett Packard, Cisco, Perot Systems, Deutsche Bank, Toshiba and IBM among many others that aided the organisation's emergence as a global technology enterprise.

Shiv Nadar also gave wings to the aspirations of young men and women in India when he co-founded NIIT in 1981, to deliver low-cost quality technical education. NIIT helped create a large pool of trained experts who had the skills needed to deliver technology solutions for businesses and the masses.
He firmly believes that access to quality education is the most potent tool of transformation and therefore, in 1994, he established the philanthropic - Shiv Nadar Foundation. The Foundation has established six institutions covering the entire spectrum of education and are uniquely modelled to bridge gaps in the way education has been traditionally delivered to different strata in the Indian society.

As of March 2021, the Shiv Nadar Foundation had invested around US$ 988 million to create institutions of transformational education that are nurturing India's next generation of leaders. While the Foundation has directly touched over 34,000 students, its ultimate aim is to create spirals, where every individual student is able to touch and transform the lives of a few others; thereby driving a cascading effect. He was named the Forbes Outstanding Philanthropist of the year in 2015 by Forbes India and The Economic Times - Philanthropist of the Year 2019. He was listed amongst Forbes' 48 Heroes of Philanthropy in Asia Pacific in 2011. He was awarded the Padma Bhushan from the President of India in 2008.

Department Update

Placement Update

Glad to begin the week the Placement of our Two M.E Energy Engineering Students (2021 batch) in "Vestas" (a reputed Wind Energy Company) as Trainee Siting Engineer with a CTC of about 7.6 LPA !!!

Congrats to: Ruchitha R G. and Dheepak R. J.

A Brief on the Vestas Placement Process:

PG Energy Students across AU (Main campus), PSG, NIT Trichy, and two more colleges along with our SSN Energy students competed in the Vestas placement process.

On a collective note, joining with you all, I sincerely wish the two students a Great Career Ahead at Vestas !! (Glad to share that One PG Manf student "Gowri Sankar K" got already placed with ESAB through internship from this batch 2021, with a good CTC).

Very happy to state that from our Batch 2021 three got placed in Core companies: Daimler and Brakes India. Details are as follows:

Daimler: CTC 5 Lpa , Role: GET

Dheepak R (already got a TCS offer)

Batch 2021

Jitendra Kumar - already has CTS/TCS Offer

Om Surya V - Newly placed and was fighting hard to get an offer. He got rejected many times and a tireless guy went on and on to prove his skills and win a Job finally with TVS Brakes India. Waiting for long after the first round selection due to covid uncertainties. Did his second round in style.

For all the above candidates DOF and Final Year Projects came to the Rescue. What I had Observed was DOF was given an equal Weightage and those who do not do well in the project might use his/her DOF task and still can cope up with the Tech interview. "DOF is viewed seriously by companies" is the ultimate message we get from the recent placements.

Total Placed in Batch 2021: 69 . Expected 2 to 3 more companies for them. Let us hope to cross 70!

Company Name: Garuda Aerospace Pvt Ltd
Role: Drone Pilot
Student Details: 1) Kalaivanan M (312217114039)
2) Kiruthiskiran V (312217114049)
3) Srinivasan B (312217114319)
CTC : 1.80 lpa

Batch 2022

I am Extremely Pleased to Share with you that 11 of our present Final Mech (Batch 2022) have got placed in AMAZON (FOR NON-TECHNICAL ROLE) with an Approx CTC slab as:

I Year: 10.2 LPA
II Year: 24 LPA
III Year: 36 LPA (As per Company Claims, CTC works out to be 28 LPA) Out of the 24 Selected, 11 are from Mech.

Out of the applied candidates across SSN, 66 got through in the First round; out of which 30+ were from Mech.

This drive from Amazon is the first of its kind exclusively for NON-CIRCUIT Branches. Due to the high Package this drive was Classified as under MARQUEE Placement of SSN.

Right now, when High Pay IT/ITES companies are seeking for Students with IT skills, opportunities are booming up for candidates with non-tech skills with a high pay for which Branches like Mechanical can make an outstanding contribution. Such opportunities though may be rare, will become the norm in a few years down the lane. It's my opinion and wish as well.

Such Jobs demand Leadership skills and general Thinking of Students with good Communication. Need to ponder what went Right for the candidates. The process was neither tough nor easy. Situation rounds were excellent and our students did a great Job !!

THIS IS THE FIRST TIME IN OUR HISTORY TO HAVE 11 GETTING PLACED with AN AVG CTC OF 20+ LPA. Even a Year Stay would Fetch them 10 LPA !!

I am aware you want to know the 11 Stars of Mech!! Here are the details:

Company Name: Amazon.com, Inc
Role: Manager I, Operations (Intern)
Student Details:
Aditya K (181002008)
Aditya S (181002009)
Arihanth Jayavijayan (181002018)
Cynthia Joy J (181002036)
Harish Ragavendar B (181002050)
Mohanraj A (181002086)
Nandita Anand (181002094)
Rishab M (181002130)
Sai Preeti S (181002139)
Shivani S (181002159)
Venkatesh S (181002316)
Date of Commencement of process: 13/07/2021

At the Outset, I Join with you all in wishing all of them a VERY GREAT CAREER !! Also, a special Thanks to our CDC Team under the lead of Dr. Jothi Basu for their great efforts and contribution.

Placement Count: 11 (Batch 2022) as on date. I am aware that miles to go for this Batch of strength 204. Need all of your Support.

Let us look forward to many more such Good News in the Future !

Dr. N. Lakshmi Narasimhan

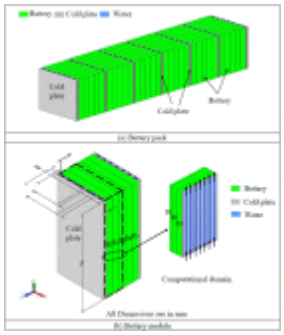
New faculty for the Department

Dr. Anirudh V K joined us on the 1st of July 2021 as an Assistant Professor. He obtained his Ph.D. from the Department of Mechanical Engineering at National University of Singapore (NUS) in 2020. His Ph.D thesis is on evaluating the erosion in pipelines and equipment under the effects of applied stress. He then continued as a Research Fellow at NUS on the topic of erosion of pipeline steels. Prior to his Ph.D., having graduated from BITS - Pilani, Hyderabad Campus with a Bachelor's in Mechanical Engineering, he worked for three years with FMC Technologies India Pvt. Ltd as an engineering analyst, where he used ANSYS to verify the structural integrity of the components they designed. His current areas of interest include Testing of metals, their characterization and developing new lightweight designs using simulations.

Dr. T. Vinoth joined us on the 12th July 2021 as an Assistant Professor (on contract). He obtained his Ph.D. from the Department of Mechanical Engineering at the National Institute of Technology Tiruchirappalli (NIT) in 2021. His Ph.D. thesis investigates the interlaced effect of continuous flow microreactor and ultrasonic mixing on transesterification of non-edible seed oil. Also, it evaluates the impact of fuel and modification on the engine characteristics of biodiesel fueled diesel engines. He has joined as Junior Research Fellow at National Institute of Technology, Tiruchirappalli, under the DST project (YSS/2015/000429) and then he has worked as a Senior Research Fellow at NITT from 2017 to 2019. He earned his master's degree in Thermal Engineering from Government College of Technology, Coimbatore, Tamil Nadu, in the year 2014. He pursued his Bachelor's degree in Mechanical Engineering from the Institute of Road and Transport Technology, Anna University, Chennai, in the year 2012. His current areas of research include waste to energy conversion, extraction of alternative fuels using microreactor and their use in engines, boilers, and micro gas turbines.

International Journal Publication- SCI Clarivate

Introducing new designs of minichannel cold plates for the cooling of Lithium-ion batteries *T. Amalesh and N. Lakshmi Narasimhan* *Journal of Power Sources 479, 228775 2020*



Seven new designs of minichannel cold plates proposed for cooling Li-ion batteries. Circular slot and zig-zag channels offered the best cooling performance. All the designs were capable of cooling the batteries to <40 °C at 3C discharging. Thermo-hydraulic performance was strongly influenced by the channel profiles. Better temperature uniformity obtained with all the designs.

Lenin, N.; Sivakumar, M.; Selvakumar, G.; Rajamani, D.; Sivalingam, V.; Gupta, M.K.; Mikolajczyk, T.; Pimenov, D.Y. Optimization of Process Control Parameters for WEDM of Al-LM25/Fly Ash/B4C Hybrid Composites Using Evolutionary Algorithms: A Comparative Study. Metals 2021, 11, 1105. https://doi.org/10.3390/met1107110

S. Ram Prakash, G. Selvakumar & K. Rajkumar (2021) Spark plasma processing of semi-conductive titanium carbide dispersed alumina composites, Materials and Manufacturing Processes, DOI: 10.1080/10426914.2021.1944196

Comparative Machining characteristics studies on SS 304 using coated and uncoated brass wire through Wire EDM T. Suresh, Dr. K. Jayakumar, Dr. G. Selvakumar, S. Ram Prakash La Metallurgia Italiana/Metallurgia Italiana,32-42,2021

S. Senthur Vaishnavan & K. Jayakumar (2021) Tungsten inert gas welding of two aluminum alloys using filler rods containing scandium: the role of process parameters, Materials and Manufacturing Processes, DOI: 10.1080/10426914.2021.1948055

Influence of CeO2 reinforcement on microstructure, mechanical and wear behaviour of AA2219 squeeze cast composites A. Karthik , S.A. Srinivasan , R. Karunanithi , S.P. Kumaresh Babu , Vikram Kumar S. Jain Journal of Materials Research and Technology 2021;14;797-807 2021 Clarivate

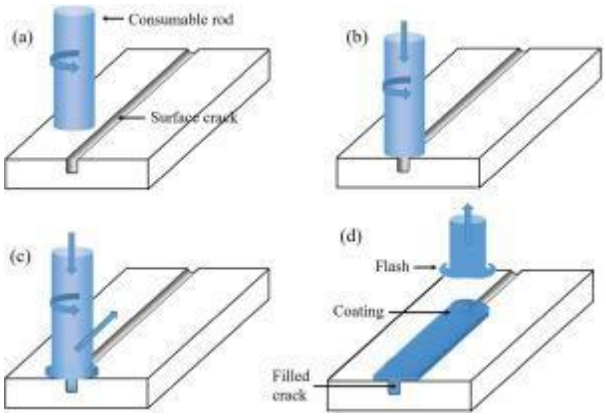
Friction surfacing: A tool for surface crack repair

Surface & Coatings Technology (IF4.158), Pub (2021). DOI:10.1016/j.surfcoat.2021.127482

R. Damodaram, Pranav Rai, S. Cyril Joseph Daniel, Ranjit Bauri, Devinder Yadav

The present work demonstrates the feasibility of friction surfacing as a tool to repair surface cracks. An artificial crack, made on Inconel 718 plate was repaired by depositing a self-mating coating by friction surfacing. The crack was completely filled and the coating

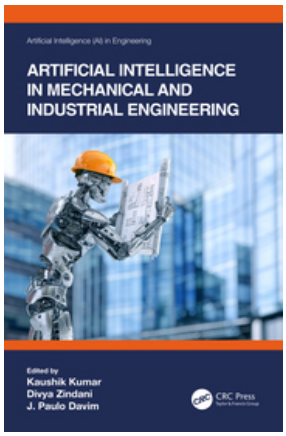
exhibited sound bonding with the substrate. For complete filling of the crack, the optimized process parameters depend on the crack dimensions. The coating microstructure was characterized by equiaxed fine grains with an average grain size of 1–3 μm and with a high fraction (>78%) of high angle grain boundaries. The microstructure in the coating evolves through a dynamic recrystallization process, driven by combination of high strain rate and high temperature during friction surfacing. The method opens up a new way of repairing surface cracks and enhancing the service life of engineering components.



Book Published

ARTIFICIAL INTELLIGENCE IN MECHANICAL AND INDUSTRIAL ENGINEERING

Kaushik Kumar, Divya Zindani, J. Paulo Davim, Crc Press, 1st Edition, 156 Pages



Artificial Intelligence in Mechanical and Industrial Engineering offers a unified platform for the dissemination of basic and applied knowledge on the integration of artificial intelligence within the realm of mechanical and industrial engineering. The book covers the tools and information needed to build successful careers and a source of knowledge for those working with AI within these domains.

The book offers a systematic approach to explicate fundamentals as well as recent advances. It incorporates various case studies for major topics as well as numerous

examples. It will also include real-time intelligent automation and associated supporting methodologies and techniques, and cover decision-support systems, as well as applications of Chaos Theory and Fractals.

External Recognition

Dr. K. Jayakumar, ASP/Mech delivered a guest lecture on “Advances in Metrology” in 7 days ISTE sponsored FDP on Metrology and Measurements at the Department of Mech. Engg., Sai Ram Engineering College, Chennai on 26.07.2021

Dr. Divya Zindani, Assistant professor/MECH delivered an expert talk on "Decision Support Systems for Green and Sustainable Technologies" at K. R. Mangalam University Sohna Road Gurugram organized by School of Engineering & Technology on 23rd July 2021

Patent Granted

Patent Title: A method to Fully Integrate Multi-Layer Woven Electro-Textile Patch Antenna

Patent No: 370289 has been granted to Dr. R. Vimal Samsingh, which is the outcome of a collaborative interdisciplinary research work with inventor Dr.K. Malathi, Professor/ECE, Anna University and Dr.S.Esther Florence, Sri Sivasubramaniya Nadar College of Engineering

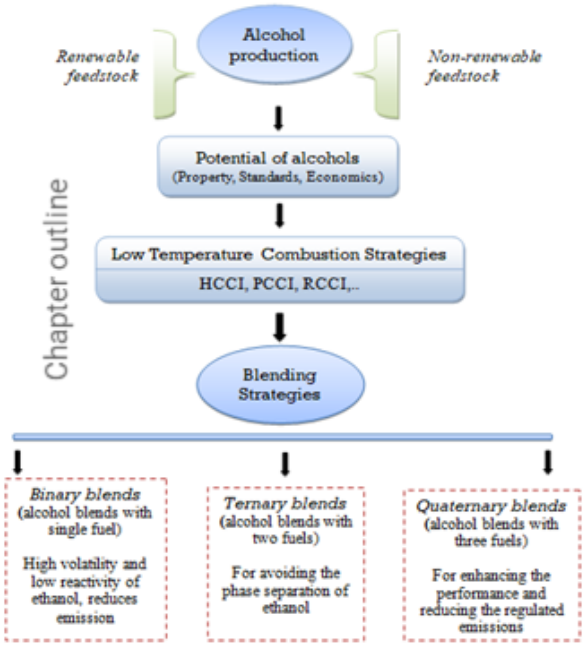
It has been identified after extensive studies that microwaves can be effectively used for developing low-cost sensing and communication devices for various applications including healthcare. However, there is a need for unique manufacturing techniques to produce user friendly, low profile devices for the same. In the proposed invention, a triple or plurality of layer weaving has been proposed to produce a completely integrated textile antenna. The present invention provides a design and manufacturing technique of a conformal wearable textile antenna for on-body communication using a modified table

loom assembly. The manufacturing methodology alters the conventional structure of a simple tabletop loom and advocates a modified assembly of loom to make it capable of plural weaving. The tabletop looms conventional fabric manufacturing technique was studied and altered to produce totally integrated textile antenna, and this eliminates the need for positioning and fastening of the various electronic components. The proposed invention provides a unique manufacturing methodology to weave out novel textile-based microwave components using a simple tabletop loom that is used for conventional weaving processes .

Faculty Writeup

Book chapter in springer publications

S. Raj kumar, and J. Thangaraja**, The Potential of Various Alcohol Fuels for Low-Temperature Combustion Engines.** *In P. C. Shukla et al. (eds.), Alcohol as an Alternative Fuel for Internal Combustion Engines, Energy, Environment, and Sustainability*, Springer, https://doi.org/10.1007/978-981-16-0931-2_6



Due to higher compression ratio, better thermal efficiency, and good torque characteristics of diesel engine compared to its counterpart spark ignition (SI) gasoline engines, the diesel engines have become indispensable to meet the power demands for on-road and off-road applications. However, the oxides of nitrogen (NOx) and smoke emission from the diesel engine are its major concerns. Currently, the stringent emission norms keep the researchers in active mode to establish feasible solutions to mitigate the emissions from conventional fossil fuels. Several alternative strategies, namely alternate fuels, advanced combustion technology, and after treatment techniques, are practiced. In this regard, the alternate fuels from biomasses like alcohol and biodiesel are proved to be effective alternative fuels for internal combustion engines. Alcohol fuels have many advantages like renewable in nature, higher latent heat of evaporation (beneficial in NOx reduction), and fuel-bound hydroxyl (OH) group (reduces smoke emission). However, direct usage of alcohols in compression ignition (CI) engines needs ignition aids due to their lower cetane and viscosity characteristics. Therefore, the alcohol–diesel blends or dual-fuel mode is preferred in CI engines. The simultaneous reduction of these emissions is possible by controlling the flame temperature and local equivalence ratio in an advanced low temperature combustion (LTC) strategy. Hence, an effort is made to comprehend the outcome of alcohol fuels on combustion and emission characteristics of low-temperature combustion engines.

Publication in Science Citation Index (SCI) journals

Tungsten inert gas welding of two aluminum alloys using filler rods containing scandium: the role of process parameters. S. Senthur Vaishnavan (FT scholar) and Dr. K. Jayakumar, Materials and Manufacturing Processes, doi.org/10.1080/10426914.2021.1948055, 2021 (Clarivate Analytics, Impact factor: 4.616).

Abstract: The present work investigates the effects of selected welding process parameters on the output responses for the tungsten inert gas welding of two aluminum alloys: 5083-H111 and 5754-H111. The tungsten inert gas welding was performed using design of experiments followed by the optimization of process parameter through response surface methodology technique. Tungsten inert gas welding was carried out by varying current, gas flow rate, and weight percentage of scandium addition on the filler rod and tensile strength and microhardness were measured as output responses. From the analysis of variance results, it was found that the significant influencing parameter to be input current for the tungsten inert gas welding. For predicting optimal ultimate tensile strength and microhardness, desirability approach was used. The optimized process parameters were found to be input current of 170 A, gas flow rate of 11 lit/min, and weight percentage of scandium added filler rod of 0.5%. The peak tensile strength and microhardness values observed for the optimum process parameters were 236.18 MPa and 105 HV, respectively. The validation of the optimization found these values from the experiments consistent with the predicted values with marginal error. The microstructure of the base alloys and the weld zone were analysed.

Comparative Machining characteristics studies on SS 304 using coated and uncoated brass wire through Wire EDM. T. Suresh (FT scholar-SSN JRF), Dr. K. Jayakumar (Associate Professor), Dr. G. Selvakumar (Associate Professor), S. Ram Prakash (FT scholar-SSN JRF), La Metallurgia Italiana/Metallurgia Italiana, 2021 (Clarivate Analytics, Impact factor: 0.54).



Abstract: Wire Electric Discharge Machining (Wire EDM) is one of the unconventional metal cutting processes. Stainless Steel 304 (SS 304) is widely used in Aerospace, Medical, Electronics and Semiconductor, Tool and Die making industries. However, during traditional machining of SS 304, industries are facing numerous difficulties. In view of the exceeding purposes and challenges in traditional machining of SS 304, the present research investigates the effect of Wire EDM parameters such as Current (I), Gap Voltage (V), Pulse on time (Ton), Pulse of time (Toff) with two different electrode wire materials (Brass and Zinc coated brass) on SS 304 material. After machining, Surface roughness (SR), microhardness (HV) of the machined surface and thickness of the recast layer were measured to assess the machinability of the SS 304. Coated and uncoated brass wires of f 0.2 mm were taken as wire electrode materials. From the study, coated brass wire has shown the higher surface finish and hardness than uncoated brass wire. Furthermore, the recast layers of the machined surfaces were analysed for both wire electrodes using the SEM images.

ATAL FDP on Recent Developments in Sustainable Processes


ATAL

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

AICTE Training And Learning (ATAL) Academy

Certificate

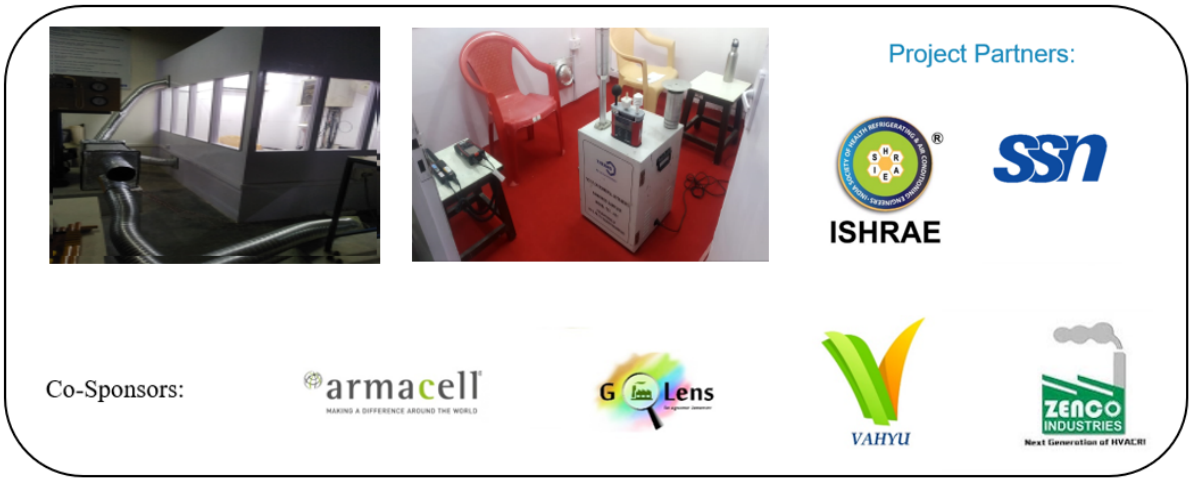
Dr. A S Ramana Participated in Online faculty development program on Recent developments in Sustainable processes" from 31-05-2021 to 4-6-2021 at Indian Institute of Carpet Technology, Bhadohi organized by AICTE Training and Learning (ATAL) Academy. FDP covered various topics related to sustainability in textiles processing, solar

food drying process and on green building concepts. In addition to technical sessions, Yoga sessions were also included. Eminent Resource persons lectures and active participants hailing from different parts of India focused on optimal energy & water consumption and better waste management practices. Renewable energy technologies for process integration and nano materials for enhanced performance in energy and environmental applications were also discussed. The FDP was useful and informative.

Completion of ISHRAE-SSN Trust Funded Research Project- "Experimental Analysis of Energy Recovery Ventilator Combined with UVGI and air filtration system for IAQ Enhancing in Non-Ventilated spaces

Chemmal Swami Durai C (ME, Energy Engg.), Faris Ahmed (NDF), Dr. A.S. Ramana (Ass.Prof, SSNCE)

The ongoing COVID-19 crisis has led to slackening of many diurnal activities. However, this gave us an opportunity to hasten our research work. The funds supported by ISHRAE and SSN Trust were effectively utilized to fabricate and integrate the ERV Prototype to a small cabin in Thermal Engg lab for pilot investigation which involved IAQ Enhancement, Energy efficiency Assessment and Thermal Comfort Analysis. In addition, the interest in our project has invited multiple aids from many industry groups like Armacell, Zenco Industries, Innovative Engg. Solutions, Vahyu HVAC Consultants. The extended support in the form of the state-of-the-art instruments supply for data collection from G Lens Innovative Labs, Chennai has benefited us to do data analysis for fine tuning our research findings. The final report has been presented to ISHRAE, Delhi for reviewing on July 22,2021.



Publications in Scopus and Other monthly Activities

- Poovazhagan Lakshmanan , Arun Arumugam , Sarangapani Palani , S. Kulothungan , Analyzing the dimensional deviation in wire cut electric discharge machining of nickel aluminium bronze using molybdenum wire electrode, Materials Today: Proceedings,46 (2021) 1028–1032 2021, Scopus
- Sarangapani Palani , Poovazhagan Lakshmanan , G. Kumanan , Influence of process parameters on the machinability of nickel aluminum bronze alloy by electrochemical micromachining process – A desirability analysis approach,Materials Today: Proceedings,46 (2021) 1033–1038,2021. Scopus
- Raghav Arvind T, Roshann Ram Dayal D, KL. HariKrishna, Survesh S ,Mechanical characterization and comparison of glass fibre and glass fibre reinforced with aluminium alloy (GFRAA) for automotive application, Materials Today Proceedings, 46 Part 2, 1181 -1186,2021,Scopus.
- Sarangapani Palani , Poovazhagan Lakshmanan , Arun Arumugam , S. Kulothungan, Materials Today: Proceedings, Experimental investigations of suitability of electrolyte solutions for anodic dissolution of nickel aluminum bronze, 46 (2021) 966–971, 2021, Scopus.
- Dr.D.Ananthapadmanaban, Associate Professor has been invited on the Editorial Board of the IIOAB Journal, an International open access Multi disciplinary Journal and has also been assigned the role of Guest Editor for a special issue ,planned to be released in December,2021.
- Dr G Selvakumar, Associate Professor has evaluated a Ph.D. thesis titled ' Analysis of the parametric effects on the performance of powder mixed electrical discharge machining on various alloy materials' for Aliah University, Kolkata, India.
- Dr.D.Ananthapadmanaban, Associate Professor attended the Interactive Lecture Series -Lecture 1 by Professor Prem Vrat, AICTE Distinguished Professor on June 10th,2021 from 10.30 to 12.00P.M.
- Dr L Poovazhagan, presented a paper titled "Reducing the porosity in Al/B4C Nano composites by sonication assisted casting and squeeze casting" in the International Conference On Advances In Materials And Manufacturing, 18-19 February, 2021, Organized by Department of Mechanical Engineering, SSN College of Engineering, Chennai.

- Dr L Poovazhagan, Assoc.Prof/Mech., presented a paper titled "Impact of hybrid nano reinforcements on fabricating Mg nano composites by ultrasonication assisted casting method" in the International Conference On Advances In Materials And Manufacturing, 18-19 February, 2021, Organized by Department of Mechanical Engineering SSN College of Engineering, Chennai
- Dr. Divya Zindani, Assitant Prof, Dept. of Mechanical Engineering has filed a patent titled "Artificial Jewelry Cabinet" bearing application number "345618-001" on 02.07.2021. The patent relates to designing an artificial jewelry cabinet that has dedicated storage space for the different classes of ornaments and makes the identification of jewelry easier.
- Dr. L. Poovazhagan, ASP/Mech conducted the PhD public viva-voce for his full-time research scholar, Mr. P. Sarangapani on 19.07.2021.
- Dr. L. Poovazhagan, ASP/Mech conducted the Synopsis DC Meeting for his Full-time research scholar, Mr. K. Gowtham on 16.07.2021.
- Dr G Selvakumar, Associate Professor / Mech conducted Viva-voce examination for his Part-time research scholar Mr Thomas Victor M (Registration no. 1514289203) on 27.7.2021. Title of the Thesis: Mechanical Behaviour of Magnesium Hybrid Composites Fabricated through Powder Metallurgy.
- Mr. GOUTHAM MURARI V P (Reg. No. 1614299244), Part- time research scholar working under the supervision of Dr G Selvakumar, Associate Professor / Mech, has submitted his Ph.D. thesis titled 'Txperimental study on wire electrical discharge machining of al-sic-tic composites' on 28.7.2021.
- Mr. Ram Prakash S (Reg. No. 18142991344), Full time research scholar working under the supervision of Dr G Selvakumar, Associate Professor / Mech, has submitted his Ph.D. thesis titled 'Investigations on spark plasma processing behavior and machining characteristics of titanium carbide reinforced alumina ceramic composite in wedm ' on 28.7.2021.
- Dr. A. S. Ramana, Associate Professor, attended One-week online ATAL Academy online FDP on "Recent Developments in Sustainable Processes" Conducted by Indian Institute of Carpet Technology,, Bhadohi, Uttar Pradesh from 31.05.2021-04.06.2021.
- Dr. R.Prakash, Associate Professor, attended Two weeks online Faculty Development Programme on “Advances in Composite Materials, Manufacturing Processes and Optimization Techniques” Organized by the Department of Mechanical Engineering, AMET University, Chennai from 01.06.2021 to 14.06.2021

- Mr.Rajesh M, Senior Research Fellow, attended A two week Online International Faculty Development Programme on "Communication Skills: Theory & Practices" From 14.06.2021 to 25.06. 2021 at Integral University, Lucknow, India.
- Mr. M.Rajesh, Senior Research Fellow, attended AICTE Training and Learning (ATAL) Academy Online FDP on AICTE Training and Learning (ATAL) Academy Online FDP on "Classical Optimization Techniques in Manufacturing systems" conducted by Guru Nanak Institutions Technical Campus Telangana from from 05-07-2021 to 09-07-2021
- Mr. M.Rajesh, Senior Research Fellow, attended AICTE Training and Learning (ATAL) Academy Online FDP on AICTE Training and Learning (ATAL) Academy Online FDP on "Mult-Objective Optimization and Product Innovation Through Triz (Theory to resove Inventive Problems" conducted by Sri Shanmugha College of Engineering and Technology from 12-07-2021 to 16-07-2021 (No: ATAL/2021/1625073502).
- Dr.D.Ananthapadmanaban,Associate Professor attended the Interactive Lecture Series -Lecture 1 by Professor Prem Vrat, AICTE Distinguished Professor on June 10th,2021 from 10.30 to 12.00P.M.
- Dr.D.Ananthapadmanaban,Associate Professor attended a 1 day workshop on Composite Materials conducted by Department of Mechanical Engineering,SSN College of Engineering on 18/06/21.
- Dr. B. Anand Ronald, Assoc. Professor, attended a webinar by Prof. Sathyan Subbaiah/ Mech/ IITM on "Extra Terrestial Manufacturing" organized by IIT Madras Alumni Association, on 19.06. 2021
- Dr.D.Ananthapadmanaban,Associate Professor attended a webinar entitled Future of work and Career planning by Mr.Muralidharan,Founder Chairman,TMI Group on 20th June,2021 between 10.00 A.M and 11.30 A.M.
- Dr.D.Ananthapadmanaban,Associate Professor attended an interactive webinar on Measuring and Enhancing Employability of Graduates of Engineering and Management Programmes by Prof Prem Vrat,AICTE Distinguished Chair Professor on 17/06/21 from 9.00 A.M to 12 P.M.
- Mr. Subramani, Energy Efficiency and Quality!-converted
- Mr.Nandakumar, Alison course completed: Mechanical Engineering - Internal Combustion Engine Basics
- Mr. NandaKumar, Alison course completed Introduction to Microsoft Word.
- Dr. K.S. Vijay Sekar, Associate Professor has attended a Webinar on " Assessing research productivity and quality through citation analysis" delivered by Professor Prem Vrat, AICTE Distinguished Chair Professor, organized by SSN-IIC on 10.06.2021

- Dr. K.S. Vijay Sekar, Associate Professor has attended a Webinar on " Opportunities for students and faculties: Early-stage entrepreneurs" delivered by Mr. Suresh Balachander
- Senior Consultant, Athenus Centre for Excellence, Chennai, organized by SSN-IIC on 11.06.2021"
- Dr. K.S. Vijay Sekar, Associate Professor, attended a Two day event on "Latest trends and innovations of the industry on DMG MORI's digital stage" organized by DMG MORI on 15.06.2021 and 16.06.2021.
- Dr.K.S.Vijay Sekar, Associate Professor has attended a webinar on "Material Modeling of Metals in Abaqus" organized by 3DS Simulia on 23.06.2021
- Dr.K.S.Vijay Sekar attended a one day " Summit on Vocational Education and Training - Skilling with a Purpose - Decade 21" organized by CII Chennai in collaboration with HCL Training and Staffing Services on 25.06.2021
- Dr. K.S. Vijay Sekar, Associate Professor has attended a Webinar on " Measuring and Enhancing Employability of Graduates of Engineering and Management Programmes" delivered by Professor Prem Vrat, AICTE Distinguished Chair Professor, organized by SSN-IIC on 17.06.2021
- Dr. K.S. Vijay Sekar, Associate Professor has attended the First Extra-Mural Lecture (EML) " Nature and You - Coexistence", delivered by Prof. Srinivas Gumbarthi, MBA department, SSN, organized SSN-IIC on 26.06.2021
- Dr. B. Anand Ronald, completed an Online Course "AI for Everyone" through Coursera by Dr. Andrew Ng, Founder, Deeplearning.ai
- Dr. Santosh completed a course on Material Behaviour in Coursera
- Dr. K. Jayakumar, ASP/Mech attended a DC Meeting for a full-time research scholar doing Ph.D. in the School of Mechanical Engineering, VIT Chennai campus on 10.07.2021.
- Mr. Chemmal Swamy Durai ME Energy student with guidance of Dr A S Ramana and Mr Faris Ahmed submitted ISHRAE SSN funded project on Experimental Analysis of ERV Combined with UVGI and air Filtration system for IAQ in Non Ventilated spaces on 22.07.2021

Non-Teaching Faculty Activities

- Mr. Subramani R completed the course - Sustainable Architecture: Energy Efficiency and Quality!
- Mr..P. Balasundaram / Lab Assistant /Completed Alision Course / Devops Application Life Cycle Management On 24.06.2021
- Mr.P.Balasundaram / Lab Assistant / Participation in One Day National Workshop on Advanced Non-Destructive Testing Techniques and its Applications – 28th June 2021 . conducted by dr.k.jayakumar asso.prof . ssnce
- Mr.Balasundaram P / Lab Assistant Gr-1 (Sr) / Paricipated In One Day Workshop Advanced Non Destructive Testing Techniques And Its Application - Dated On 28.06.2021
- P. Nandakumar (Turner Grade -II) participated in a National workshop (Virtual mode) on "Advanced Non-Destructive Testing Techniques and its Applications" organized by the Department of Mechanical Engineering, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai on 28th June 2021.
- Mr.Balasundaram P / Lab Assistant / Mechanical / Completed Alsion Course Of Introduction Of Business Accounting On 15th July 2021
- Mr.M.Giridharan/Lab Assistant/Mechanical department has participated in the national workshop of "Advanced Non-Destructive Testing Techniques and its Applications" on 28 June 2021"
- R.Subramani has participated in a National workshop (Virtual mode) on "Advanced Non- destructive Testing Techniques and its Applications" organized by the Department of Mechanical Engineering, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai on 28th June 2021.
- J.Ponmuthuraja., I am participated in a National workshop (Virtual mode) on "Advanced Non-Destructive Testing Techniques and its Applications" organized by the Department of Mechanical Engineering, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai on 28th June 2021.
- J.Ponmuthuraja completed Machine design part I in coursera.
- Mr.k.Arumugam/Lab Assistant/Mechanical has participated in a National workshop (Virtual mode) on "Advanced Non-Destructive Testing Techniques and its Applications"

- Mr.B.BHARATHI / Technical Assistant / Mechanical has participated in a National workshop (Virtual mode) on "Advanced Non-Destructive Testing Techniques and its Applications" on 28th June 2021.
- Mr.K.Arumugam/Lab Assistant/Mechanical has participated & successfully completed 2 weeks Virtual Motivational Program on "Skill development on Positive Thinking" 09th July 2021 to 17th July 2021
- Mr.M.krishnasamy / Lab assistant/Mechanical has participated in a National workshop (Virtual mode) on "Advanced Non-Destructive Testing Techniques and its Applications"on 28th june 2021.
- Mr.K.Arumugam/Lab Assistant/Mechanical has attended the webinar on 3D printing: Defence and aerospace application on july 2 2021
- Mr. B.BHARATHI / Lab Assistant /Mechanical has attended the Webinar on 3D printing: Defence and Aerospace Applications on 02 july 2021
- Mr. Nagarajan S, Lab Instructor / Mechanical Department completed online course "Introduction to Four-Stroke and Auxiliary Engines" on Alison during July 28, 2021.
- Mr. Nagarajan S, Lab Instructor / Mechanical Department attended the following webinars.

  1.Attended the Webinar" Are Online Programs Equalizing Higher Education for Women?" By Coursera on July 1, 2021.

  2.Attended the webinar on "3D printing: Defence and Aerospace Applications" Organized by Department of Mechanical Engineering VFSTR (Deemed to be University) Vadlamudi, Guntur District, Andrapradesh on July 2, 2021.

  3.Attended the Webinar "" Heat Transfer Analysis & Modelling Acoustics with COMSOL Multiphysics Simulation in 18 minutes, Bangalore on July 6 & 7, 2021 .

Student Writeup

Student Activities

S.no	Date	Activity done during the month
1	1/7/2021	**Lakshmi Swetha,** 3rd year. • Completed an Online course on AutoCAD essential course.
1	1/7/2021 	**A Sabareesh** , 4th year, • Completed an Online course on Market Research and Consumer Behavior. In this write-up, I will share my experience gained while pursuing the course "Market research and consumer behavior". It is the first course of a six-course series offered by Coursera. It was a very interactive course that focused on the 'how' part of market research rather than the 'why' part. Everything was explained using the current market examples. It was very interesting to know how different customers do their research before buying different kinds of products. One of the main things I learnt fromthis course is that, no matter how much market research a company does before launching a product, a customer will never purchase the product without their prior research. Overall, it was exciting to do this course, and I'm looking forward to the other five courses in the series.
2	9/7/2021	**Cynthia Joy,** 4th year, • Completed an online course called Lean Software Development on Coursera. Amazon Internship offer.

3	11/7/2021	**P R Vishnu Prasad**, 4th year, • Volunteer-Talent Quest for India Express, Phone mentoring
4	14/7/2021	**Pratulya Ramprasad**, 4th year, • Internship at Brahmastra Aerospace Systems.
5	26/7/2021	**Abhishek E**, 4th year, • Internship at Maruti Suzuki
6	16/7/2021	**KARTHIK R**, 4th year • Industrial Visit- In Plant Training at Chennai Port Trust.
7	7/7/2021-2/8/2021	**B R Vimal Kumar Bharathi**, 4th year • Summer Research Fellowship at IIT Madras • Presented a paper titled 'Enhancement of Structural, Optical and Electrochemical Properties of Nanocrystalline Vanadium Oxide Thin Film for Li-ion Battery Operation' at the international conference on "Sustainable Materials and Technologies for Bio and Energy Applications". (May - 2021)
8	1/7/2021	**Aditya S**, 4th year, • Data Analysis Internship at Ashok Leyland. • Amazon Internship offer
9	19/7/2021	**Rishab M** ,4th year • Amazon Internship Offer
10	19/7/2021	**Venkatesh S**,4th year • Amazon Internship Offer

11	19/7/2021	**B Harish Ragavendar**, 4th year • Amazon Internship Offer
12	19/7/2021	**Mohanraj.A**,4th year • Internship-Got an internship offer at Amazon (Non-Tech Hiring)
13	19/7/2021 12/7/2021 	**Shivani S**,4th year • Amazon Internship Offer • External Recognition--Runner-up for the event "CaseLit", a literary case study contest held under "Udaipur Leapday Lit Fest '21" . IIM Udaipur conducted a unique variation of a case study competition in the form of CaseLit, a literary case study contest as part of their Leapday Literary Fest '21. The organizers provided a skeletal situation, and different constraints present in the scenario. The main aim is to provide a logical strategy in the form of a story. It was the perfect blend of using creative skills and logical acumen for an event, both of which helped me emerge as the runner-up for the event. I've found many unique events such as these on the Dare2Compete website, which everyone should look into. It's a great platform to find a variety of competitions.
14	19/7/2021	**Aditya K**,4th year, • Amazon Internship offer
15	21/7/2021	**Goutham Krishnan U S**, 4th year, • Internship Experience UK: Engineering and Infrastructure

16	19/7/2021 	**Nandita Anand**,4th year • Amazon Internship Offer I would like to share my experience gained during the assessment and interview rounds conducted by Amazon. Click here
17	23/7/2021	**R. Swamenathan**, 4th year, • Introduction to Astrophysics - EPFL - edX

Arihanth Jayavijayan, IV year, writes…

ROUND 1: ONLINE ASSESSMENT: The online assessment was purely non-technical. They tested our abilities to manage schedules, make decisions, team working/coordination skills and how we manage deadlines. The important point to note here is that the decisions should be in line with the 14 principles of Amazon (Customer obsession and ownership being the most important). Anyone who is good at planning their day to day activities and making quick decisions will be able to clear this test easily. This was followed by a psychometric test to test the candidate's personality.

ROUND 2-INTERVIEW: This interview was simple and had only personal and behavioral questions. It lasted for 20-25 mins. The questions asked to me were:

1. An introduction about yourself
2. Have you ever faced a dilemma? How did you solve it?
3. Have you experienced any bad customer experiences? How would you solve it, if you were the manager?
4. Give me a situation when you had a deadline and had to deliver.
5. How did you handle criticism/feedback from your professors/classmates/team members?

These questions are to be answered in the STAR format (Situation-Task-Action-Result). There are a lot of examples/videos and tips on the internet regarding this. It is also suggested to answer these questions with examples relating to Amazon's 14 principles because it shows them that you are a good fit for working at Amazon.

While preparing for this interview, I would suggest thinking about examples to such general questions. There will at least be one example from your life which you can use to answer these questions. Good communication skills and confidence are also something they look out for.

ROUND 3-INTERVIEW: This interview had personal, situational questions. Questions from operations research were also asked. It lasted for about 45 mins.

The questions asked to me were:

1. About family and where I am from.
2. Why mechanical engineering and why operations manager role now?
3. What have you learnt in operations research?
4. What exactly is the job profile and what are your expectations?
5. Situation 1- In an Amazon FC, one end has the packaged products and the other end has the logistic service trucks. The products are transported from the packaging dept. to the logistics dept. via a belt conveyor. There are about 20,000 products to be delivered to customers on that day. Suddenly the belt conveyor fails. You are the only manager present and all the 20,000 products have to be delivered. How do you handle this situation and solve this problem?
6. Situation 2- A customer is repeatedly complaining that products that are delivered to him/her are either damaged or missing. You cannot lose this customer. What do you do to ensure that there isn't any mistake from your side?
7. What are the various types of inventory costs?
8. Why would you be a good manager?

The situational questions are asked to check if you can handle pressure and to see how you think and solve problems. It is also advisable to use very basic terms from lean six sigma-methods to solve problems/make decisions while answering these situational questions. If possible use some of the principlesof Amazon too.

Anushka Prasad,IV year , Writes...

Saint Gobain conducts the internship test in three stages . First stage was **aptitude round** (online) , the selected people from the aptitude round were grouped for the second round i.e; **group discussion** . The final shortlisted list was sent in a day for a personal **interview round (TECHNICAL +HR).**

This round was basically for 30 mins per student and the subject of focus was Thermodynamics, HMT , Manufacturing technology , FM and basics of metallurgy . Also internship related questions were asked .

Some of the questions were:

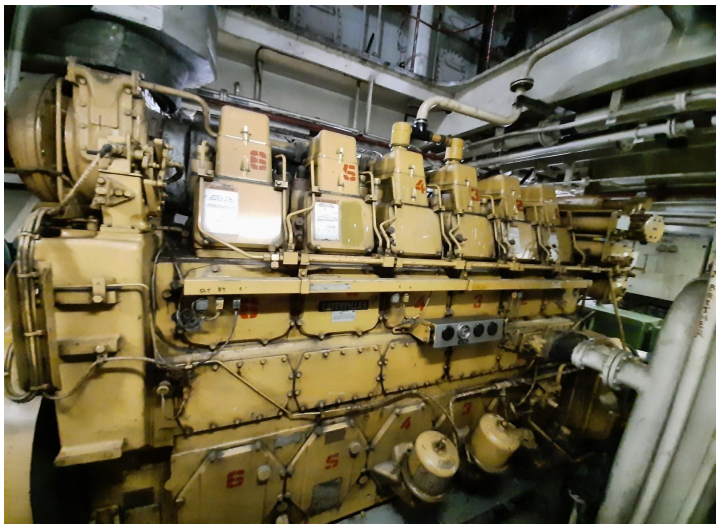
- Introduce yourself + family background
- Explain the third law of thermodynamics with example
- What is entropy , enthalpy with their equations and explain it
- State Bernoulli's theorem and equation
- Draw the types of joint in MT
- What is Mach number , Sonic and Supersonic ?
- All related questions about a chiller unit , cooling tower and its drawings (INTERNSHIP RELATED)
- HR questions : Where do you see yourself in five years , why mechanical department , and family background questions .

In the end , they expect you to know the basics and also your confidence while answering .

Hariharan V S, IV year, writes...

I am Hariharan V S from Mechanical final year . I recently got an opportunity to undergo InPlant Training at Chennai Port Trust. Firstly, when we went inside the port trust office we saw a huge office with three sub-buildings, and the one we went to was the Pension office. We went and gave them the details for the pass. Later, the next day on 14th of July, we went to gate 10 for our first day of training, and I was very excited.

It was a pretty long walk; once we got to the center, we had diesel locos as our first part. It had wagons in order to transport the goods within port; and diesel locomotives are meant for servicing these wagons and maintaining them. The next day we visited the machining workshop, where we found all the lathes and different cutting machines for parts of ships being manufactured. Later that day we went inside a ship called "Cauvery" which was designed to find depth in the deep sea. Hence, it was an interesting and tiresome day.



The final day we visited a site inside another ship which was used to park the bigger ships and helped them turn it with ease from shore and we also saw its engine and different other components.

Pratulya Ramprasad, IV Year writes....

Brahmàstra

I am Pratulya Ramprasad from Mechanical Final year. I recently completed my Rocket Science Virtual Internship at Bhramasatra Aerospace Systems from the 21st of June,2021 to 14th of July,2021. It was a really great experience and I learnt a lot about the various real-world phenomena that one has to take into account, while designing a launch rocket. During the 3 weeks of internship, we covered theoretical topics ranging from low-speed aerodynamics, Hypersonic, structural mechanics, Basic and Advanced Rocket Propulsion and Astrodynamics.

We also learnt about the various parameters that have to be taken into account while calculating the trajectory of a rocket. On the practical side we were taught software like Open Rocket, SolidWorks and ANSYS for doing the necessary 3D modelling and analysis of a rocket. OpenRocket -a simulation software was one of the best tools to use when you want to create your own model of rocket to test the validity of the design. It is very intuitive in its use but at the same time very informative.

Towards the end, we were sorted into teams of 5 and given a problem statement to theoretically design a rocket to carry a 200kg payload to a LEO orbit of 160 km and present a detailed report at the end of the same. It was a really challenging task as we had to refer to a plethora of research papers, online videos and books to calculate the necessary design specifications. I had to work with a team with its members present in different time zones and across the breadth of India. It was a challenging task but we managed to complete our tasks well within the allotted time and were able to put together a comprehensive report of the same.

I learnt a lot during this internship and this opportunity sated my desire for working in the field of rocketry. It also made me realize that I have a lot to learn if I want to pursue a career in designing and building rockets.

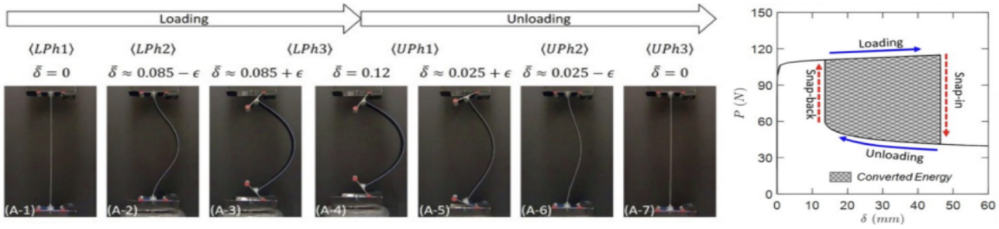
Mech Marvel

Ingenious Reusable Shock Absorbers !

A shock absorber is a mechanical or hydraulic device designed to absorb and damp shock impulses. It does this by converting the kinetic energy of the shock into another form of energy which is then dissipated. This reduces physical damage to the vehicle, or the components the absorbers are protecting, but it requires the replacement of internal and external parts following the collision

To come up with a solution to this problem, engineers at the University of Buffalo, NY have made a simple yet ingenious design for reusable shock absorbers. This, they say, could have far reaching applications in the field of transportation safety.

Unlike conventional sacrificial structural components like car bumpers, this device is designed to be reused after impact. "Our structure is unique in that it enables impact energy to detour around the vehicle. It consists of one column with a flange at each end. These flanges have hinges that allow the normally rigid column to snap out of place, which converts external energy into kinetic energy of the disconnected column, eventually protecting the vehicle," says the study's senior author, Jongmin Shim, PhD, associate professor of structural engineering at Buffalo.



The images show the device bending and snapping to dissipate energy. Credit: University at Buffalo.

The absorbers are made out of low cost metallic materials. Because of its simple design and common materials, they say, it could easily be scaled up or down to other dimensions. The possible applications of this device can range to everything from automobiles and ship buffers to helicopters, drones and much more.

The team has filed a provisional patent application for the device. The study was published in the International Journal of Mechanical Sciences. Here is a video of the device in action during testing.

Corporate Story

TVASTA

Tvasta is an IIT M Alumni startup founded by three Mechanical Engineers Adithya, Vidyashankar and Parivarthan. They initially established the 3D Printing Club of IIT Madras in Centre For Innovation (CFI) to build innovative products using 3D Printing and to spread awareness about this technology. They graduated in 2016 and Tvasta was born from the passion that the founders possessed towards Design and 3D Printing.

This startup builds houses by using advanced 3D printing technology at nearly half the cost which is used for traditional construction. "All we need is a 2D building plan which will be printed out as a house" says C Vidyashankar. In their construction, Tvasta avoids using construction materials like bricks. Their technique utilises a concrete 3D Printer which accepts a computerised three-dimensional design file from the user and fabricates a 3D structure in a layer-by-layer manner by extruding a specialised type of concrete specifically designed for the purpose.

This year they created history by constructing India's first 3D-printed house. Constructed on IIT M campus with a built-up area of about 600 square feet, this single-storey home consists of a single bedroom, hall and a kitchen. More recently they collaborated with saint gobain to make 'doffing units' to support and protect healthcare workers in the fight against COVID 19.

Their ultimate aim is to offer accessible, sustainable and affordable housing solutions. With the backing of the government, we can expect to see more of tvasta in the future.

If you're interested, do check out their website for info and any possible openings here.

Amazing Innovation 197

POWER FROM TAMARINDS!

A project led by Singapore's Nanyang Technological University in collaboration with researchers from India and Norway aimed at making carbon nanosheets from waste tamarind shells has turned out to be a success. Many electric cars use supercapacitors for quick delivery of power during acceleration. Carbon nanosheets are used to store electrical charge within these super capacitors. Tamarinds are used extensively across Asian food; the shells however are thrown away. The project team collected shells generated as waste from the food industry, after which they washed, dried and grinded it into a fine powder that was baked in a high temperature furnace. Through this process, the powder was converted into nanosheets which exhibited superior properties to the conventional carbon nanosheets made out of hemp fibres. Researchers are now looking to fine tune this process and scale it up to offer a viable method of mass producing these nanosheets.

Source: https://newatlas.com/environment/tamarind-waste-carbon-nanosheets/

Amazing Innovation 198

WORLD'S FIRST 3D PRINTED BRIDGE

MX3D, a Dutch 3D metal printing company has designed, built and opened to the public, the world's first 3D printed bridge. The Stainless Steel (SS) Bridge, 40ft. in length and 20ft. in width is located over a canal in Amsterdam. It has a unique artistic design and features hidden sensors that collect data on its structural integrity, crowd behavior, environmental factors and more. The build was done using four robots welding layers of hot metal together using welding wire and gas with a total of 6000kg of SS being used. The actual printing process only took six months and was completed in 2018, but because of unforeseen delays the bridge was only recently transported to the site by a boat and then raised into position using a crane. It has a permit to remain in place for two years. It's not so long ago that robotically fabricating a metal bridge with such complexity would have seemed impossible, but such is the extraordinary progress in the 3D printing scene.

Source: https://newatlas.com/3d-printing/mx3d-steel-3d-printed-bridge-amsterdam/

Alumni Write-Up

Alumni Association Activity

Placement discussion

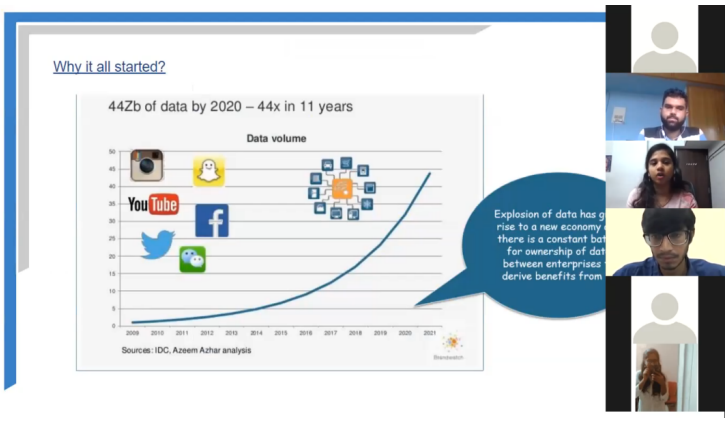
Name of the event: Placement discussion

Date(s) of the event: 04-07-2021

Number of persons attending: 30

Faculty Coordinator: Dr.C.Arun Prakash

Student Coordinators: Mohanraj.A, Sabareesh.A



On the 22nd of July, the Alumni association of the mechanical department conducted placement discussion for the students of final year. Bhuvvan Teja, Rajam Varshini, Balakrishnan and Rahul B from the 2020 graduated batch were the speakers for the session.

The session commenced with exuberance as Rahul B started with an overview of the placement offers: regular, dream, super dream and marquee. The salary expectations and criteria for application were elucidated. Balakrishnan provided counsel for the selection process of core placement, discussing the various aspects of online test, group discussion and the technical and HR interviews.

Next, the discussion on placement in IT companies was handled by Bhuvvan Teja. The speakers gave valuable guidelines for test preparation and advised on attending the interviews. Following this Rajam Varshini delivered a brief orientation on roles of a data analyst in the industry.

With this, the session moved onto the Q&A segment where the alumni answered a litany of important questions regarding the placement process. The event concluded with the alumni addressing student queries; students participated with enthusiasm, posing an array of questions about the opportunities in the industry.

Research News and Forthcoming Events

Department of Health and Human Services
National Institutes of Health

BRAIN Initiative: Pilot resources for brain cell type-specific access and manipulation across vertebrate species (U01 Clinical Trial Not Allowed)

93.173 — Research Related to Deafness and Communication Disorders

93.213 — Research and Training in Complementary and Integrative Health

93.242 — Mental Health Research Grants

93.273 — Alcohol Research Programs

93.279 – Drug Abuse and Addiction Research Programs

93.286 — Discovery and Applied Research for Technological Innovations to Improve Human Health

93.853 — Extramural Research Programs in the Neurosciences and Neurological Disorders

93.865 — Child Health and Human Development Extramural Research

93.866 — Aging Research

93.867 — Vision Research

Last date for submission of the project proposal: 19-Oct-2021

https://www.grants.gov/web/grants/search-grants.html

Department of Health and Human Services
National Institutes of Hea

NIAID Research Education Program (R25 Clinical Trial Not Allowed)

Allergy and Infectious Diseases Research

Last date for submission of the project proposal: 07-Dec-22

https://www.grants.gov/web/grants/search-grants.html

http://icmlas.com/

International Conference on Advances in Material Science 2021

Second International Conference on Advances in Material Science (ICAMS) 2021 is organized by Technology Research and Innovation Centre, India in association with Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar, India and IEEE Nanotechnology Council Chapter, South Africa on 16-17 November, 2021. ICAMS 2021 .

Student Events

Vihaan 21 (Technical Symposium)
KCG College of Technology, Chennai, Tamil Nadu
28th - 29th August 2021
https://vihaan2k21.netlify.app

Advanced Research in Mechanical Sciences 2021 (National Conference)
SRM Institute of Science and Technology Vadapalani Campus, Chennai, Tamil Nadu
6th - 7th August 2021
https://sites.google.com/srmist.edu.in/arms-2021/home

WORKTOP 2.0 (Business Plan Competition)
SRM Institute of Science and Technology Kattankulathur Campus, Chennai, Tamil Nadu,
26th August - 15th September 2021
https://worktopsrm.wixsite.com/home

2nd International Conference on Waste, Energy and Environment 2021 (International Conference)
Sathyabama Institute of Science and Technology, Chennai, Tamil Nadu
23rd - 24th September 2021
http://www.icwee2018.com/2021/

Conference with Scopus Publication

CIMS 2021

2ND INTERNATIONAL CONFERENCE ON INDUSTRIAL AND MANUFACTURING SYSTEMS

11TH-13TH NOVEMBER, 2021 **(IN HYBRID MODE)**

JOINTLY ORGANIZED BY:

DEPARTMENT OF PRODUCTION AND INDUSTRIAL ENGINEERING, PUNJAB ENGINEERING COLLEGE, CHANDIGARH

&

DEPARTMENT OF INDUSTRIAL AND PRODUCTION ENGINEERING, DR. B. R. AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY JALANDHAR

IN ASSOCIATION WITH:

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY, PATIALA & INDIRA GANDHI DELHI TECHNICAL UNIVERSITY FOR WOMEN, DELHI

Selected Papers of the CIMS-2021 will be considered for publication in the special issues of **Scopus Indexed Journals/Proceedinbgs in Scopus Indexed Series** by reputed publishers like Springer/ Taylor & Francis (CRC-Press)/Wiley.

Conference website: https://pec.ac.in/cims-2021/

Important Dates	
Last date of full paper submission:	10th September 2021
Acceptance of full paper:	17th September 2021
Last date of Registration:	10th October 2021

16-17 November 2021 **ICAMS 2021** Ahmednagar, India

Accepted papers will be published in **Key Engineering Materials** (ISSN Print 1013-9826; Web 1662-9795) Trans Tech Publications Switzerland, indexed in various databases such as, **SCOPUS, Chemical Abstracts Service, Google Scholar, CSA,** etc

VIT
Vellore Institute of Technology
CHENNAI

The Second International Conference on

Robotics, Intelligent Automation and Control Technologies

23rd-25th September 2021

About the Conference

School of Mechanical Engineering, VIT Chennai (India) in association with School of Computing, Engineering and Digital Technologies, Teesside University (UK) are organizing a three-day Virtual International Conference on Robotics, Intelligent Automation and Control Technologies (RIACT 2021) to take place on 23rd, 24th and 25th of September 2021. The main objective of RIACT 2021 is to provide a virtual platform to researchers and practitioners from both academic institutions and industries to meet and share cutting-edge developments in the areas of Robotics, Intelligent Automation, Mechatronics, Adaptive Control, Industry 4.0, Smart Energy and associated disciplines. This virtual conference also provides an opportunity to exchange research ideas and a platform to develop partnerships and collaborations.

Key Topics & Publication

• Robot Design, Development & Control • Mobile & Autonomous Robots • Rehabilitation Robots & Devices • Agricultural, Space & Underwater Robots • Medical & Service Robots • Collaborative Robots • Intelligent Automation Systems • Intelligent Fault Detection and Diagnosis • Robust/Adaptive Control of Robotic System • Motion Planning and Control • AI in Robotics, Industrial IoT • Cognitive Automation • Image Processing & Vision Systems • Actuators & Sensors • Mechatronic Systems • HMI, SLAM, ROS • CAD/CAM/CAE • Vehicle Control Applications • Deep learning in Robotics • Smart Energy System and Smart Buildings • Smart Manufacturing and Industry 4.0.

** MDPI *Robotics* journal with discounted OA fees **

** *Journal of Robotics and Control* or Scopus Indexed Proceedings - No Publication Fee **

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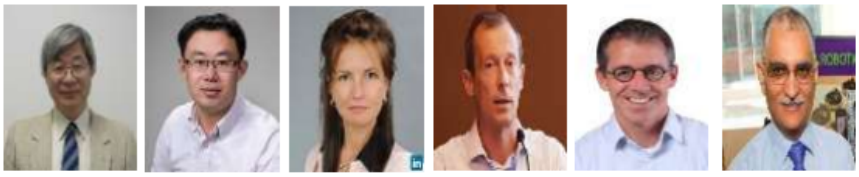

Prof Hiroshi Sakai, Japan | Dr Hao Su, USA | Dr Milena Y Krumova, Bulgaria | Dr Attila Vidacs, Hungary | Ing Erik Pekkeriet, Netherlands | Prof Vikram Kapila, USA

Dates to Remember

Abstract Submission	: 5th August 2021
Full Length Paper Submission	: 12th August 2021
Notifiation of Acceptance	: 5th September 2021
Conference Registration	: 12th September 2021

Registration Details

Paper Presentation : Rs.1000/- (IND), USD 100 (Foreign)
Only Participation : Rs.500/- (IND), USD 50 (Foreign)
Submit your paper to https://easychair.org/cfp/RIACT-2021
Further queries icriact@gmail.com or www.riact.co.in

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Inspiring life stories

Two Gardeners

Once, there lived two neighbours who used to grow the same plants in their respective gardens. One neighbour was fussy and took extreme care of her plants. The other neighbour did what was required, but left the leaves of the plants alone to grow as they pleased. One evening, there was a huge storm, accompanied by heavy rainfall. The storm destroyed many of the plants.

The next morning, when the fussy neighbour woke up, she found that the plants had been uprooted and destroyed. However, when the more relaxed neighbour woke up, she found that her plants were still firmly rooted in the soil, having weathered the storm.

The plant of the relaxed neighbour had learnt to do things on its own. So, it had done its bit of work, grown deep roots, and made a place for itself in the soil. Thus, it had stood firm even in the storm. However, the fussy neighbour used to do everything for the plant, thereby not teaching the plant how to sustain on its own.

Moral: Sooner or later, you have to let go and become independent. Unless you stop fussing, nothing will work on its own.

Source: https://parenting.firstcry.com/articles/5-best-inspirational-stories-for-kids/
PicSource:https://www.vectorstock.com/royalty-free-vector/collection-two-female-gardeners-and-gardening-vector-20922079

Corporate Wisdom

From the desk of Ramki - Aspire to Inspire

Greetings of the day,

Two men went fishing. One man was an experienced fisherman, and the other wasn't. Every time the experienced fisherman caught a big fish, he put it in his icebox to keep it fresh. The inexperienced fisherman threw all the big fish into the water. When asked why he was doing so, he replied, "I also wish I didn't have to do so, but what can I do? I have only a small frying pan".

Think about it! How many of us are like the second fisherman? Like that fisherman, most people throw their big plans, big dreams, big opportunities, big ideas because they believe they have only a small frying pan. The small frying fan referred here is their MIND. They think they are not capable of accomplishing big things in life. Why didn't it occur to the fisherman that rather than rejecting all the bigger fish, the solution would have been to get a bigger frying pan!

Let our thinking be in abundance. When the mind expands, everything expands. When the mind expands, the market expands. "Thinking Big" makes all the difference. As the saying goes "Rain fills the size of your vessel. Whether your life is filled with scarcity, or abundance depends on the size of your thinking."

Emerson said "A man is what he thinks about all day long." All that we are is the result of what we have thought.

The mind is everything. What we think, we become, said Gautama Buddha.

While working in a gas station, Dhirubhai Ambani developed the thought that one day he would own a petroleum company. You make your life based on what is the size of your thinking.

Let us give up "Scarcity thinking" and let us embrace "Abundance" in our thoughts. Everything else will follow. If you have answers to "Why I need abundance', life will unfold the "How" to get abundance. Irrespective of how your life has been all these years, decide to bounce and bounce BIG. Once you decide, starting today, every day of your life will unfold miracles of abundance.

"Aim for the stars; even if you miss, you will hit the clouds" goes a saying. Let us keep our vessel big. Let us fill our lives with abundance.

The Essence:

The stalk of a water-flower is proportional to the level (depth) of water; so is a human's growth-proportionate to the size (level) of his/her thinking.

#WishingMostAndMore

Have a wonderful day

R. Ramakrishnan

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