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

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

SSN

From The HOD's Desk...

Dear all,

It gives me immense pleasure to bring you the latest edition of our department new letter – Aspire.

We profile Satoshi Omura, Nobel Laurette in medicine whose pioneering work in the field of microbiology resulted in creation of natural products from soil bacteria and who says that time, patience, and trial error are key ingredients to understanding how science works. We are truly inspired by Roshini Nadar for winning the FLO award for excellence in philanthropy by the FICCI ladies' organization, constantly reminding us of the Mahatma's message "Be the change, you want to see in the world". It is heartening to note that many of our students are doing well in the NPTEL courses which is testimony to our efforts in apprising them of the key professional and open electives that could make a difference to them. News from the TN manufacturing summit is encouraging, with the promise to make TN a one trillion-dollar economy by 2030, with special impetus to the automotive and education sectors. It was a pleasure to listen to Dr. Devdip Purkayastha, DS School of Entrepreneurship, IITB who regaled the enthusiastic audience with his successful entrepreneurial journey and set the tone for a vibrant future for the SSN incubation program. As hinted in the February edition of Aspire, we organized external reviews of our potential proposals for funding and express our gratitude to eminent IIT M Professors - Dr L. Vijayaraghavan and Dr. V. Raghavan for sharing their critical suggestions and straight forward views to our faculty members. Our alumni are doing their almamater proud by pushing the boundaries in marquee brands like Apple, in key managerial positions and helping their juniors through knowledge sharing sessions. It's heartening to see the continued rise in placements for our students and the achievements of our faculty in publishing quality journals and book chapters and delivering invited talks. We are introducing a new page titled "An Event that changed my Life" which is open to all stakeholders who can share an inspirational story that made a difference to their lives. You can share your contributions to the editorial team. Do also share your feedback, which will help us give you a better experience turning the leaves of this newsletter and motivating us to become better than what we already are. As a part of the world is gripped in the fear of war, it serves us to be reminded that the gifts of the almighty, must only be used to foster peace, brotherhood, and harmony amongst all of humanity.

Best wishes,

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

Satoshi Ōmura: Medicine in the Micro-World

"In science, knowledge and understanding no longer appear quickly. Time, patience, trial and error are all essential ingredients in any screening process."

Satoshi Ōmura is a Japanese microbiologist known for his discovery of natural products, particularly from soil bacteria. Of special importance was Ōmura's discovery of the bacterium Streptomyces avermitilis, from which the anthelmintic compound avermectin was isolated. A derivative of avermectin known as ivermectin became a key drug used in the control of certain parasitic diseases in humans and other animals. For his contributions to the discovery of avermectin and ivermectin, Ōmura received the 2015 Nobel Prize for Physiology or Medicine

Ōmura earned a bachelor's degree in 1958 from the University of Yamanashi and a master's in 1963 from the Tokyo University of Science. From 1963 to 1965, Ōmura worked as a research associate at the University of Yamanashi, and he afterward served under the same title at the Kitasato Institute, then one of the world's leading microbiology research facilities.

From the mid-1960s, Ōmura's research centered on the discovery and isolation of naturally occurring bioactive chemical compounds from microorganisms, particularly from bacteria living in the soil. Ōmura developed novel techniques that facilitated the growth of soil bacteria in laboratory cultures and enabled the characterization of the substances they produced. Among his first major discoveries was the identification in the mid-1970s of cerulenin, an antibiotic produced by a species of fungus. Ōmura found that cerulenin worked by inhibiting the biosynthesis of fatty acids. The compound subsequently became an important research tool. In the mid-1970s, Ōmura discovered and successfully cultured new strains of Streptomyces soil bacteria, including S. avermitilis. Ōmura sent a culture of S. avermitilis to researchers at Merck Research Laboratories in the United States. There, from broth collected from cultures of the organism, parasitologist William Campbell and colleagues identified a new family of compounds known as avermectins. The Merck researchers subsequently modified the avermectin structure, thereby producing ivermectin, which was found to be active against the microfilariae (larvae) of certain threadlike nematodes. Ivermectin became one of the world's most-important anthelmintic agents, being used to treat various microfilariae-associated parasitic diseases in humans and other animals. In humans, the drug proved to be especially valuable for the prevention of river blindness and lymphatic filariasis (elephantiasis), which were major causes of debilitating disease in the tropics.

Campus Update

ROSHINI NADAR AWARDED FOR EXCELLENCE IN PHILANTHROPY

Roshni Nadar Malhotra, trustee of Shiv Nadar Foundation, has been honoured with the FLO Award of Excellence in Philanthropy by the FICCI Ladies Organization for her exemplary contribution in her field.

NEW GYMNASIUM AT SHIV NADAR UNIVERSITY

Department Update

Placement Update

YES, THE NUMBER OF PLACED IN MECH 2022 PASSING OUT HAS SURPASSED "132"

Vestas

Our ME Energy Engineering Students Arun Aaditan P and Rohan Samuel David are placed in Vestas Wind Systems which is a Danish manufacturer, seller, installer, and servicer of wind turbines that was founded in 1945. The company operates manufacturing plants in Denmark, Germany, the Netherlands, Taiwan, India, Italy, Romania, the United Kingdom, Spain, Sweden, Norway, Australia, China, Brazil, Poland and the United States, and employs more than 25,000 people globally.

Pleased to share with you that 13 students of Mech got placed in the recently concluded multiple Placements at our campus. Here are the details:

Company Name: Mindtree
Job Type: Regular
Job Role: Graduate Engineer Trainee
CTC: INR 4,00,000/-
Students Placed:
1. T M Vinodh Kumar
2.PrethevNandan Gopinathan

Mindtree
A Larsen & Toubro Group Company

Mindtree Ltd is an Indian multinational information technology services and consulting company, headquartered in Bangalore, India. It is a part of the Larsen & Toubro Group.

Company Name: Tekion India Private Ltd.
Job Type: Regular
Job Role: Associate Software QA Engineer
CTC: INR 5,00,000/-
This is a company founded by an Indian who worked with Tesla earlier. Tekion is going well.
Student Placed:
1. Ashwath J

TEKION

Company Name: Square Yards
Job Type: Regular
Job Role: Management Software Trainee
CTC: INR 4,50,000/-








Square Yards is India's largest integrated platform for Real Estate & Mortgages and one of the fastest growing Proptech platform in UAE, Rest of Middle East, Australia & Canada.
Role Offered: Management/Software Trainee
Students Placed:
1. Poorna Chandra Rao B
2. Sudalaikannan J
3. Senthil Kumar S
4. Jabin Samson Raj
5. Vishwadhath Raghav S K
6. Jayaperumal C M
7. Goutham Krishnan U S
8. Kalaiselvan K

Company Name: Amara Raja Group
Job Type: Core
Job Role: Graduate Engineer Trainee
CTC: INR 3,78,000/-
Student Details:
1. Jayaperumal C M

Company Name: Jio Platforms Ltd.
Job Type: Dream
Job Role: Software Developer
CTC: INR 6,02,000/-
Student Details:
1. Yuva Shanker M – 181002190

Company Name: Daimler
Job Type: Core
Job Role: Graduate Engineer Trainee
CTC: INR 7,50,000/-

Daimler India Commercial Vehicles Pvt. Ltd. is a subsidiary of the German Daimler Truck AG. This company designs, manufactures, and sells commercial vehicles that cater to the demands of Indian customers and are designed with nation's terrain in mind
Student Placed:
1. Prasad P V

Company Name: Everstage Technologies
Job Type: Dream
Job Role: Solutions Specialist
CTC: INR 8,20,000/-


Students Details:
1. Sharan S – 181002156
2. Naresh Kumar R – 181002096

Company Name: Technip Energies
Job Type: Core
Job Role: Graduate Engineer Trainee
CTC: INR 5,80,000/-
Technip Energies is a leading Engineering & Technology company for the energy transition, with leadership positions in Liquefied Natural Gas (LNG), hydrogen and ethylene.
Role Offered: Graduate Engineer Trainee (GET)


Students Details:
1. Arunraj S K
2. Murugaraja K S

Company Name: QSpiders
Job Type: Solutions Organization
Job Role: Software Testing/ Software Developer
CTC: INR 3,50,000/-







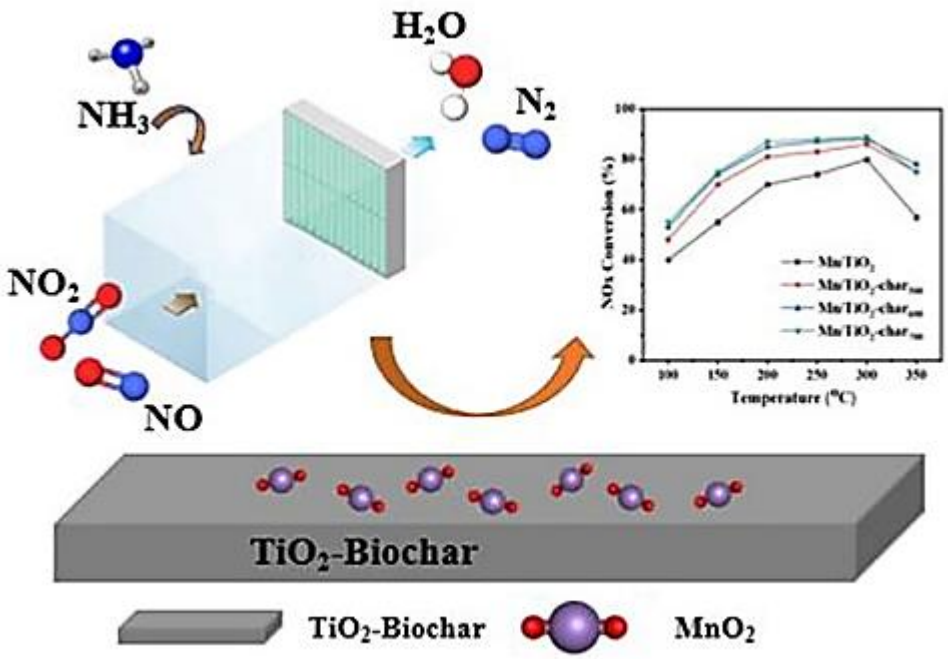

Students Details:
1. Jayaperumal CM - 181002056
2. Padmakanth P - 181002109
3. Rakesh K - 181002128
4. S. Senthil Kumar - 181002155
5. Vishwadath Raghav - 181002188
6. Pavithran R - 181002309
7. Poorna Chandra Rao B - 181002310
8. Ashwath J - 181002701

HEARTY CONGRATULATIONS

International Journal Publication - SCI /Clarivate Indexed

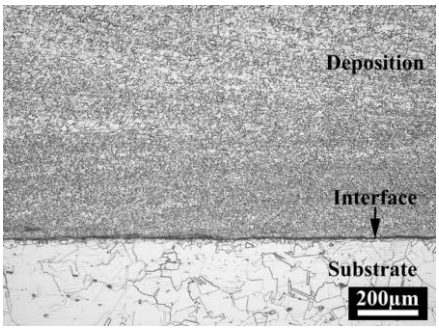
S. Raja, D. Eshwar , S. Natarajan , Abdulkadir M, M S Alphin ,Biochar supported manganese based catalyst for low-temperature selective catalytic reduction of nitric oxide, Clean Technologies and Environmental Policy , 2022. https://doi.org/10.1007/s10098-022-02274-5 .

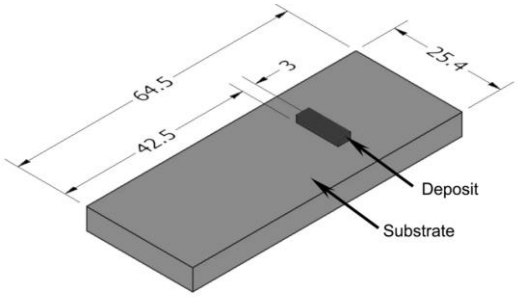
Impact Factor: 3.636



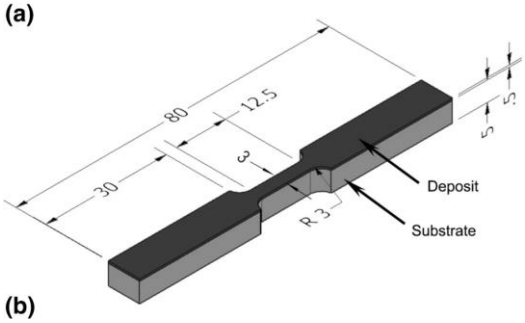
Arunkumar, S., Alphin, M. S., Kennedy, Z. E., & Sriraman, N. (2022). Development of a co-extruded al-ti bimetal composite. Materials and Technology, 56(1), 73-78. *Impact Factor: 0.63*

SCI /Clarivate Indexed International Publication





(a)



(b)

Cyril Joseph Daniel, S., R. Damodaram, G. M. Karthik, and B. Lakshmana Rao. "Friction Surfaced Alloy 718 Deposits: Effect of Process Parameters on Coating Performance." Journal of Materials Engineering and Performance (2022): 1-14. ***Impact Factor: 1.8***

Amith, S. C., and Poovazhagan Lakshmanan. "Effects of simultaneous rotational ultrasonication and vortex-induced casting technique on particle distribution and grain refinement in AA7075/h-BN nanocomposites." Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications (2022).
Impact Factor: 2.31

Anbalagan, Abirami, Esther Florence Sundarsingh, and Vimal Samsingh Ramalingam. "Realization of a Novel Weaving Framework in Looms for Manufacturing of E-Textiles." IEEE Transactions on Components, Packaging and Manufacturing Technology (2022).
Impact Factor: 1.7

External Recognition

Dr. Alphin M S served as a resource person in delivering a lecture on the human factors and Virtual Reality in Industry 4.0 in an 7 days Faculty Development Programme on ""Innovative Research Avenues & Emerging Challenges in 4.0 - (IRAEC - 2022)"" from 21.02.2022 to 28.02.2022 at Jeppiaar Engineering College, Chennai. 23 Feb 2022.

Dr. R. Vimal Samsingh, ASP/Mech delivered a guest lecture on "Recent Research Trends in Mechanical Engineering" at the department of Materials, Institute of Mechanical Engineering College, Saveetha School of Engineering on 15.02.2022

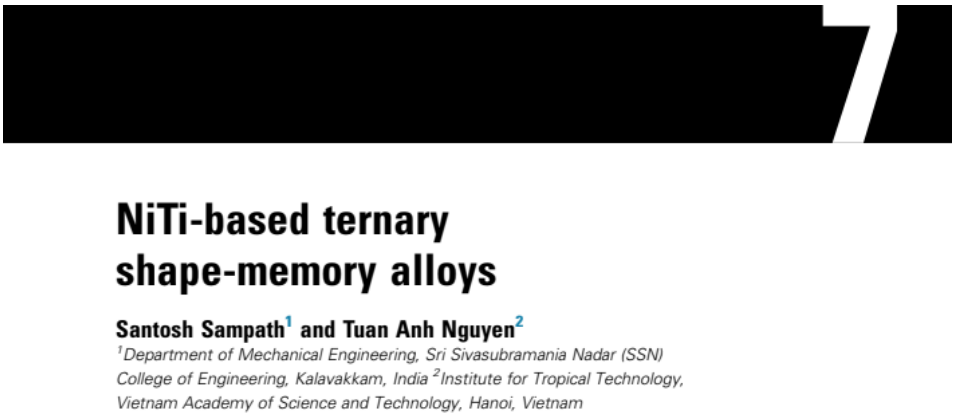
Dr. K.S. Vijay Sekar, Prof & Head, MECH has been invited to be a Technical committee member in the 4th International Conference on Engineering Education and Innovation (ICEEI 2022), Hanoi, Vietnam on December 16-18, 2022.

Dr. Satheesh Kumar Gopal delivered a invited talk on "Robotics & Automation with AI & ML" on 24.02.2022 as a resource person for the 10 days FDP on "Applications of Artificial Intelligence in Digital Manufacturing" organized by Sri Sairam Engineering College in association with NIT Warangal.

Scopus Publication

Das, Gurumukh, Gurdeep Singh, and Divya Zindani. "Aggregation multiplicative rule for optimal parametric identification of electric discharge machined AA6061/Al2O3/10p composite." Materials Today: Proceedings (2022). Impact Factor: 0.34

Book Published



Santosh Sampath, Ajit Behera, Sabu Thomas and Tuan Anh Nguyen, SABU THOMAS, AJIT BEHERA, TUAN ANH NGUYEN, NiTi-based smart micro- and nanoalloys: an introduction Elsevier, Pages 3-8, 10.1016/B978-0-323-91173-3.00018-3.

Santosh Sampath, Tuan Anh Nguyen, Sabu Thomas, Ajit Behera and Tuan Anh Nguyen , NiTi-based ternary shape-memory alloys , Elsevier, pages 123-137, 10.1016/B978-0-323-91173-3.00006-7.

Project Applied

Dr. K.S. Vijay Sekar, Professor & Head "Project Title: High end workshop on" Fundamentals of Finite element analysis with Software training"". Total Budget (INR): 4, 30,000. Funding Agency: DST - SERB - Accelerate Vigyan - Karyashala Scheme "

Dr. K. S. Jayakumar/ASP/Mech; Co-PI: Dr. V. Vaithianathan/ASP/ECE, Project Title: Shape Analysis of 3D Objects for Robot Grasping and Object Recognition Applications, PI: Total Budget (INR): 41,73,400; Funding Agency: SERB-CRG

Faculty Write-Up

External Recognition

- A brief writeup by Dr. D. Ananthapadmanaban and Dr. Anirudh Venkatraman

We, in the Mechanical Engineering Department are very happy to observe that 71 students have completed NPTEL Professional elective courses and 61 have completed Open elective courses, among the present final year batch (2018-2022). These courses have been done in lieu of final year Professional elective and Open elective courses.

Our NPTEL monitoring team from the Department headed by our HOD and comprising of Dr.Ananthapadmanaban, Dr.S.Sureshkumar and Dr.A.S.Ramana have held a meeting before finalizing the list of courses. Feedback from students has also been taken regarding choice of courses.

Again, in January 2022, another meeting was held comprising the same committee members and list of approved courses in the Professional Core and Open elective categories have been sent to the present 2nd year and 3rd year students. Enrolment for the present batch of NPTEL courses have started during late January 2022 and registrations are continuing in February,2022. It is heartening to note the excellent response to NPTEL courses, and we all wish that these courses help the students in placement and for higher studies.

Reports by Dr Divya Zindani, Asst.Prof....

CII TN Manufacturing Summit – 13th Edition

The 13th edition of the Tamil Nadu manufacturing summit was held virtually between 18-19 February 2022. The two-day summit had eminent speakers, experts and stakeholders from industry, academia and government. This edition of the summit laid focus on the current manufacturing scenario in Tamil Nadu, the emerging frontiers and the associated challenges. Actions required to be taken during the decade in order to circumvent the associated challenges and to propel the manufacturing sector to contribute around one-third of the GDP of Tamil Nadu were deliberated during the summit. The inaugural session was followed with a session on paradigm shifts in automotive space with electric vehicles

emerging as the new frontiers. The factors triggering the EV growth, the trending battery prices, start-up opportunities through the value chains, heavy motor EV, role of network players and women empowerment in EVs were the focus of the session. A session on educational institution partnership, laid emphasis on updated and flexible curriculum, research ecosystem, interdisciplinary centre of excellence, industry funding, and start-up ecosystem. The session on specialized manufacturing on day 2, deliberated on the new frontiers for electronics, space and aerospace sectors. The two-day manufacturing summit concluded with the valedictory session with remarks on the pathways to be made during the next decade for building competitiveness within the Tamil Nadu manufacturing space.

SSN INCUBATION TRAINING PROGRAM

Incubation Training Program from SSN Incubation Foundation was hosted virtually on 15th of February, 2022. Dr. Devdip Purkayastha, Professor-of-Practice, DS School of Entrepreneurship, IITB, enlightened the participants with his immense expertise in entrepreneurship and the entrepreneurship ecosystem for start-up incubation. The entrepreneurial journey for the enthused participants began with a brief discussion on fear of failure (atychiphobia) and the major reasons as to why most of the start- ups failed. This was succeeded with a discussion on the suitable skillset that the start-ups can prioritize to commence their entrepreneurial journey in an efficacious mode. A business view on what a startup actually is, was then deliberated. A discussion trailed on an end-to-end innovation process that can aid the start-ups in accelerating towards scalability, commencing from gaining an insight of the problem through the needs and requirements of the customer in the market. This was ensued with a succinct discussion on the definition of problem through Maslow's Hierarchy's of Needs model and few illustrative examples. A case study by Dr. Rupesh Ghyar (SEO), BETIC, showed how as an incubator they had facilitated and incubated 15 start-ups, trained 50 innovators and developed 12 different medical devices. The guidance and support helped the med-tech innovators to face and circumvent the "four valleys of death" i.e., concept, proof-of-concept, prototype and product and its marketing. The case study was followed by a roadmap discussion for SSN Incubation Foundation, wherein the emphasis was made on creating a pertinent start-up pedagogy and start-up ecosystem.

External Reviews of Funded Project Proposals

Feb 2nd 2022 and Feb 16th 2022, Report by Dr K.S. Vijay Sekar, Professor & Head….

It gives me extreme pleasure to share our experience with a new attempt in our department to review the proposals that we intend to submit to external funding agencies with the help of eminent experts from IITM. Faculty were invited to submit their consent to get their potential projects reviewed and around 16 project proposals were taken up – 9 projects in Materials/Manufacturing area and 7 projects in Thermal sciences area, to be reviewed in online mode.

Dr L. Vijayaraghavan, IITM a specialist in Materials/Manufacturing reviewed the proposals on 2nd February 2022 and gave his valuable insights into how to write the proposal keeping the collaborators interest in mind, how it is necessary to identify agencies that would be interested in the product/process being developed and accordingly rework the proposal to suit the thrust areas of the collaborating party. Individual suggestions ranged from cost justification, application feasibility, sustainability of the project, comparative studies on existing and the proposed applications to name a few. He also suggested some specific agencies like ISRO/NAL/DRDO based on the nature of the proposed work. Dr SR Koteswara Rao, an expert in materials and welding processes also shared his views and suggestions on how to improve the proposals.

Dr V. Raghavan, IITM a specialist in Thermal sciences reviewed the proposals on 16th February 2022 and shared his suggestions and views on the projects related to thermal and waste management. In summary, his views were to focus on costing and its proper justifications, novelty of the proposal, comparison of the proposed and existing projects, how to fix the budget based on the project content, adding minute technical details to spruce up the content, to check if the proposal is ambitious and accordingly tone it down to suit practical requirements, availability of proposed materials and methods, how one will maintain the sustainability of the materials used, clearly defining the objectives and the national and international status, repeatability of experiments as a means of justification to the proposed methods etc. I thank Dr N.Lakshminarasimhan for networking us with Prof. Raghavan.

The reviewing process was a good starting step for improving our project proposals and from the discussions we gained good insights on how to structure the proposals and work

on minute technical details that will keep us in good stead. The Department and the Institution thanks the experts for agreeing to spend quality time with our faculty members, despite being hard pressed for time.

We sincerely hope this is a good beginning for securing funded projects and would like to thank our President, Dr Kala Vijayakumar and Principal, Dr VE Annamalai, for the constant motivation, guidance, and support

Collaboration

Dr K.S. Vijay Sekar arranged an engagement with Col. Balaram Pillai (Retd.), Head - HILD - Defence and Aerospace on a possible research consultancy on a project to design and manufacture inflated airbags for solider safety during entrapment in avalanches in snowcapped places. The meeting was attended by Dr M. Suresh, Dr N. Lakshmi Narasimhan, Dr. S. Suresh Kumar, Dr Anirudh VK and Dr Divya Zindani and held in the Seminar Hall on Feb 15, 2022.

Consultancy work

Dr K. Babu, completed the consultancy work and fetched Rs. 21,421/- as a part of the Rs. 25L consultancy work signed with Green 201 Owners Welfare Association, Pudupakkam.

DC Meeting

Dr K.S. Vijay Sekar, Prof & Head, Mechanical, attended a DC meeting for a research scholar at Hindustan University, Padur on 8.02.2022

Faculty Development Program Attended

Dr A S Ramana attended One -week Online FDP on "Recent Innovations and Developments in Energy Technologies" organized by Velammal Engineering College, Surapet between 24 Jan 2022 and 29 Jan 2022.

Workshop/Webinars organized

Dr A S Ramana, & Dr. B. Jayakishan, organized Online National Workshop on Emerging Trends in Energy Efficiency on 11th February 2022.

Dr. Anirudh V.K. arranged a series of webinars from Altair to explore newer avenues to further the students' learning experience at SSN. Altair presented their software's capabilities including Hypermesh, Radioss and other manufacturing solutions during the webinars. Dr. K.S. Vijay Sekar, Dr. M Nalla Mohamed and Dr. S Suresh Kumar were also present for the two sessions.

Scholar Info

Dr. Jain A R Tony (PhD 2018) is currently a faculty in Birmingham City University (BCU) UAE Campus. Birmingham City University in the UK traces its roots back more than 175 years. It grew out of five individual colleges which came together to form one institution and today, it has more than 26,000 students from 100 countries studying on its courses.

Birmingham City University (BCU) unveiled the newest chapter in its history in 2020 when it opened the doors of its UAE branch campus in Ras Al Khaimah. The campus has been established under license by the RAKEZ authority.

Non-Teaching Staff Activities

Mr. Balasundaram P / LAB ASSISTANT / MECHANICAL PARTICIPATED ONE DAY WORKSHOP: on “Biomaterials & their Corrosion Behavior” 12.02.2022

Mr. Nagarajan S / Lab Instructor/ Department of Mechanical Engineering

- attended the Online National Workshop "" EMERGING TRENDS IN ENERGY EFFICIENCY"" on 11th February 2022.
- One Day workshop on “Biomaterials & their Corrosion Behaviour on 12th February 2022.
- attended the One-day live webinar on ""Oil and Gas Industrial Digital Twin"" Organized by the Department of Materials, Institute of Mechanical Engineering, Saveetha School of Engineering, SIMATS, Thandalam, Chennai on 14th February 2022.
- attended the One-day live webinar on ""Recent Research Trends in Non Destructive Testing"" Organized by the Department of Materials, Institute of Mechanical Engineering, Saveetha School of Engineering, on 15th February 2022.

Student Write-Up

S.NO	DATE	ACTIVITY DONE DURING THE MONTH
1)	24/12/22 -26/12/22	***B. Maalolan ,2nd Year*** • Did an online course on "Introduction to Programming with MATLAB" on coursera.
2)	20/12/2021-03/01/2022	***M Vigneshwaran,3rd Year*** • Training program on automotive assembly (TVS)
3)	22/12/2021-22/01/2022	***Sriram M ,3rd year*** • Inplant training in IGCAR
4)	22/12/2021-22/01/2022	***Mohanraj P, 3rd year*** • Inplant training in IGCAR
5)	14/12/2021-03/01/2022	***Shivani Sathyanarayan, 3rd year*** • Inplant training in BHEL-BHPVP
6)	27/12//2021 -31/12/2021	***Sricharan S,3rd year*** • Simpson Inplant training.
7)	27/12/2021-13/01/2022	***Sreya Mary Thomas,3rd year*** • The training offered exposure to equipment engineering and piping activities related to Oil industry.
8)	01/02/2022	***Krishnanand M, 4th year*** • Received a placement offer from McKinsey & Company.
9)	11/01/2022	***Sam Sherin Raj S,4th year*** • Placed in McKinsey & Company

Maalolan , II-Year writes

I am Maalolan from second year mechanical, here to share my experience on the MATLAB online course that I undertook. I completed an Online Course on 'Introduction to Programming with MATLAB' on Coursera by Vanderbilt University on my long study holiday in February. It was a nine week-long course which I could complete in 5 days because of familiarity with basic MATLAB syntax. I accessed MATLAB Software using my SSN mail ID.

First two weeks: Basic Introduction on running MATLAB Environment, and basic syntax were discussed.

Third week : I was introduced to Matrices Operations like how to create Row and Column Vectors, N by N matrix, indexing Matrices and to access parts on Matrix.

Fourth week: I learnt about how to define functions and sub functions and learnt to use vast 'Inbuilt function' already available in MATLAB.

Fifth week : I learnt about Various types of plots like Point, Bar, Scatter, Histogram, Surface plots etc. Sixth week: I learnt how to use Logical operator. The most interesting function I learnt is 'nnz' which would return the number of 'TRUE' Outputs. I also learnt how to use 'if ' operator, nested if statements and 'else' operator.

Seventh week: I learnt about For and While loop.

Eighth week: I learnt about data structures and character arrays.

Last week: I learnt about how to read and write Excel, Text, and binary files.

I personally found the Course very challenging from this week where I constantly revised basic syntax to solve. I made lot of semantic errors and took various attempts to get required output.

Though the concept was simple because of available Inbuilt functions the questions were challenging. At the end of course I solved three difficult problems on finding saddle point on matrix, writing a function to blur an image, and writing a function to enhance learning experience using Echo generator. The Problems were difficult and requires much more knowledge than what we learnt in the course.

The overall experience on this course is I felt MATLAB to be easier and beginner friendly language than Python which I learnt in first semester. I also found the syntax to be easier than Python. The instructor of the course was beginner friendly; videos were of short duration and the MCQs were simple. The Coding assignments were very easy in the beginning and challenging towards the end of course. In the future I plan to learn how to solve ODE and PDE in MATLAB.

I recommend my friends to take this course considering the simple syntax and Importance of MATLAB to Mechanical Engineers

Yuvan Shanker , IV-Year writes...

I am Yuvan Shanker from final year mechanical, here to share my experience on the placement process of **Jio Platforms Limited .**

The Whole placement process was conducted in three rounds:

1. Level 1 Technical Interview
2. Online Test
3. Level 2 Tech + HR Interview

Each of the above rounds had elimination.

As mentioned, the **1st round** was a level-1 **technical interview**, the interview went for about 15 minutes. They asked me questions related to coding language that I am comfortable with. They nearly asked me about 12 to 15 questions which were all basics like pointers, function, operator overloading, etc. Out of 111 students, they only shortlisted 7 students for next round.

2nd round is a **online test** which consists of coding (2 questions) and basic aptitude questions from logical reasoning, data interpretation, quantitative. Out of 7 students only 5 were selected for final interview.

And **3rd round is a technical + HR round**, at first they asked the basic HR questions like why IT being an mechanical engineer and again some coding questions and they'll try to confuse you with their question ,be strong at basics. And they asked about the concept of cloud computing. And out of 5 students they selected 1.

Key to clear interview : Be strong at basics whatever technology you aware off.

Prasad P V , IV-Year writes...

I have shared my experience from Daimler India Commercial Vehicles Pvt. Ltd hiring process below for the role of GET (Graduate Engineer Trainee) which started on 11/01/2021 and ended on 16/02/2022. Since we had all the rounds in online mode the process may differ for you. But if you do have any doubts regarding the process or preparation, feel free to contact me, I would be glad to help you.

Round 1: Resume Based Screening

In the first round of all the students who applied (not sure how many applied) 15 were shortlisted for the 2nd round based on their resume.

TIP: Create a resume that is specific to the company and make sure its appealing to the eye and the text is clearly visible. Mention your project, online courses related to Automobile or Mechanical field, competitions or hackathons, internships, in plant training that you have participated in including extra-curricular activities. Highlight the important points to catch the reader's eye.

Round 2: Online Test

The online test (Duration: 2 to 2.5 hrs) was conducted by AMCAT and we were given a time period of 3 days to complete the test. The test consisted of Aptitude (Logical, Numerical, Verbal, Quantitative) section and technical section (mostly theoretical question on basics of Mechanical Engineering and few problems). The difficulty of the questions will vary based on your previous answers i.e., if you answered the previous question correctly then the next question would be of higher difficulty level. Also, there is no negative marking.

TIP: Practice a lot of aptitude question since they take a lot of time to solve. Improving you speed in solving is the key to clearing any online test. Revise all the fundamental concepts (Strength of Materials, Thermodynamics, Fluid Mechanics, Manufacturing Process, Heat and Mass Transfer, Automobile, etc). Preparing for GATE will help you.

Pre-Placement Talk (PPT)

All the shortlisted students (including other colleges, since it was a pool campus) from the online test received the link for the pre-placement talk. In this meeting they told us about the company, their recent works, working environment, details about the further rounds, etc. (Clarify your doubts regarding the hiring process with the meeting organisers, usually HR).

Round 3: Group Discussion (GD)

3 hours after the pre-placement talk, we had group discussion. The topic for us was "Virtual Learning – Pros and Cons".

TIP: Observe what others are telling and note them down. Present your opinion politely. This round isn't about who starts or who concludes it, though that would give you an upper hand, do it only if you are confident. Don't repeat what others put forward, those are their view. Making one valid, thought-provoking point is better than speaking for 3 or 4 times. And most importantly respect others turn and their time.

Round 4: Technical + HR Interview

My interview lasted for about 15 mins, and I was asked the following question:

i. Introduce yourself

ii. Tell me about your final year project

iii. If your resume wasn't impressive, how will you convince me to hire you? iv. What do you know about Daimler? And why do you want to work for us? v. What is your contribution to Formula 1? (Since I mentioned it as my interest, they asked me this)

vi. What have you learnt form the online courses that you have done? vii. How will you overcome your weakness? What are the efforts that you have put in so far?

viii. What is FMEA (Failure Mode and Effects Analysis)?

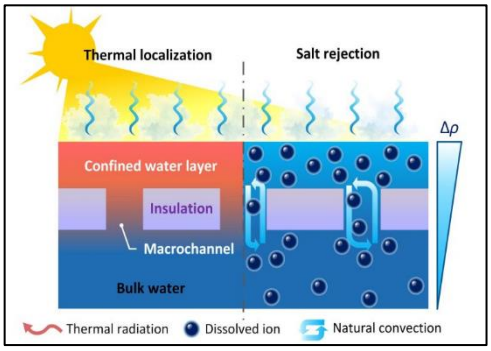
TIP: Wear formals, groom well and be sure about what you have entered in your resume. Do not enter any false or inaccurate data. The question will start off from your resume and the following question will be based on your previous answer. Ask questions to the interviewer since that shows your interest and curiosity. Always have a smile while answering the questions.

Do not restrict your learning to the above-mentioned points. These are from my experience, and they may vary significantly during your process.

ALL THE VERY BEST!!

Mech Marvel

Solar-Powered Desalination



Desalination is hoped to be a way to overcome the shortages of drinking water that plague our world. But it has issues. One being Fouling, where impurities and salt tend to build up on the filter membranes.

Scientists from MIT and Shanghai Jiao Tong University have designed a system where a material with 2.5-mm perforations draws water up from the reservoir below, forming a thin layer of water on top. With the help of a dark material that absorbs heat from sunlight, this thin layer of water is heated until it evaporates, so it can then be condensed onto a sloped surface for collection as pure water. The salt stays behind in the remaining water. The holes in the perforated material are just the right size to allow for a natural convective circulation to occur. The warmer water above the material which is now far denser with salt – is drawn back down into the colder body of water below. A new layer of water is drawn up to the top of the material and the cycle begins again.

The system has proved to be efficient and is made of inexpensive materials. The team is now aiming to refine and scale the design for practical applications. Here's an Article and a Journal Paper for further details about this development.

Corporate Story

ideaForge

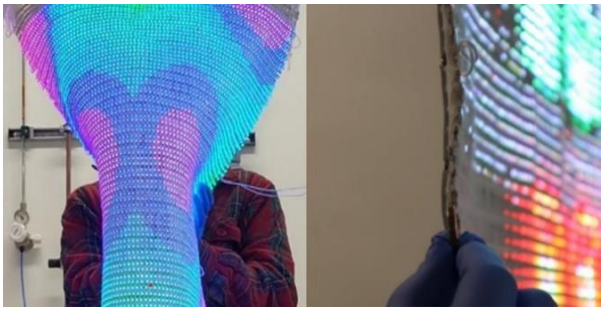
One of the focuses of this year's Union Budget was promoting Drone-As-A-Service (DrAAS) and up-skilling in Drone Technology. ideaForge, founded in 2007 by IIT-Bombay alumni is India's largest manufacturer of drones for defence, homeland security and industrial applications. They indigenously develop and make vertical take-off & landing UAVs and are a licensed manufacturer of UAVs approved by the Ministry of Defence.

Since its inception, ideaForge has been backed funding by leading companies and venture capitals. Recently, they were in the news for completing a $20 Million contract with the Indian Army to deliver their High Altitude SWITCH UAVs. Despite challenges posted by the pandemic, they pulled through and finished the deal in time. As a result, the company has been entrusted by the army with an additional set of orders. They have a diverse list of industrial customers as well in sectors such as geospatial surveying, mining, agriculture and many more. With the drone market on the rise, the best of ideaForge is surely yet to come.

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

Amazing Innovation 211

Electronic Textiles!



Smart Textiles have been in development for years, till now they've been limited in size and scope. An international team of scientists led by Cambridge have produced a 46-inch woven textile display, loaded with LEDs, sensors and energy storage, that can be made using existing industrial manufacturing processes.

The resulting smart textile can display different images or colours based on input from the fibre-based sensors. So, it could for example, be made into touchscreen curtains, carpets that harvest energy as people walk across them, or shirts that light up in response to temperature changes. As all the electronic components in the new fabric are embedded in fibres, they can be woven and knitted into whatever shape is needed which opens large scale production using standard methods and widespread applications.

The next steps for the team are to develop ways to make the smart textiles out of sustainable materials. Here's an Article about the research and the Journal Paper for further reading.

Amazing Innovation 212

Creating Universal Blood-Type Organs!

Matching blood types from donor to recipient is one of the major problems in organ donation. As a result, much research has gone into preventing organ rejection. A team of researchers from institutes across Canada has developed an enzyme treatment to convert donated organs to the universal O blood type, allowing them to be safely transplanted into any patient.

For the new study, researchers tested an experimental enzyme treatment to remove antigens from donated organs, essentially converting them into the universal type O. They did tests on blood type A donor lungs that had been deemed not suitable for transplant, after pumping them with the enzymes, they were tested with blood containing high levels of anti-A antibodies, simulating an incompatible transplant. The treatment successfully removed over 97 percent of the A antigens in the lungs. This resulted in the treated lungs faring much better when exposed to the blood, minimizing immune injury.

This study could be a major step towards making universal organs that can be transplanted into anybody who needs them. Here's an Article about the research and the Journal Paper for further reading.

Alumni Write-Up

Vivekanand S.R. – Mech 2012

Vivekanand is currently working as a supply quality manager at X, the Moonshot factory (previously Google X). X is a semi-secret organisation under Google's funding with a mission to invent and launch "moonshot" technologies that aim to make the world a radically better place. A moonshot is defined by X as the intersection of a big problem, a radical solution, and breakthrough technology. Let us delve into Vivekanand's career path to his interesting feat. Vivek was an active lead of the aero modelling club of SSN, winning several titles to his name and was keen on conducting glider workshops to share his expertise in the field. He was the Runner Up at SAE National Convention and had bagged two excellence awards, eventually becoming the Green Globe Chairman of SSNSAE.

After his studies in SSN, Vivek began his career at Ford Motor Company, Chennai. As a manufacturing engineer he developed and managed production line with an aim to achieve Manufacturing excellence by implementing Lean Manufacturing and Six Sigma methodologies. He went on to pursue his master's in industrial engineering from University of Illinois, Chicago. During this time, he secured his internship at Tesla Motors as a product excellence intern. He was responsible for Improving the product quality standards by managing both Tesla's internal quality and supplier quality by adopting six sigma approaches and was instrumental in enabling the launch of new generation chargers. After working for over a

year in Danfoss Power Solutions as a quality engineer, Vivekanand continued his career at Tesla, Nevada in the same role. Within a year he was promoted as the senior quality engineer and soon as a staff quality engineer looking over the Tesla battery components. Vivek worked at Apple for a brief period focussing on the manufturing and product quality. Currently he is developing Supplier Quality systems from ground-up for X, the moonshot.

Harish Kumar Sundararaman – Mech 2011

Upon completing his mechanical engineering degree in SSN, Harish Kumar joined Larsen & Toubro Ltd as a senior procurement engineer. In this role he coordinated with project sites, engineering design, procurement engineers, QA/QC department and suppliers for scheduling supply of items. He was responsible for Releasing purchase and following up with the suppliers for prompt supply of the items. Gaining experience in this role for the next three years, he went on to the industrial engineering track at the Ira A. Fulton Schools of Engineering at Arizona State University.

In ASU, Harish shifted his focus to supply chain management and was able hone his skills in the domain to become a grader for the course. While pursuing his graduate studies, he interned at ON Semiconductors, a semiconductor manufacturing company at Idaho, USA.

LARSEN & TOUBRO

He continued his career as a Principal Supply Chain Specialist responsible for Strategic planning at Global Foundries. Within a year he was promoted to staff supply chain specialist following which Harish ascended to his current role in at the Apple Inc. as a Global Supply Manager for Strategic Sourcing.

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)

TNSCST - Call for Project Proposal under Science and Technology Project Scheme 2022, Tamil Nadu State Council for Science and Technology (TNSCST), Chennai-600025, Tamil Nadu

Last date for submission of the project proposal: **10-03-2022**

http://www.tanscst.nic.in/pdf/s&t2122.pdf

SERB - Call for Project Proposals under Teachers Associateship for Research Excellence (TARE-2022), Science and Engineering Research Board (SERB), New Delhi-110070

Last date for submission of the project proposal: **15-03-2022**

https://serbonline.in/SERB/Tare

DST - Call for Project Proposals under Indo-Taiwan Programme of Cooperation in Science and Technology (CFP-2022), Department of Science and Technology (DST), New Delhi-110016

Last date for submission of the project proposal: **08-04-2022**

https://dst.gov.in/news/indo-taiwan-cfp-2022

DST - Call for Project Proposals under IGSTC 2 Plus 2 Call on the Thematic Areas Waste to Wealth and Sustainable Packaging 2022, Indo-German Science and Technology Centre (IGSTC), Department of Science and Technology (DST), New Delhi-110016

Last date for submission of the project proposal: **15-04-2022**

https://dst.gov.in/sites/default/files/IGSTC%20Call%202022%20Flyer.pdf

Department of Biotechnology
Joint Projects under UK-INDIA COVID-19 Partnership Initiative

Last date for submission of the project proposal: **05-05-2022**

http://dbtindia.gov.in/latest-announcement/announcement-joint-projects-under-uk-india-covid-19-partnership-initiative

Conference with Scopus/SCI Publication

International Conference on Processing and Characterization of Materials
ICPCM - 2022
ICPCM 2022 (google.com)

https://apply.ssn.edu.in/

pgadmissions@ssn.edu.in
Phone: 044 – 2441 1656 / 2441 6474

The Tactical Mindset

The SMART Framework

Asking questions is a vital part of every industry. It helps by providing us a goal to direct our precious effort in the collective as well as the individual sense. Though there is no 'wrong question', efficient questioning could spark moments of euphoria and open doors to previously unexplored horizons. Here comes the **SMART** (Specific, Measurable, Attainable, Relevant and Time-bound) framework for setting goals and asking questions. Each element of the SMART framework works together to create a goal that is carefully planned, clear and trackable, streeing clear of vagueness and ambiguity.

Let us try to understand the SMART framework with a relevent goal:

"I want to undertake an Internally Funded Project."

Specific:

Try to frame the goal as clear as possible. This will enable you to stay focussed and ensure that you plan your venture.

" I want to undertake a project in the domain of Robotics, preferably drones"

Measurable:

To track your progress, it is essential to have measurable goals. Doing so will help you take small steps that can be easily managed and evaluated.

"Do I want to just build the drone or do I wish to go further and publish a paper or even apply for a patent?"

Attainable:

The third element is a reality check to ensure that your goal is feasible. Often people set unrealistic goals and tend to loose their passion for the goal, let alone the time and resources.

"Do I have enough time to educate myself with the programming knowledge required for the drone? Will I be able to build the drone within the budget allocated?"

Relevant:

Your goal should align with your other objectives to be considered worthwhile. Be diligent about eliminating irrelevant goals and subgoals to save significant time.

"I want to pursue Robotics as my field of higher study. Does this project align itself with the future aspects of my goal?"

Time-bound:

A SMART goal must have a start and finish date. This step helps to ensure that everyday life doesn't take over with immediate whims, side-tracking your bigger goals.

"By when do I want my drone to be up and running?"

The SMART framework could be used all around, right from your academic or career endeavours to planning your much needed vacation!

Corporate Wisdom

From the desk of Ramki -– Aspire to Inspire

Happy Morning

What's in a day? A day can bring a change in you.

- The Potential to make a new beginning.
- Potential to make a new start.
- The potential to tell yourself all my yesterdays are over yesterday.
- To draw a line to the past
- And to tell yourself that my entire future begins today.
- It is not about what I have been, it is not about how my past has been, it is not about how I lived every year of my life till date.
- Yesterday was over yesterday.
- A time comes for every life caterpillar when it decides that it will not be a caterpillar anymore, that is when it becomes a butterfly.
- A time comes in the life of every Athma that does not want to live like any other ordinary Athma anymore and that is beginning of Mahatma.
- A time comes in the life everybody she realized, she can be much more than a schoolteacher and that is the beginning of the social revolution- Mother Teresa
- A time comes in the life of every human being to be awakened.

A time comes a mere piece of bulk rock – catches the imagination of sculpture and that is beginning of World class sculptures to emerge. A time comes a canvass which was sleeping as pile of stationery for days together, suddenly catches the attention of a painter and that is beginning of World class painting to emerge.

We all wake up to another sunrise and another day. For few of us it can be a turning day in our life because you decide – you lived the life the way you have lived right through. May be some of you had a glorious past, maybe you have been happy person, maybe you are doing justice to your potential. But to the heart of every individual knows that they can do far better and not doing justice to their potential. We may be success in the eyes of the world, we may be success compared to lot of other people who began the journey along with you. You are already a mentor, a coach and role model, an inspiration, a beacon, a god father, a living role model to lot of people etc. but ask yourself a question and introspect – Am I doing justice to my potential? Listen to those honest whispers that your own conscious tells you – that is beginning of the awakening.

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

THANKS FOR THE FEEDBACK

Annamalai V.E.
to me

Dear Editorial Board,

Congrats on bringing up a timely issue with plenty of information.

From: **Dr. Sriman Kumar Bhattacharyya** <vc@snuchennai.edu.in>
Date: Mon, 31 Jan 2022 at 4:52 PM
Subject: Re: Aspire - February 2022 - Monthly Newsletter of Mechanical Engineering Dept.
To: Ks Vijay Sekar <vijaysekarks@ssn.edu.in>, Registrar SNU Chennai <registrar@snuchennai.edu.in>

Thanks for sharing the document. It's quite informative.

Regards
S. K. Bhattacharyya

Dear Sir,

Thank you for considering to include the achievements of SSN Music Club in your Department Newsletter. This will motivate the students to do even better in the forthcoming competitions. As the faculty in charge of the club, I feel honoured.

Thanks and regards,

Dr. D. Praveen Sam, M.A., M.Phil., PGCTE, PGDTE, PhD

Assistant Professor
Dept. of English
Sri Sivasubramaniya Nadar College of Engineering (Autonomous)

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