ASPIRE

Achievements in Sports, Projects, Industry, Research and Education

Monthly Newsletter

Department of Mechanical Engineering
Volume 12 Issue 6 June 2022

Sri Sivasubramaniya Nadar College of Engineering

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

SSN

From The HOD's Desk...

Dear all,

Happiness multiplies when shared and here we are to share the June edition of our department newsletter – Aspire.

We profile John B. Goodenough who won the 2019 Nobel Prize in Chemistry for his work on developing lithium-ion batteries. In campus update we profile the introduction of a new engineering course on CSE with specialization in cyber security at SNU, Chennai, activities of Shiksha and the founding family day at SNU Noida.

Our UG students have published a research paper in the Journal of Optics and Laser Technology, with an impact factor of 3.867. Shows how the continuous patronage of our management is pivotal in pushing the boundaries of research even at the undergraduate level. Internal student project funding scheme has been instrumental in motivating our students into research and glad to note that 11 projects from first year and 23 projects from the higher semester students have been sanctioned.

Happy to share that our faculty are publishing in good journals and continue to knock the doors of external funding agencies with their proposals. It's been a happening month with book adaptation, invited talks, workshops, patent filing and a consultancy training assignment taken up by our faculty.

Tribute 2022, the annual alumni meet brought in our alumni to share their success journeys since graduating and to spend time with their teachers and friends, reminiscing of the good old times. Our congrats to IPS officer Mr. Karthikeyan, who was awarded the distinguished alumni Award for 2022.

One of our students won a prestigious competition at Pragyan 2022, NIT Trichy in connection with the international space week. We profile two of our alumni who are working in Amazon and L5 automation as business analyst and robotics engineer respectively.

It's been a month seeped in positivity and we wish all a vibrant and colorful June!!!

Best wishes,

K.S. Vijay Sekar | *vijaysekarks@ssn.edu.in*

John B. Goodenough

Wisdom comes out of dialogue so you have to develop the capacity to expose your own ignorance in order that they may discover their own wisdom.

John B. Goodenough, in full John Bannister Goodenough, (born July 25, 1922, Jena, Germany), American physicist who won the 2019 Nobel Prize for Chemistry for his work on developing lithium-ion batteries. He shared the prize with British-born American chemist M. Stanley Whittingham and Japanese chemist Yoshino Akira. Goodenough was the oldest person to win a Nobel Prize.

Goodenough received a bachelor's degree in mathematics from Yale University (1943) while serving in the United States Army Air Forces as a meteorologist. After the end of World War II, he did his graduate studies in physics at the University of Chicago, where he earned a master's (1951) and a doctorate (1952).

In 1952 Goodenough became a research scientist at the Lincoln Laboratory at the Massachusetts Institute of Technology. There one of Goodenough's first projects was developing the SAGE air defense computer's memory cores, which were the first random access memory (RAM).

Goodenough became a professor at the University of Oxford in 1976 and head of the Inorganic Chemistry Laboratory. That same year, M. Stanley Whittingham had developed the first lithium-ion battery with an anode of metallic lithium and a cathode of lithium ions in between layers of titanium disulfide. Goodenough knew the battery would have a higher voltage if the cathode was a metal oxide rather than a metal sulfide. In 1979 Goodenough and his collaborators developed a battery with a cathode of lithium ions between layers of cobalt oxide. This battery had a potential of 4 volts, while the Whittingham battery had a potential of only 2.5 volts.

Goodenough became a professor at the University of Texas at Austin in 1986 in the departments of mechanical engineering and electrical and computer engineering. He has been honoured with the National Medal of Science (2011), the Charles Stark Draper Prize (2014), and the Copley Medal (2019). He wrote Magnetism and the Chemical Bond (1963), Solid Oxide Fuel Cell Technology: Principles, Performance and Operations (2009, with Kevin Huang), and an autobiography, Witness to Grace (2008).

Campus Update

NEW COURSE: B.TECH CSE (CYBER SECURITY) IN SHIV NADAR UNIVERSITY CHENNAI

In a well-connected business ecosystem, strongly strategized cyber security practices are much sought after, to enable confidential computing. With a projected market size of 366.1 billion USD by 2028, there is an increasing need of cybersecurity professionals in sectors including banking, defence, financial services, retail, manufacturing, IT, and telecommunications. Our new program will aim at training our students across the five major verticals of cybersecurity including infrastructure, applications, networks, cloud, and IoT.

This has generated significant interest in devising and deploying AI and ML based solutions in most of the industry verticals such as Health-care, Finance, Retail, Energy, Manufacturing, Transportation, Pharmaceuticals, Agriculture and Education

B.TECH CSE (CYBER SECURITY)

- Comprehensive knowledge in cryptography, cybersecurity principles, cyber forensics, intrusion prevention mechanisms, cybercrime, cyber threats and vulnerabilities, AI for cybersecurity etc.
- Impart practical problem solving skills, capability to investigate and utilize new technologies, security algorithms, and implementations.
- Introduce students to industry standard certifications, enabling them for placement opportunities as security analysts, architects, cryptanalysts, consultants, and solutions developer.

SHIKSHA INITIATIVE

Shikhar Malhotra, Director, HCL Corporation and Trustee, Shiv Nadar Foundation, and Dr. Ananya Mukherjee, Vice-Chancellor, Shiv Nadar University, visited SHIKSHA Initiative's ICT enabled classrooms under the SHIKSHA Elementary program and SHIKSHA+ center under SHIKSHA+, adult literacy initiative in Chanderu Village in Bulandshahr district on April 8th, 2022.

Mr. Malhotra and Dr. Mukherjee visited Chanderu Primary School and observed the ICT-enabled classes, followed by a fun interaction with the students. They also visited the astronomy lab and interacted with the teachers.

Following the visit to the primary school, Mr. Shikhar Malhotra and Dr. Ananya Mukherjee visited the SHIKSHA Plus center in Chanderu village, where they interacted with the learners and instructor. Mr. Malhotra and Dr. Mukherjee were touched by the efforts made by the Shiv Nadar Foundation and the SHIKSHA Initiative in the rural pockets of Uttar Pradesh.

A SPECIAL DAY FOR SHIV NADAR UNIVERSITY, DELHI NCR

May 20th, 2022, marked as a special day for Shiv Nadar University, Delhi NCR, as the Founding Family – Mr. Shiv Nadar, Chancellor of Shiv Nadar University, Founder and Chairman Emeritus of HCL Technologies Limited, Founder of Shiv Nadar Foundation; Mrs. Kiran Nadar, Trustee of Shiv Nadar Foundation, and Founder of the Kiran Nadar Museum of Art; Mrs. Roshni Nadar Malhotra, CEO of HCL Corporation, Chairperson of HCL Technologies, Founder & Trustee of The Habitats Trust, Trustee of Shiv Nadar Foundation; and Mr. Shikhar Malhotra, Pro-Chancellor, Shiv Nadar University, Delhi NCR, Director of HCL Corporation, Vice Chairman & CEO of HCL Healthcare, Trustee of Shiv Nadar Foundation, Trustee of The Habitats Trust joined the Class of 2022 on campus for the first time in three years!

The Founding Family Event is an auspicious tradition for our university. We cherish the journey we have embarked on. The graduating class gets the unique opportunity to share their experiences and ask questions to the Founders of the Shiv Nadar Foundation and Shiv Nadar University.

The event began with words of wisdom by our Vice-Chancellor, Dr. Ananya Mukherjee, followed by a mesmerizing dance performance by one of our students, and culminated in an interactive Q&A with the Founding Family as the release of the Yearbook. Here's a snapshot of the event to relive the moments of the special day.

Department Update

International Journal Publication - SCI /Clarivate Indexed

Publication with Final year Mech students in the Journal of Optics and Laser Technology, Elsevier

S.Santosh, J. Kevin Thomas, M.Pavithran, G.Nithyanandh, J.Ashwath, An experimental analysis on the influence of CO2 laser machining parameters on a copper-based shape memory alloy, Journal of Optics and Laser Technology, 153 (2022) 108210. https://doi.org/10.1016/j.optlastec.2022.108210. Impact factor: 3.867

J. Kevin Thomas

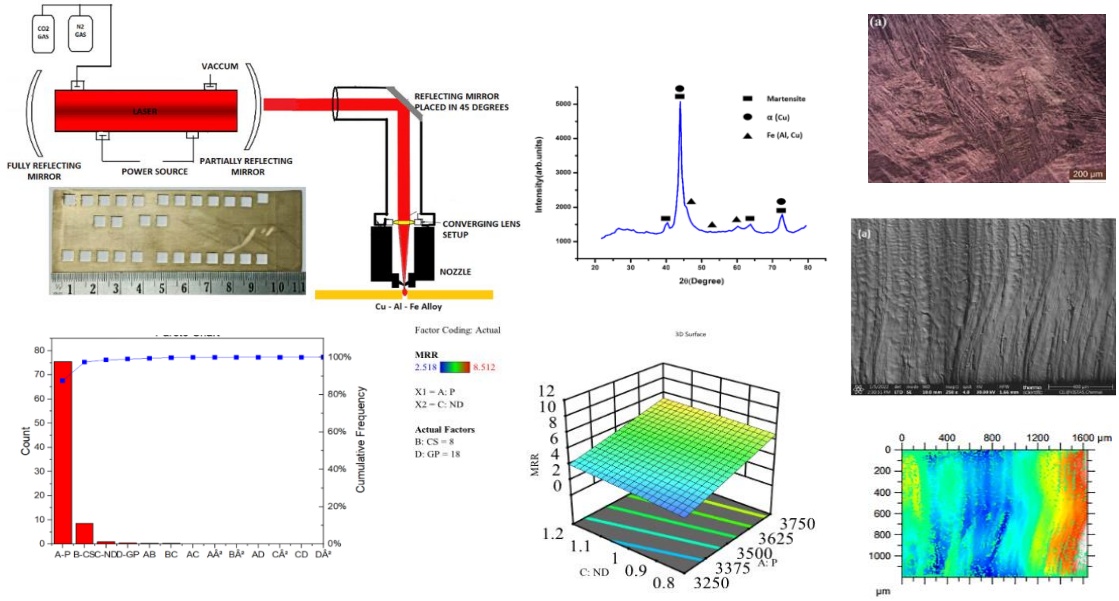
M.Pavithran

G.Nithyanandh

J.Ashwath

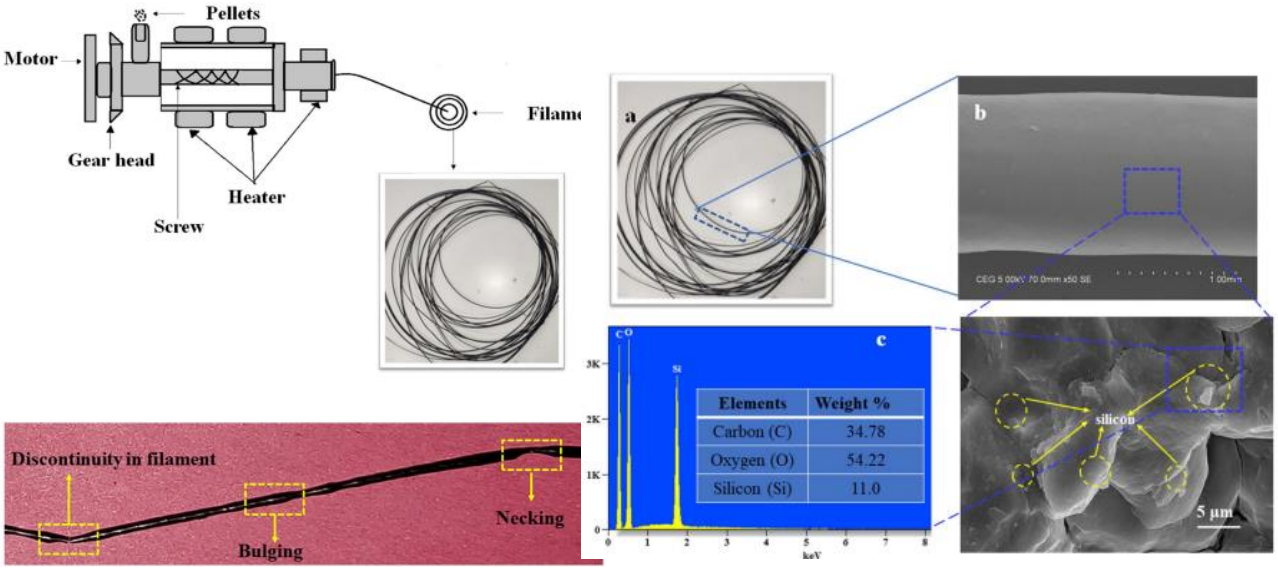
About the work…

The term 'shape memory alloys (SMAs) refers to a group of metallic materials that can return to a previously defined shape when subjected to the appropriate thermal or loading cycles. They are now being employed in different real-life applications. Cu-Al-Fe is a High-Temperature Shape Memory Alloy (HTSMA) and could replace Ni-Ti SMAs. Conventional machining technologies are not efficient enough in machining SMAs, and thus the properties of the SMAs are affected. One of the most successful technologies for processing these alloys is Laser Beam Machining (LBM). This work investigates the effect of process variables in laser machining on SMA. Differential scanning calorimetry, X-Ray Diffraction, Optical Microscopy, Scanning Electron Microscopy, and Hardness tests analyzed the laser-machined material. It has been found that laser power was the highest influencing variable that affects Material Removal Rate (MRR) and surface roughness (Ra). The second most influencing parameter was cutting speed. DSC thermograms confirm that the Shape Memory Effect (SME) and the transition temperatures of the SMA have not been much affected after machining. However, the hardness of the machined surface slightly increased after machining, owing to the formation of a re-solidified layer.



International Journal Publication - SCI /Clarivate Indexed

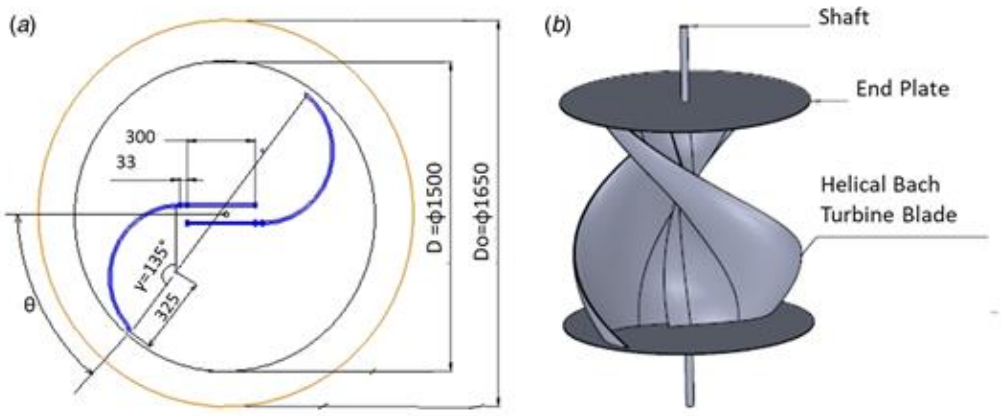
Vishal K, **Rajkumar K**, Sabarinathan P, Dhinakaran V. Mechanical and Wear Characteristics Investigation on 3D Printed Silicon Filled Poly (Lactic Acid) Biopolymer Composite Fabricated by Fused Deposition Modeling. Silicon. 2022 Jan 27:1-3. **Clarivate Impact Factor: 2.7**

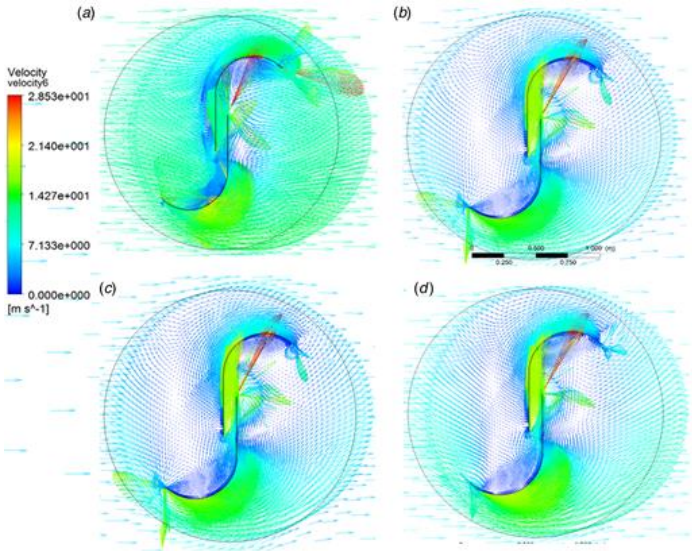


International Journal Publication - SCI /Clarivate Indexed

M Sivakumar, N Lenin, K Jayakrishna and **G Selvakumar**, A novel approach in selective assembly with an arbitrary distribution to minimize clearance variation using evolutionary algorithms: A comparative study, Journal of Intelligent Manufacturing, 33(5) Pp. 1337 – 1354 2022 https://doi.org/10.1007/s10845-020-01720-9, **Clarivate Impact Factor: 6.485**

Micha Premkumar T, Experimental and Numerical Investigation to Assess the Performance of Helical Bach Vertical Axis Wind Turbine at Low Wind Velocity Conditions, Journal of Solar Energy Engineering, Transactions of the ASME, 2022.**Clarivate Impact factor :2.384**





Scopus Publication

Vijayan, D., D. Ananthapadmanaban, and E. Ravikumar. "Analysis of bend angle variation in aluminum–copper friction welding in the presence and absence of nickel interlayer." Materials Today: Proceedings (2022). Scopus Impact factor: 1.24.

Singh SP, Ananthapadmanaban D, Geetha KA, Ravichandran P. Microscopical and corrosion studies on Al6061– 10% Al2O3 functionally graded metal matrix composites. Materials Today: Proceedings. 2022 Apr 7. https://doi.org/10.1016/j.matpr.2022.03.567. Scopus Impact factor:1.24.

External Funded Project Applied

Dr. B. Jayakishan, AP/Mech, as the Principal Investigator, along with Dr. R. Prakash, ASP/Mech, and Dr. T. Vinoth, AP/Mech, as the Co-Investigators, has submitted a project proposal to DST-SERB under CRG Scheme under the title "Environmentally Sustainable Hybrid Solar Thermal System for Commercial Utilizations," for an amount of Rs. 40,74,400/-.

Project Development and Optimization of the Dual Fueling Strategies for Sustainable Biofuel mixtures using Machine Learning Techniques, PI: Dr. S. Rajkumar / ASP / Mech, Co-PI: Dr. R. Prakash / ASP/ Mech, Total Budget (INR): 36,01,400. Funding Agency: DST- SERB under CRG Scheme.

As the principal investigator, Dr. K. Jayakumar, Associate Professor, has submitted a proposal titled "Advanced Friction Stir Welding Process for Dissimilar alloys and analysis of its effects on Machinability of the weld joints." to the DST-CRG scheme for an amount of Rs. 21,60,400/- on 02-05-2022.

Dr.D.Ananthapadmanaban, Associate Professor, Sri Sivasubramaniya Nadar College of Engineering as Principal Investigator, and Dr. Arun Vasantha Geetha, Professor and Head, St. Josephs Institute of Technology, Chennai-119, as Co-Principal Investigator, have applied for a project entitled Feasibility studies of lead-free solders for an Aathmanirbhar Bharath under the DST SERB-SUPRA scheme. The estimated cost of the project is 33.5 lakhs.

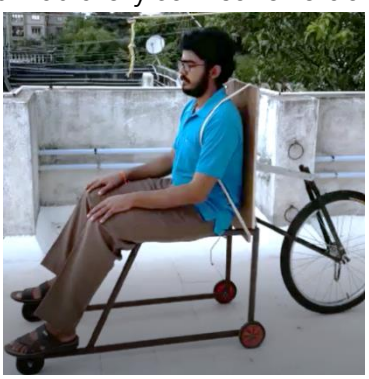
Dr. G. Satheesh Kumar is the Principal Investigator. Dr. M. Dhanalakshmi, Dr. Jansi Rani S.V, Dr. P. Vijayalakshmi, Dr. M. Senthil Kumaran, Dr. Anbuselvi M, Dr. S. Vijayan, Dr. Ramakrishnan (VIT Vellore) & Dr. P. Rajini Kumar (TN Sports University) as the Co-Investigator/s submitted a project titled "Smart agents for geriatric functional empowerment and dignified sustenance" to the SUPRA, DST on 10.05.2022 with a budget of Rs. 7950954/-

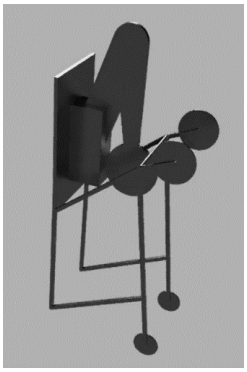
"Project Title: Development of Low-cost Ultrasonic assisted hybrid drilling process for machinability studies on magnesium-based composite biomaterials, PI: Dr. K.S. Vijay Sekar, Prof and Head / MECH, Co-PI: Dr. L. Poovazhagan / ASP/ MECH, Total Budget (INR): 36,41,000, Funding Agency: SERB ".

Faculty Write-Up

Wearable Self-Balancing, Configurable Mobility Assistance Apparatus Patent Application No: 202241026270 (Filed)

The present invention relates to a self-balancing mobility assistance apparatus comprising of a 9-steel bar framework with a top horizontal framework having straps, which can be fastened to the user's thighs in sitting position, backrest along with power housing comprising a motor to propel the primary wheel, which is positioned behind and connected to the primary wheel via connecting and final link. The connecting and final link and the primary wheel can be retracted while the user is in the standing position and stretched out with the primary wheel in action when in a sitting position. Mobility assistance can be used by especially disabled, normal people and can also be used as an ambulatory service for older adults.





Prototype Testing in sitting and driving conditions

Students: Aditya K (181002008) - Akash S (181002010) - Ashwin A (181002022) - Gautam R (181002045)
Faculty: Dr. R.Vimal Samsingh (ASP/Mech) - Dr.S.Estherflorence (ASP/ECE)

Training Program for Nova Carbons India Pvt ltd

Dr. R. Vimal Samsingh (ASP/Mech), Dr.C.Arun Prakash(AP/Mech), and Dr. S. Esther Florence are engaged as Consultant Instructors for Nova Carbons India Pvt Ltd. The purpose of the training program involves boosting employee knowledge concerning the technical aspects of the industry they work in by identifying the required areas concerning Industry 4.0. As part of this initiative, Dr. R. Vimal Samsingh (ASP/Mech) and Dr.C. Arun Prakash (AP/Mech) conducted a training program on the theme of Sensors for Industrial Automation on 06-05-2022 at their premises in Tirunelveli. The training program enabled the employees to understand the various types of sensors used in modern-day industries by explaining the working mechanism of various sensors.

The Training program also involved a demonstration of the working of Novel Sensors. Hands-on sessions were conducted to the employees on using the sensors available for various industrial applications. A brainstorming session was conducted to identify simple use cases where sensors needed to be implemented. We demonstrated the use of sensors for some of the use cases discussed with the employees. The Training session also threw light on various types of Automated guided vehicles used in the industry. The session was concluded by giving an overview of Robo DK software that can be used for Industrial Simulation.

TRIBUTE 2022 – A summary by Dr. C. Arun Prakash

Date of Event: APRIL 30, 2022

Location: Justice Pratap Singh Auditorium (Main Auditorium)

On APRIL 30, 2022, the SSN Alumni Association conducted the Annual Alumni Meet "Tribute" for 2022. The Meet was open to all the alumni. At 3:30 pm, some of the companies like SAAMA Technologies and MR. COOPER gave an elaborate presentation regarding their functioning and work type. Alumni and students from all the departments were allowed to attend the meeting regarding the placement opportunities of these companies. Mr. Prithvi Raj, 2004 passed out from SSN, is the Head of Operations for SAAMA Tech. He explained the patents registered by SAAMA Tech in medical research and their success in conducting faster clinical trials for the COVID-19 vaccines. A presentation by Mr. Naren Sundaram, ex-head of SSN Alumni Association and the Senior Operations Manager of MR. COOPER gave a brief introduction, work experience, and placement opportunities for the women and underprivileged in MR. COOPER.

The main event of the ALUMNI MEET started at 6:30 pm. All the alumni who came for the event were asked to register their names online/offline. The event started with a video depicting the transformation of SSN Campus from day 1 to the present day, a list of reputed alumni, the growth of SSN in the NIRF index, etc. IPS officer Mr. Karthikeyan was awarded the DISTINGUISHED ALUMNI Award for 2022.

The final year Student Alumni Representatives-SARS were recognized for their contribution to the SSN Alumni Association. Around 8 pm, a music concert was performed by the "Staccato" band, which comprised songs from the 80s to 2k and from Tamil, Telugu, and Hindi, and the alumni event ended successfully at 9:30 pm.

Report on one day workshop "Advances in Nanomaterials" 09-05-22

Conveners


Dr.B.Anand Ronald


Dr. D. Ananthapadmanaban


Dr. K. Jayakumar


Dr.R.Damodaram

On May 09, 2022, a one-day workshop was conducted on "Advances in Nanomaterials." Nanomaterials are useful in all areas of Engineering, and we hope that this workshop was useful for research scholars and students.

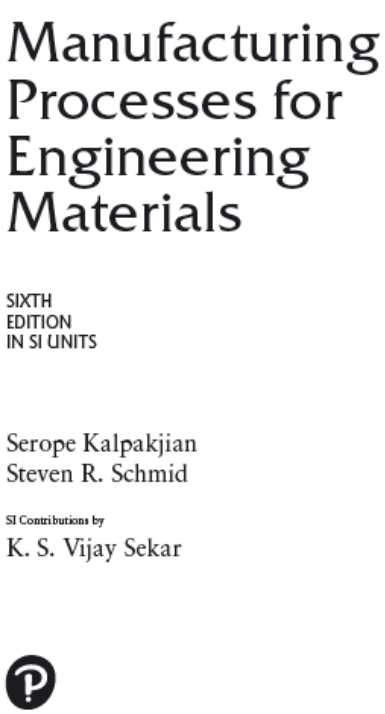
During the first session, Dr. L.Poovazhagan, Associate Professor, Chennai, spoke on the difficulties in manufacturing good nanocomposites. He explained nano from the basics, and students were very receptive to his talk. A demonstration session was then held, practically showing ultrasonic assisted stir casting of nanocomposites. Dr. Diwakar from Helmnoltz Zeltrum handled the afternoon session. He talked about the application of nano during the fabrication of solar cells.

46 participants registered around 40 attended the workshop. In addition, we have received participation from faculty and students from VelTech, Panimalar College of Engineering, K.R.Mangalam University, UVCE College of Engineering, Panrutti, and SSN College of Engineering.

We sincerely thank the SSN management for the support in conducting this annual workshop and hope it will attract more participants in the future.

Global Book Adaptation : Prof KS Vijay Sekar writes about his experience of adapting a world-class textbook

In continuation of my association with the Pearson Publishing house, I recently worked on another marquee title, "Manufacturing Processes for Engineering Materials," after that, I adapted the US edition to the SI edition. In the process, I also added 150 new end-of-chapter problems to the 16 chapters of the book. This is the fourth title I have worked on for the global publishing house. The decade-long association has been a mutually fulfilling one, an opportunity to network with some wonderful editors and work on a world-class textbook. I am also working on a book on Materials science currently for them. Academicians have reviewed my contributions from Loughborough University and the University of Sussex, England, and The Chinese University of Hongkong. I am elated to share the title page of this book here.



Invited Talk by Dr. B. Anand Ronald

On 29-04-2022, Dr. B. Anand Ronald delivered an Invited Talk on "Condition Monitoring in Machining" in the Two-Day Workshop (OFFLINE) on "Operation and Maintenance of CNC Machines" at Chennai Institute of Technology in the Physical Model. Around 50 participants from different Engineering colleges in the state had participated in the program. The workshop was organized by Dr. A. Dhanasekaran, Professor, Department of Mechanical Engineering, Chennai Institute of Technology.

Invited Talk by Dr. M S Alphin

Topic: Geometric Dimensioning and tolerance

Date: April 30 2022

Venue: Chennai Institute of Technology

Sanctioned IFSP: Mech

IFSP-First year -2022

Dr. K. S. Vijaysekar, Prof./HOD, Dr.S.R.Koteswara Rao, Prof., Dr. M.S. Alphin, ASP and Dr.R.Rajeswari, ASP, met first year students of Mechanical Engineering on January 03 2022. HOD addressed the gathering and explained the importance of starting research from the first year onwards and encouraged the students to submit more proposals along with faculty from Mech. Dr.S.R.Koteswara Rao elaborated on different research groups available in Mech. Dr. M.S. Alphin encouraged and wished the students to have a great career in research. Dr.R.Rajeswari briefed on the procedures to be followed for submitting the project proposal.

A total of 12 Internally Funded Student Project proposals were submitted by I year UG Mechanical Engineering students in the month of February 2022 in which 3 were collaborative proposals along with EEE, ECE and IT. The students presented their proposals on April 05 2022 to the project scrutiny committee in the presence of their faculty guides. After scrutiny, 11 student projects were sanctioned and the president handed over the sanction letters to Head of Mechanical Engineering Department on May 22, 2022. The list of projects could be accessed at:

https://drive.google.com/file/d/1ci7UwW15WLb579pDFgkJDySNTEUU8UWu/view?usp=sharing

IFSP-2022 II, III and IV year

A total of 29 Internally Funded Student Project proposals were submitted by II, III and IV year Mechanical Engineering students in the month of October 2021. The students presented their

proposals on January 17, 2022 to the project scrutiny committee in the presence of their faculty guides. After scrutiny, 23 student projects were sanctioned and the president handed over the sanction letters to Head of Mechanical Engineering Department on May 22, 2022. The list of projects could be accessed at:

https://drive.google.com/file/d/196pu80iKmqiSFakPtchsURwSuod6MGOR/view?usp=sharing

Faculty visit: St. Xavier's Catholic College of Engineering
A report by Dr. Suresh. M

A team of faculty from St. Xavier's Catholic College of Engineering, Nagercoil visited our campus on May 04, 2022 to understand the best practices followed in our college after Autonomy.

Dr. V. Christus Jeya Singh, Professor, Dean of student affairs and Dr. M. Felix Xavier Muthu, Associate Professor, Mechanical Engineering visited our department on that day to glimpse the facilities established from the funded projects awarded by government agencies. They visited all our laboratories, observed the working of equipment set up using funds from various projects like reclamation of abrasives from bonded coated and sanitary ware rejects, Wire Electrical Discharge Machining (WEDM) of low conductive materials, hybrid casting approach for manufacturing magnesium nanocomposites.

Farewell to Dr. S.A.SRINIVASAN

A farewell program for Dr. S.A.Srinivasan (AP/Mech) was held on 25 th of May, 2022 in the Department of Mechanical Engineering, SSNCOE. Faculty members of the department wished him luck for his future endeavour. Fond memories were shared by the faculty members during the farewell program. A memento was presented to Dr. S.A.Srinivasan on behalf of the department by Dr. K.S.Vijay Sekar and Dr. S.R. Koteswara Rao towards the end of the farewell program.

External Recognition

Dr. K. Babu, Associate Professor, Mechanical Engineering attended and examined the Ph.D. Viva Voce Examination of Mr. Stephen Leon as an Expert Panel Member at Saveetha University on 29-Apr-2022

Dr. Satheesh Kumar Gopal, Associate Professor acted as the External examiner for the B.Tech. Mechanical engineering Project vivavoce examination at SRMIST, Ramapuram campus on 12.05.2022 and 13.05.2022

Dr. B. Anand Ronald, reviewed a paper for the "Research Conclave" to be held in PSG College of Technology, Coimbatore on 3, June 04 2022.

Dr. Alphin M S delivered a guest lecture on Geometric dimensioning and tolerance in the workshop organized by Chennai Institute of Technology on April 29 2022.

Dr. Alphin M S, Associate Professor acted as the external examiner for the B.Tech. Mechanical engineering Project viva-voce examination at SRMIST, Kattankulathur campus on 17.05.2022

Seminar/Workshop organized

Dr. B. Jayakishan, AP/Mech, Dr. R. Prakash, ASP/Mech and Dr. S. Rajkumar, ASP/Mech in association with Goodwin Motors, Chennai conducted a One-day workshop on "Hands-on-training on Automotive Car Engines" for third year Mech. Engg. students

Project sanctioned/extended

Dr.L Poovazhagan, ASP/Mech: My DST-SERB-CRG project extended to another six months (CRG-2018-001006-SERB)

Scholar Info

Dr. K. Jayakumar, Associate Professor, conducted synopsis seminar (Seminar – II) and 3rd DC Meeting for his 6th PhD scholar Mr. Mr. A. Madhan Kumar (1512299801-Part Time) on 25.04.2022 and 29.04.2022 respectively.

Mr. J. Mariappan Research Scholar of Dr. A. S. Ramana, ASP/Mech. delivered a Research Seminar Presentation on Performance Investigations on Solar Drier on 11.5.2022.

Dr. K. Jayakumar, Associate Professor, conducted 4th DC meeting for his PhD scholar S. Senthur Vaishnavan (1514299826- Full Time) on 12.05.2022.

Dr. A.S. Ramana, Asso.Prof./Mechanical Engg. conducted the confirmation DC Meeting for his part-time research scholar, Mr. J. Mariyappan on 12.05.2022.

Dr. L Poovazhagan, ASP/Mech convened the Synopsis DC Meeting for his part-time research scholar, Mr. Pathiban K on 06.05.2022.

Dr. L Poovazhagan, ASP/Mech convened the Synopsis DC Meeting for his part-time research scholar, Mr. Gopinath C on 16.05.2022.

Dr. K. Babu, Associate Professor, Mechanical Engineering conducted the DC meeting for the submission of synopsis of his part-time research scholar, Mr. K. Jegatheesan on 19-May-2022

Dr. S. Rajkumar, ASP/Mech conducted the synopsis DC Meeting for his part-time research scholar, Mr. T. Surulivel Rajan on 04.05.2022.

Dr. S. Rajkumar, ASP/Mech conducted the synopsis DC Meeting for his part-time research scholar, Mr. V. Ashok on 05.05.2022.

Non-Teaching Staff Activities

J. Ponmuthuraja / Machinist Grade - I Sr.grade. He had participated in the National Workshop on "Advances in Nanomaterials" held on 09/05/2022 Organized by the Department of Mechanical Engineering, Sri Sivasubraminiya Nadar College of Engineering, Chennai

Mr. Balasundaram P / Lab assistant / Mechanical. completed Alison course of Diploma in beginners Guide to Photoshop on 14.05.2022 Saturday

Student Write-Up

S.NO	DATE	ACTIVITY DONE DURING THE MONTH
		SECOND YEAR
1)	08/05/2022	**Shashaank.C.S** • International Space Week conducted by NIT Trichy
		THIRD YEAR
2)	17/05/2022	**Rahul Kumar Rauniyar** • Worked as the organizing member for Blood Donation Camp conducted by NSS.
3)	15/05/2022 30/04/2022	**Shivani S** • Online course-NPTEL - Fundamentals of Automotive systems. • Workshop on 'Practical training on Cars and Engine' by Goodwin Motors.
4)	30/04/2022 14/05/2022	**Varun S** • Workshop on 'Practical training on Cars and Engine' by Goodwin Motors. • Online Course -NPTEL- Product Design and Manufacturing
5)	30/04/2022	**Palvannan B** • Workshop on 'Practical training on Cars and Engine' by Goodwin Motors.
6)	30/04/2022	**Hitesh Visvasenaa.P** • Online course-Foundation of project management ,Starting a successful project
7)	20/05/2022	**Sriram M** • Online course-NPTEL-Urban Transportation Systems planning.
8)	15/05/2022	**Rufus Derrick R** • Online course-NPTEL - Fundamentals of Automotive systems. • Workshop on 'Practical training on Cars and Engine' by Goodwin Motors.
9)	15/05/2022 30/04/2022	**Shahul Sameer** • Online course-NPTEL - Fundamentals of Automotive systems. • Workshop on 'Practical training on Cars and Engine' by Goodwin Motors.
10)	15/05/2022	**Sricharan S** • Online course-NPTEL - Fundamentals of Automotive systems
11)	15/05/2022	**Lakshmi Swetha** • Online course-NPTEL - Fundamentals of Automotive systems

Shashaank.C.S, II-Year writes...

I'm Shashaank.C.S I'm Shashaank.C.S of Mech-B second year, I'm here to share my experience in participating in International Space Week.

So, it was a two round contest that took place over a span of the weekend, the first round was like a Q&A round(MCQ and Descriptive pattern) which tests ability in astronomy, Physics, Math, and Logic. There were around 150 participants who undertook Round 1.

In those, the top 48 candidates were shortlisted for Round 2 which was the finals. The shortlisted candidates were put in a team of 4 based on their scores in Round 1. Round 2 happened via Discord. This round is like a crime riddle, where our team is given a crime scene set in space and were asked to solve it. The scene was designed in such a way that it tests our knowledge on Astronomy, Physics, Engineering , Chemistry, Math, and Observational skills.

We won the first place in the competition. So, this was my first experience working as a team with a bunch of unknown people, at first, I was nervous since I had to team up with strangers, but as we progressed in the contest, I became more comfortable and wanted to try out more such events in this format where I get to team up with new people and get to know them.

The highlight of the experience was that I got 4 new friends and I got a chance to increase my network circle.

Vallikannan M, III-Year writes...

Being a mechanical engineer, every one of us would have been questioned by our parents, relatives, and friends, if we know anything about engine or if we are aware of how to assemble/ dissemble any part of a car.

In this workshop, for the first half of the day, we learnt about the engine components and assembled and dissembled the engine. It was very exciting as we got our hands dirty with grease. We felt like it was true learning. The second part of the day, we learnt about the car . The sensors embedded in it, the circuits, and all the necessary knowledge required to repair a car when it undergoes a breakdown. Later, we were asked to dissemble the gear transmission box and name the components and working.

This workshop was a great opportunity, and it gave us lot of insights. It was the need of the hour after the lockdown . The workshop being hands-on, made the learning fun. According to me, this is the primary criteria in everything we learn. We should enjoy it and at the same time we should gain something useful.

Here we were able to gain practical applications of topics that we studied in design of mechanical drives and Automobile.

We thank the Goodwin motors for taking this initiative and Dr. B. Jayakishan Sir for providing us this opportunity to learn practically.

Mech Marvel

Making Cheap Metals Act Like Rarer, Expensive Metals!

Many important industrial chemical reactions require rare and expensive metals as catalysts like platinum, palladium and rhodium. These metals are hard to come by and can get very expensive, driving up the cost of manufacturing equipment and processes, as well as the final products.

A team of energy researchers led by the University of Minnesota have found that by adding or removing electrons, common, cheap materials can be tuned to have some of the useful surface properties of expensive catalytic metals. They have made a device called a catalytic condensor to do just that.

To adjust the number of electrons in a material, the catalytic condenser is made up of a series of thin films arranged in a stack. The top is a 4-nanometer-thick layer of alumina, which sits on a layer of graphene, with an insulator below that and a conductor on the bottom. When a voltage is applied to the graphene and conductor layers, a charge is induced in the alumina. This changes its surface properties, allowing it to act like the required catalyst. This opens the door for applications in renewable energy storage, renewable fuels and sustainable materials.

Here's an Article and a Journal Paper for further details about this development.

Corporate Story

Solinas Integrity Pvt. Ltd.

SOLINAS

The prevalence of manual scavenging in India, despite it being banned, leads to numerous deaths every year. Solinas Integrity is an IIT Madras incubated Start-up, that consists of a group of passionate engineers who are on a mission to reduce water losses and eliminate manual scavenging.

Founded in 2018, the group took about 3 years to develop a robot called HomoSEP which has a shaft attached to blades that can open like an inverted umbrella when introduced into a septic tank. This can shred the sludge at the bottom of the tank and allow it to be cleaned out. Thereby offering a revolutionary alternative to manual scavenging. Another product, Endobot is a next-generation robot used for internal condition assessment and defect detection in pipelines. This aims to reduce losses due to leakages.

Last year, Solinas was one of the companies selected in the second edition of TANSEED Scheme of Tamil Nadu start-up and Innovation Mission. They have also been recognized by various private and government organizations for their innovations.

If you're interested, do check out their Website and LinkedIn for news and openings.

Amazing Innovation 217

Night-Time Solar Power!

Researchers at UNSW, Australia have made a major breakthrough in renewable energy technology by producing electricity from so-called "night-time" solar power. The team was able to generate electricity from heat radiated as infrared light, in the same way as the Earth cools by radiating into space at night.

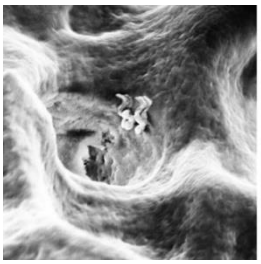
A semiconductor device called a thermoradiative diode, composed of materials found in night-vision goggles, was used to generate power from the emission of infrared light into the colder night environment; the temperature difference enabling the production of electricity.

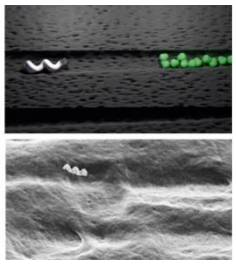
Although the amount of power generated at this stage is very small—around 100,000 times less than that supplied by a solar panel—the researchers believe the result can be improved in the future. One of the possible applications that is being looked at, is the use of body heat to power bionic devices that currently requires regular replacements to function properly.

The research team now hopes that industry leaders will recognize the potential for the new technology and support its further development. Here's an Article about the research and the Journal Paper for further reading.

Amazing Innovation 218

Promising Dental Nanobots!





Nanobots are robots that are microscopic in nature, measured largely on the scale of nanometres. Their size has made their application most relevant in the field of medical science along with other fields such as defence, electronics, and environmental protection.

Researchers at the Indian Institute of Science (IISc), through an incubated start-up 'Theranautilus' announced that they had created nanobots that can be utilised to fit through the dentinal tubules and kill bacteria. The nanobots were made from silicon dioxide and coated with iron which can be controlled by a device that creates a low intensity magnetic field.

By tweaking the frequency of the magnetic field, the researchers were able to make the nanobots move at will and penetrate deep inside the dentinal tubules. They manipulated the magnetic field to make the surface of the nanobots generate heat, which can kill the bacteria nearby. This technique was developed to be used in root canal treatments.

Other than using nanobots in dentistry, scientists have also used nanobots to fight bacteria in wounds and in cancer treatment. Theranautilus is aiming to commercialize the technology. Here's an Article about the research and the Journal Paper for further reading.

Alumni Write-Up

Adithya Jaikumar (Mech 2016 batch)

Business analytics is the study of historical business data to understand trends and predict future growth. It has been gaining centre stage as a part of the data analytics domain. In this article, we will be exploring the journey of a distinguished business analyst in Amazon- Adithya Jaikumar. Adithya was an enthusiastic member of several clubs in SSN including Entrepreneurship Development Cell, lights out please and our go kart team, Precisio to name a few. After graduating from SSN he went on to pursue his industrial engineering master's degree from University of Illinois Urbana-Champaign with a specialisation in supply chain management and logistics. During the course of his master's he secured an internship from Graybar, an electrical and networking company. Using this opportunity, he developed an application to directly scan goods and devised plans for automation. Following this role, Adithya became an operations and data analytics intern focussing on inventory and route optimisation. Within a period of six months, he was a program manager at Graybar, working with a strategic partner/supplier to implement Inventory. After graduating, Adithya worked as a data scientist in Ryder systems in the area of warehouse predictive analysis. Gaining expertise for the next two years, he landed his current job at Amazon as a business analysist.

Vimaleswar Babureddy (Mech 2019 batch)

Next up, we will dive into the career path followed an aspiring robotics engineer, Vimaleswar Babureddy. He is currently working in L5 automation, a company that is working on robotic arms for harvesting produce. In our college Vimaleswar was actively involved in events organized by IEEE and Society of Automotive engineers (SAE). In his pre-final year, he interned with IIT Madras, working on vibrational analysis aimed at determining bearing life. He also worked as an intern at QTek Mechatronics where he worked on a SCARA robot for pick and place applications. He worked closely with the electrical and controls team to ensure compatibility with mechanical design After graduation he went on to do his master's in mechanical engineering at University of California, Los Angeles. Vimaleswar worked with NASA jet propulsion laboratory on the project Aerial robot collision recovery. He implemented a Reinforcement Learning (RL) pipeline for quadrotors using IMU sensor data to recover from collisions in constricted environments. Upon obtaining his master's degree, Vimaleshwar secured his position at L5 automation.

Research news & Forthcoming events

Project Proposal Submission

Source: SERB Call for Proposals 2022.pdf

Programs/ Schemes		Call opening date	Call closing date
1.	Start-up Research Grant (SERB-SRG)	01-02-2022 (Tuesday)	01-03-2022 (Tuesday)
2.	Core Research Grant (SERB-CRG)	01-02-2022 (Tuesday)	18-04-2022 (Monday)
3.	Teachers Associateship for Research Excellence (SERB-TARE)	10-02-2022 (Thursday)	15-03-2022 (Tuesday)
4.	SERB-MATRICS	23-02-2022 (Wednesday)	22-03-2022 (Tuesday)
5.	Scientific and Useful Profound Research Advancement (SERB-SUPRA)	11-04-2022 (Monday)	10-05-2022 (Tuesday)
6.	Accelerate Vigyan – ABHYAAS (For Winter Events)	02-05-2022 (Monday)	31-05-2022 (Tuesday)
7.	National Postdoctoral Fellowship (SERB-NPDF)	02-05-2022 (Monday)	01-06-2022 (Wednesday)
8.	Empowerment and Equity Opportunities for Excellence in Science (SERB-EMEQ)	01-06-2022 (Wednesday)	30-06-2022 (Thursday)
9.	Science and Technology Award for Research (SERB-STAR)	15-06-2022 (Wednesday)	28-07-2022 (Thursday)
10.	Technology Translation Award (SERB-TETRA)	04-07-2022 (Monday)	03-08-2022 (Wednesday)
11.	SERB International Research Experience (SERB-SIRE)	01.08.2022 (Monday)	30.08.2022 (Tuesday)
12.	Promoting Opportunities for Women in Exploratory Research (SERB-POWER)	01-09-2022 (Thursday)	30-09-2022 (Friday)
13.	National Science Chair	01-09-2022 (Thursday)	31-10-2022 (Monday)

Intensification of Research in High Priority Areas (IRHPA)

National Biosafety Level (BSL 3 / ABSL 3) Facilities

Last date for submission of the project proposal: **is 02-06-2022**

The Electronic Project Proposal Management System, For SERB (serbonline.in)

DST - Call for Project Proposals under India-Israel Industrial R&D and Technological Innovation Fund (I4F - 2022)

Last date for submission of the project proposal: **15-06-2022**

https://www.gita.org.in/OnlineRfp/ProgramInfo.aspx?GITA=kZdo4yRVS4gRExygXA1Gyq9SZnneO25N65fp3J3SeI8=

https://dst.gov.in/news/india-israel-industrial-rd-and-technological-innovation-fund-i4f-cfp-9

MNRE- under RE-RTD Scheme

Financial year 2021-2022 to Financial year 2025-2026

Last date for submission of the project proposal: **10-07-2022**

https://mnre-research.com

Management Quota B. E / B.Tech Admission 2022 in Sri Sivasubramaniya Nadar College of Engineering

https://www.ssn.edu.in/

Corporate Wisdom

From the desk of Ramki -– Aspire to Inspire

Happy Morning

Failure is to the ego what death is to the body. We need to consciously cultivate an appropriate response to failure.

It would probably be better to discontinue using the word failure in our everyday lives and instead tell ourselves that it is only expectations not met, whenever we encounter what we perceive to be failure. In order to handle failure, we need to develop a proper relationship to success.

- It is like a see-saw.
- If one goes up the other goes down.
- It does not mean we do not celebrate success.
- It does not mean that we view success and failure equally.
- To maintain a balance would require viewing success and failure from a larger perspective.
- Failure looks menacing when looked at from close quarters.
- It looms large and threatening when there is no mental distance between it and us,
- The farther away we are in time and space from an incident, the smaller it looks.
- Failing in an examination or in a business venture is just one more event in one's long lifetime, which will soon be overwritten by many other beautiful and not so beautiful events.

We have much to learn from failed ventures, as much as from the successful, probably more.

Life is not all about success and failure. We cannot measure the value of a life by adding all the successes and subtracting all the failures. Both success and failure are means to an end, which is the holistic growth of the soul. A mature soul goes through failure successfully.

Since failure is one of the most painful of human experiences it evokes empathy. Empathy bonds people together. Failure then is not totally negative and without use.

All said and done, it is equally important to have a feeling of having accomplished something in life, which we can be proud of. This is the best antidote to thwart the feeling that one's life has not been all that purposeful. We are designed for living a meaningful life and free to create the meanings we want. Meaning is the driving force of life. Aimlessness is not in our nature and can cause existential angst. The greater the meaning in our lives, less can the feelings of failure torment us.

#WishingMostAndMore
Have a great week & Wonderful day!
R. Ramakrishnan
Email: r.ramakrishnan@gmrgroup.in

Editorial Team

Dr. Alphin M S

Dr. Satheesh Kumar G

Viswapriya G

D S Balaji Adithya

Akshaya R

Shivani S

feedback to ***aspire @mech.ssn.edu.in***