ASPIRE

Achievements in Sports, Projects, Industry, Research and Education

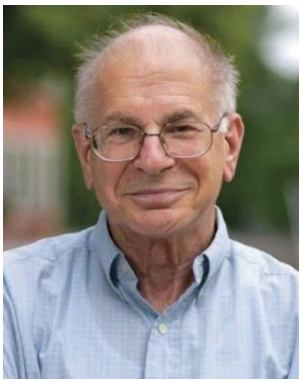
Monthly Newsletter

Department of Mechanical Engineering
Volume 11 Issue 10 October 2021

Sri Sivasubramaniya Nadar College of Engineering

SSN

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



Daniel Kahneman: The Mind Master

> "You are more likely to learn something by finding surprises in your own behavior than by hearing surprising facts about people in general"

Ever heard of the Internationally acclaimed *Thinking, Fast and Slow*, a composition unravelling our surprising intellectual workings? Let us get to know the writer who crafted it.

Daniel Kahneman was born in Tel Aviv, Israel in 1934. His parents were Lithuanian Jews who had emigrated to France in the 1920s. Fortunately, they survived the Nazi reign of terror during the 1940s, but the events Daniel experienced paved way for his entry into the field of psychology. When Daniel was 8 years old, he was walking down an empty street; in the distance he saw a Nazi soldier approaching him. Daniel was terrified as he was disobeying the curfew and feared that soldier might spot his sweater etched with the star of David. But things took an interesting turn, the soldier hugged and spoke to the boy in great emotion. The boy went home looking back on his mother's words: people are endlessly complicated and interesting.

After obtaining his bachelor's in psychology at the Hebrew University of Jerusalem, he went on to earn his doctorate from the University of California. Daniel commenced his hallmarked research journey from the 1960s. To better understand the economic decisions by people he set out to reason cognitive psychology with the brain's judgement and decision-making process. Kahneman's research with Amos Tversky (his fellow researcher and best friend) on decision making under uncertainty resulted in the formulation of a new branch of economics called the prospect theory. Kahneman was awarded the Nobel prize in economics in 2002 for his work in prospect theory, despite lacking formal education in the field of economics.

Daniel was a pioneer in hedonic psychology, the science that deals with the pleasant and unpleasant perceptions of life. Under this domain along with David Schkade, he developed the notion of the focusing to explain in part the mistakes people make when estimating the effects of different scenarios on their future happiness. The 'illusion' occurs when people consider the impact of one specific factor on their overall happiness, they tend to greatly exaggerate the importance of that factor, while overlooking the numerous other factors that would in most cases have a greater impact.

One of his noteworthy contributions to the field of psychology is the peak-end rule. The peak–end rule is a psychological heuristic in which people judge an experience largely based on how they felt at its peak (i.e., its most intense point) and at its end, rather than the overall experience.

Campus Update

NIRF 2021

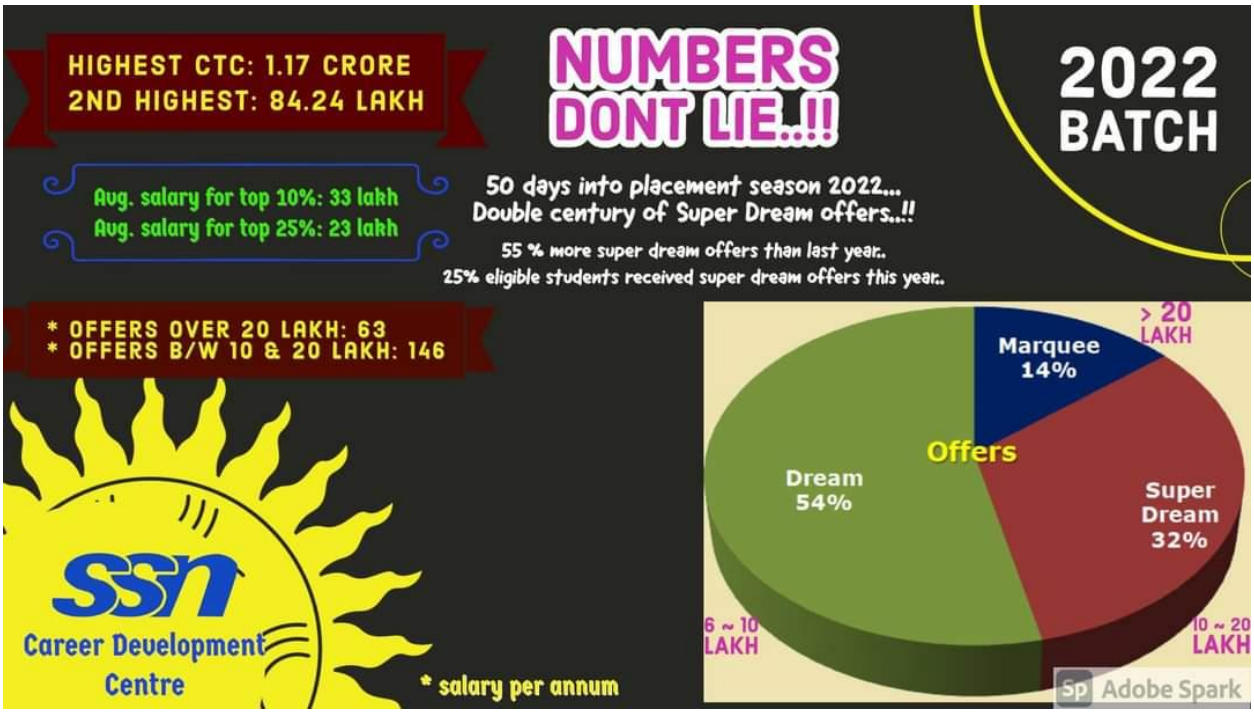
National Institutional Ranking Framework

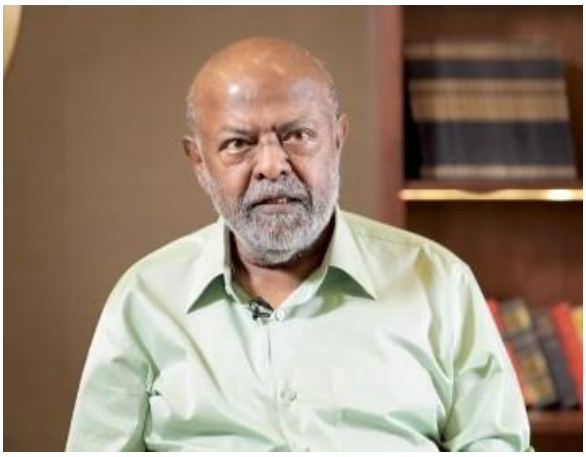
Ministry of Education

Government of India

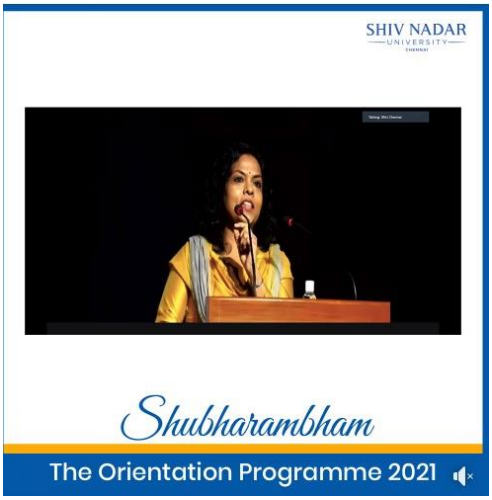
Sri Sivasubramaniya Nadar College of Engineering ranked 45 in Engineering category in India

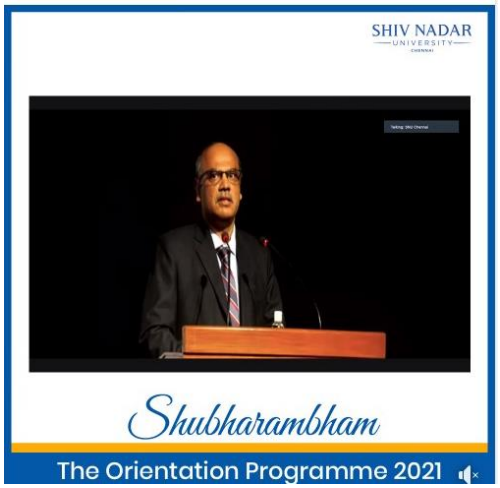
Shiv Nadar University, Dadri ranked 56 in University category in India

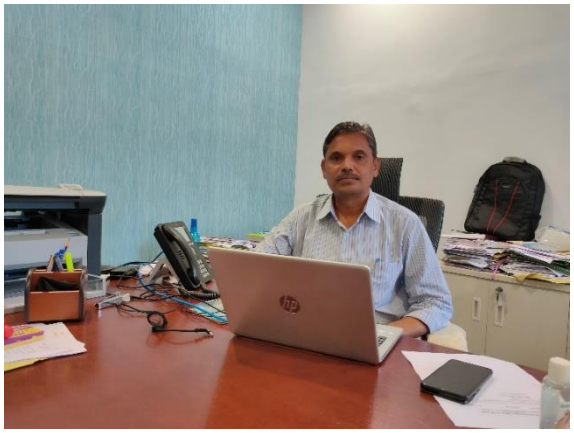




Mr. Shiv Nadar, Founder and Chairperson of HCL Technologies and Shiv Nadar Foundation, is delighted to welcome the Founding Batch at Shin Nadar University Chennai. He hopes to see the batch emerge as leaders in all walks of life.







Mrs. Roshni Nadar Malhotra, Chairperson HCL Technologies; Trustee, Shiv Nadar Foundation, Dr. Kala Vijayakumar, Pro VC, Dr. Sriman Kumar B, VC , Dr. Prof. N. Nalluswamy, Registrar of Shiv Nadar University Chennai, addressing the students who are about to begin the journey of a lifetime.

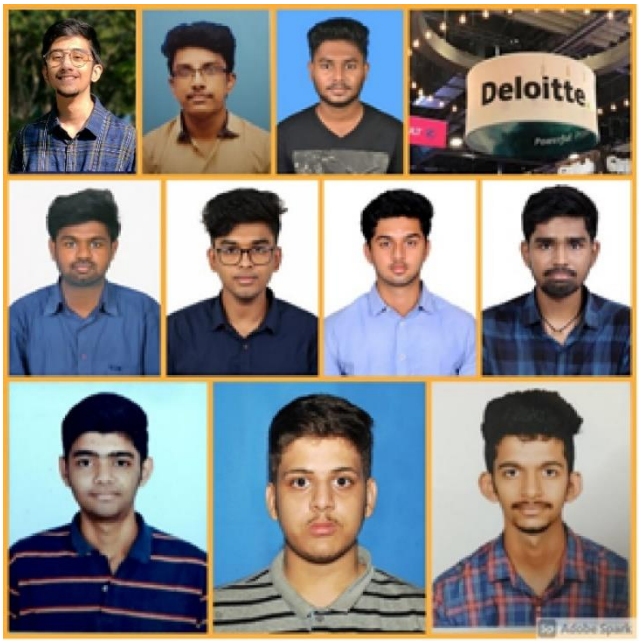
Department Update

Placement Update

10 of our Final Mech Students got placed at one shot in Deloitte-USI (a premier Business Analysis & Consulting Firm), after the second-round process held with a CTC 7.6LPA. This is a Dream Offer.

Company Name: **Deloitte [USI Consulting]**
Job Title: GET-USI
Role: Analyst, CTC: 7.6 LPA

1.Abdulkadir Madraswala 2. Adhithya M B 3. Arun S K 4. Nazir Hussain 5. Pranav S 6. Rohith Kumar S 7. Sivaram K 8. Srinath Venkatesh 9. Venkatram R 10. Vishnu Prasad P R



The Interview was held Online with an Aptitude round on Day-1 followed by Skill test on Day-2. Candidates were asked to write Codes in C, C++, Python or whatever they knew. Then They asked about Algorithms they have used. Those fumbled with Algorithms failed miserably. Some situations were given to the candidate and their decision-making abilities were tested. Overall, that was a fun and fantastic process as per the words of our "Deloitte Mech Team Ten of 2022"!

5 of our Final Mech students got placed in **Ernst & Young**.

Role: Analyst
Job type: Regular
CTC: 4.37 LPA
The five did a great job right from the beginning amidst a stiff competition this time. It was a passion driven exercise throughout and

1. Adithya Subramaniam Sathakambodi 2. Ambarish S 3. Krishnanand M
4. K S Manoj Kumar 5. J Monisha

cool process. About 39 from Mech cleared the Written test and 10 cleared the GD round. Finally, 5 got selected. Questions were on Programming (intermediate level) and testing on their general ability to handle a situation and data skills. Last year Only one (Lateral Entry) student could get through and this time five students (but no LEs) got through in E&Y!! We need to put in some more efforts in the future placing many in such companies where the bulk opportunity is there.

5 of our Final Mech students got Pre-Placement Offer from **Dow Chemicals**.

Role: Piping Engineer
Job type: Core
CTC: 8.3 LPA

DOW Chemicals has placed the following Girl Students of Mech who were hired as student internships recently offering a CTC of 8.3 LPA. While four got under Piping department, One got the role under Mech PCE department.

1. Varuna G R 2. Shoba E 3. Viswapriya G 4. Akshaya R 5. Nandita S

Glad to share that the students who were shortlisted for internships under the Special Drive for Girl Students by DOW a couple of months ago, were given interesting problems to handle during the internship. They all did well and faced a Technical + HR interview post the internship. That was a Great Technical Exposure to all the students, and they did have a Great Learning as well. It was a Splendid Performance and I join with you all in wishing them a Great Career Ahead!!

DoW Chemicals exclusively have a program called SITA under which Girl Students of Mech/Civil/Chem/EEE are given opportunities for Internship during the 6th Sem summer vacation. Normally the internships culminate into a Job offer with a 90% and above conversion ratio. Last year three got internships but could not materialize due to COVID lockdown. This time, we have Five students into DOW - an Enviable Company with a Competitive CTC!

5 of our Final Mech students got Pre-Placement Offer from **Caterpillar Inc**.

Job type: Core
CTC: 10 LPA

1. Vimal Kumar Bharathi 2. Srihari M 3. Malarmathi 4. Sharan V
5. Monisha J 6. Kurian John

Out of the placed candidates now from Mech, 11 are with 30 LPA,11 with 10 LPA, 11 with 7.5 LPA and 6 with 4.4 LPA. Enviable isn't it!!

Dr. N. Lakshmi Narasimhan

Promoted From Associate Grade II to Professor

DR. S VIJAYAN AND DR. K S VIJAY SEKAR ARE PROMOTED AS PROFESSOR WITH EFFECT FROM APRIL 2021.

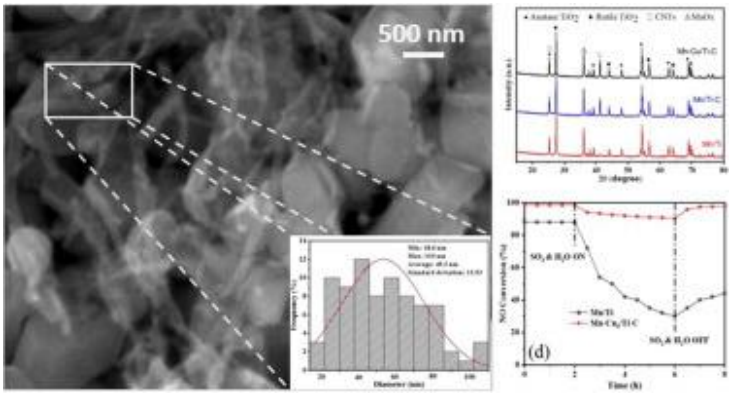
InternationalJournal Publication - SCI Clarivate Indexed

Prakash, R., Chilambarasan, L. and Rajkumar, K., 2021. Process Parameters Effect Investigations on Viscosity of Water-ethylene Glycol-based α-alumina Nanofluids: An Ultrasonic Experimental and Statistical Approach. Arabian Journal for Science and Engineering, pp.1-13.

Varghese, A. Johnny, and B. Anand Ronald. "Low velocity impact, fatigue and Visco-elastic behaviour of carbon/E-glass intra-ply fibre-reinforced Nano-silica toughened epoxy composite." Silicon 13.5 (2021): 1655-1661.

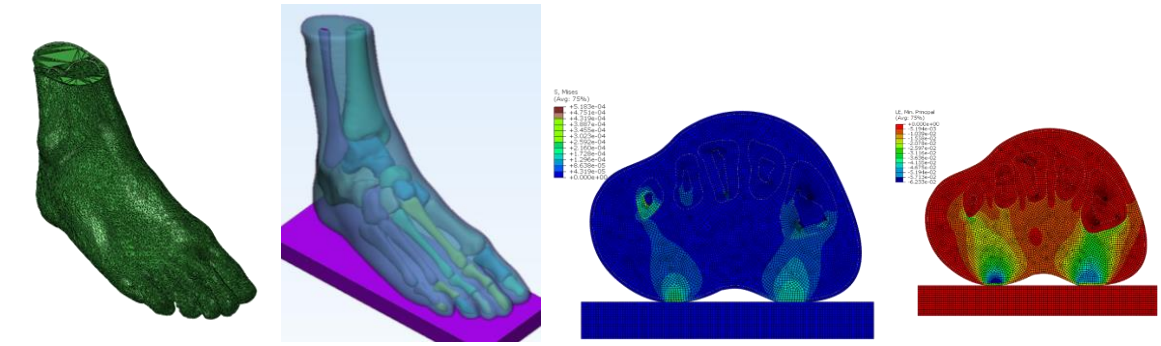
International Journal Publication with Impact Factor: 6.609

Raja S., Alphin M S., Sivachandiran, L., Singh, P., Damma, D. and Smirniotis, P.G., 2022. TiO2-carbon nanotubes composite supported MnOx-CuO catalyst for low-temperature NH3-SCR of NO: Investigation of SO2 and H2O tolerance. Fuel, 307, p.121886.



Mn-based SCR catalysts with different CuO content were analyzed and tested over TiO2/CNTs composite support for NO conversion. Effect of CuO and CNTs addition to Mn/Ti catalyst on H2O/SO2 resistance was investigated.

Alphin M S., Paul Chandra Kumar, J. and Tony, B., 2021. Biomechanical Response of the Human Foot Model Exposed to Vibrations: A Finite Element Analysis. Journal of Biomaterials and Tissue Engineering, 11(11), pp.2097-2108.



International Journal Publication -SCI Clarivate Indexed

Sabarinathan, P., Annamalai, V.E., Rajkumar, K. and Vishal, K., 2021. Effects of recovered brown alumina filler loading on mechanical, hygrothermal and thermal properties of glass fiber–reinforced epoxy polymer composite. Polymers and Polymer Composites, p.09673911211046780.

Benin, G Selvakumar, M Sumathi, Renjin J Bright, Influence of barite particulate filler on the mechanical behaviour of carbon fiber reinforced LY556 epoxy matrix composites, Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science (IF 1.762) Pub Date : 2021-09-27 , DOI: 10.1177/09544062211017951

External Recognition

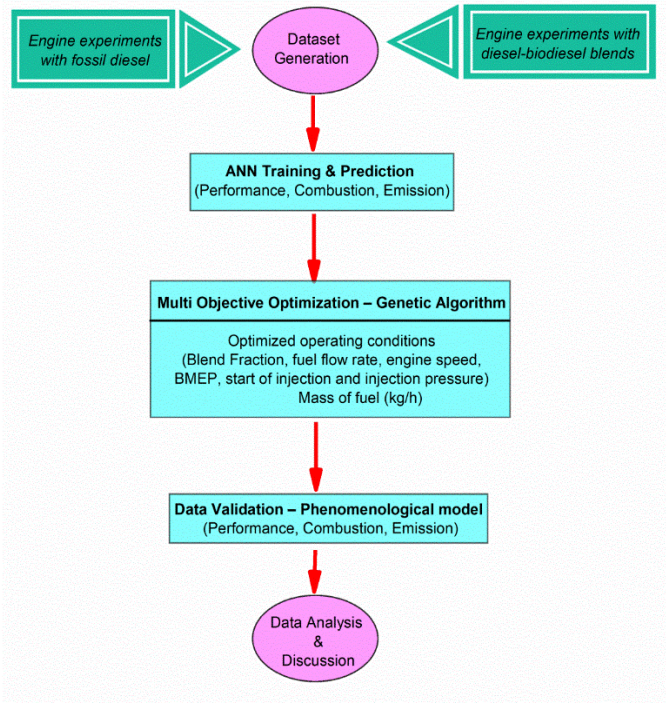
Dr. K. Jayakumar, Assoc. Prof./Mech delivered a guest lecture on "Machining: Advances in Milling Processes" in 7 days ISTE sponsored online FDP on "Manufacturing Processes" at the Department of Mechanical Engineering, Sai Ram Engineering College, Chennai on 14.08.2021.

Faculty Write-Up

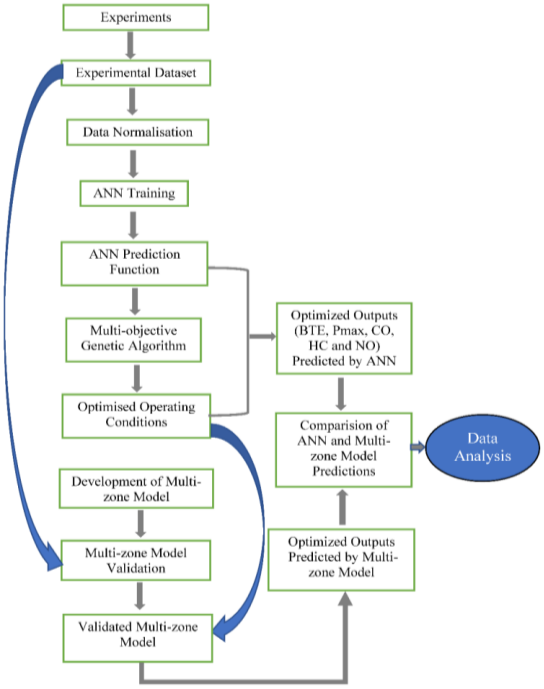
Publication in "Energy", Elsevier with 7.1 Clarivate Impact Factor

S. Rajkumar, Arnab Das, J. Thangaraja, **Integration of Artificial Neural Network, Multi-objective Genetic Algorithm and Phenomenological Combustion Modelling for Effective Operation of Biodiesel Blends in an Automotive Engine. Energy**, 2022; 239:121889.

doi: https://doi.org/10.1016/j.energy.2021.121889. **This paper can be downloaded at** https://authors.elsevier.com/c/1dg8F_8CgJ1Q1v



The workflow of the proposed integrated modelling studies



Schematic of an integrated modelling approach adopted in this study

Biodiesel usage is practically restricted as a blended supplement with fossil diesel. In the current study, the authors have attempted to arrive at the optimal biodiesel blend concentrations for an automotive engine. Here, the artificial neural network and genetic algorithm are coupled with phenomenological combustion modelling for the efficient operation of biodiesel blends. The engine experiments are conducted with diesel and diesel-biodiesel blends namely jatropha, and karanja consisting of 120 data points each. This set of data are used for the ANN development and validation. A multi-layer perceptron

network is trained by the experimental data for predicting the engine parameters. The Nash Sutcliffe coefficient of efficiency values for the ANN predicted parameters are close to 1, indicating a close prediction. The ANN model predicted the engine output parameters with low values of mean square error, mean square relative error, mean absolute percentage error and standard error of prediction. Optimum values of biodiesel blend fraction, engine speed, brake mean effective pressure, injection pressure and timing are obtained using a multi-objective genetic algorithm. The optimized blend concentration is found to be ~20% and ~40% for satisfying the different objectives concerning the overall engine characteristics. Finally, the outputs for the optimised parameters are compared to the validated multi-zone model predictions within the maximum error of ~3% and 7.9% for performance and emission parameters respectively.

Dr. K.S. Vijay Sekar shares his thoughts on completing 25 years in Teaching and being promoted to Professor rank.

I am delighted on becoming a Professor in the Dept. of Mechanical Engineering, SSN and would first and foremost like to express my deep-rooted gratitude to the SSN management for entrusting me with this promotion. It has always been a dream to work in an elitist institution such as ours and to become a professor in my 25th Year in Teaching and 14th year in SSN is one filled with unalloyed joy and blissful fulfilment.

I look back at the journey which started on 18th September 1996 with nostalgia and thankfulness, reminiscing on the students and colleagues who have been instrumental in shaping my thoughts and actions on this journey, even as I pay humble obeisance to my parents and family for being the anchors of my life. I understand that the journey is still on and must fulfil the commitments that come my way with renewed enthusiasm and zeal. I am eagerly looking forward to delivering on the faith reposed in me.

Teaching is an edifice that is built with passion and dedication as its pillars, and I am truly humbled to be part of an Institution such as SSN that is steeped in tradition and glory.

Thank you one and all who have made this journey a distinctly memorable one.

AICTE-CII Full Survey-2021: Filed on 30.9.2021 (A brief write-up)

Glad to share with you all that, similar to last two years, very recently we had successfully filed the AICTE-CII Survey Questionnaire for the year 2021. The survey covered extensive data on our industry interactions during the AY 2019-20 and 2020-21. Just to share with you all that the Survey is a novel initiative of AICTE jointly with CII to track and quantitatively assess/compare the Technical Institutions across the country purely based on their industrial interactions.

The survey deals exceptionally about an Institute's Industrial Interaction and in-depth data had to be furnished under several categories by the institute. All the data had to be filed online in the AICTE portal dedicated for the purpose.

Categories

The broad Categories under which data had to be furnished were (i) Consolidated list of Companies that had interacted in the last two years (ii) Disciplines of the institute that had industrial interactions (iii) details of all Faculty members who had industrial interactions (iv) Governance (details on Industrial executives in our Board/Governing Council/Advisory Committees and so on, faculty members on Industrial Advisory Boards, details of meetings of the executives with date and time, etc.) (v) Curriculum input (details on Industry oriented courses offered, faculty industrial trainings, internships, students' internships with full details, industrial visits arranged, invited industrial guest lectures, faculty members invited by industries for talks/training, industry members trained by the institute, and so on) (vi) Infrastructure (details on infrastructure facility created through external fundings) (vii) Services (details on Industrial Consultancy, Joint R&D and so on) and (viii) Placements (complete details of students placed commencing from company details, CTC, date of visit to number of offers). Overall, the broad spectrum of data had to be furnished for 2019-20 and 2020-21 covering each and every department and each and every individual faculty member and student. This extensive data filing exercise had to be done systematically and carefully by the institutes.

The Approach

Soon after we received the intimation from AICTE, a team comprising of Faculty Coordinators nominated from each and every department was formed thanks to the efforts of our Principal and HODs of the respective departments. At this point, I am glad to acknowledge with thanks our Principal for nominating me as the Overall Coordinator for handling this Task that gave me a good opportunity. Given a timeframe of about 3 weeks to handle the task of massive data collection & filing, the team did a great job with utmost dedication and care.

Acknowledgment with Thanks

As an Overall Coordinator, I humbly would like to state that the entire process of data collection and entries went very smooth with the immense help and support of each and every Faculty Coordinator representing their respective departments. Due thanks to all the Faculty members and respective supporting staff of SSN are conveyed here for supporting the task in style. On behalf of all the Coordinators, I am pleased to convey my warm and special thanks to all the HODs for the immediate support. On a very sincere note, I would like to file my Sincere Thanks to Dr. Vimal Samsingh, Associate Prof/Mech and Dr. S.R. Koteswara Rao HOD/Mech for the overwhelming support and encouragement towards completing the task on time. The massive support of Dr. Vimal was very timely indeed!

Finally, I would like to file my special thanks to Mr. R. Gopalakrishnan (Deputy Manager) and Mr. Thangamani S. (Admin) for the unconditional favour and support extended. With the help of Mr. Gopalakrishnan, the submission of AICTE-CII Full Survey Questionnaire was done successfully on Sep 30, 2021. Hope, we continue to nurture our Industrial Interactions for the overall development of the institution and annual assessments like these will truly help and guide our journey ahead in the right direction.

The Team:

- Dr. K. Murugesan, ASP, Dept. of EEE
- Dr. N. Balaji, ASP, Dept. of IT
- Dr. V. Balasubramanian, ASP, Dept. of CSE
- Dr. R. Kalidoss, ASP, Dept. of ECE
- Dr. D. Gnana Prakash, ASP, Dept. of Chem Engg.
- Dr. K.P. Gopinath, ASP, Dept. of Chem Engg.
- Dr. L. Suganthi, ASP, Dept. of Biomed. Engg.
- Dr. Srinath Rajagoplan, ASP, Dept. of Civil Engg.
- Dr. R. Vimal Samsingh, ASP, Dept. of Mech. Engg.
- Dr. N. Lakshmi Narasimhan, ASP, Dept. of Mech. Engg.
- Mr. R. Gopalakrishnan, Deputy Manager

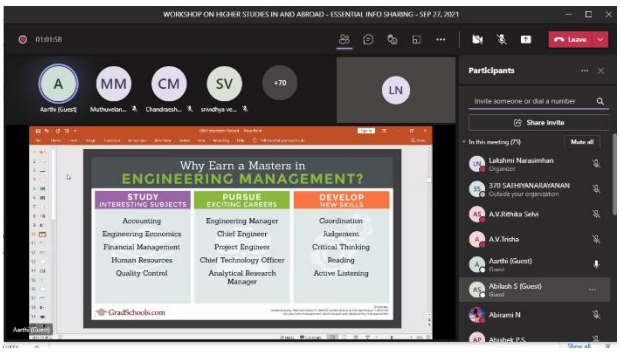
Compiled by Dr. N. Lakshmi Narasimhan, ASP/Mech

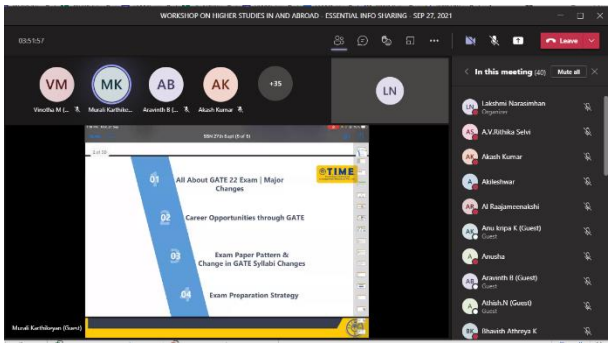
One Day Workshop on Higher Studies In and Abroad

- A Writeup by Dr. N. Lakshmi Narasimhan, Workshop Coordinator

A One Day Virtual Workshop on "Higher Studies In and Abroad – Essential Info Sharing", was organized by the Dept. of Mechanical Engineering on 27.9.2021. The workshop was jointly Organized by Mancomp (pioneers in Overseas Education and Consulting at free of cost for the last 30 years) and T.I.M.E, Chennai (Pioneers in GATE/GRE/TOEFL Coaching), as part of our Activities under the IEI (Institution of Engineers India) Students' Chapter of our department. The Morning session was handled by Dr. NLN and Experts from Mancomp covering the essential information on Higher Education and Opportunities abroad. Afternoon Session was

dedicated to Higher education in India with a special attention to GATE 2022. The speaker from T.I.M.E covered all the important aspects of GATE 2022 and career opportunities for top GATE scorers. Overall, the workshop was very informative and well received giving the students a complete perspective on higher education both within the country as well as abroad. As a Coordinator of the Workshop, I am pleased to convey my special Thanks to the Experts from both Mancomp and T.I.M.E for their excellent sessions. A special Thanks to all the participants for their enthusiastic interactions. At the outset, due Thanks to the department of Mechanical Engineering and our Management for providing the necessary infrastructure and giving the overall support and encouragement towards the conduct of the programme.





Scopus Publication

Kuriakose, Akhil C., Raman Balakrishnan, Harsh Vardhan, and Krishnaraju Srinivasaraju Vijay Sekar. "Experimental investigations and finite element analysis of milling of Inconel 718 alloy." International Journal for Simulation and Multidisciplinary Design Optimization 12 (2021): 21.

Other Monthly Activities

Dr. S.Vijayan, Dr.R.Sundareaswaran Asso.Professor Mathematics applied for funded project "Project title :VULNERABILITY STUDIES OF BLOOD SUPPLY CHAIN USING GRAPH THEORY, Budget Rs 1311975 , Funding Agency :ICSSR.

Dr G Selvakumar, Associate Professor / Mech has acted as an external examiner (Online) for PG thesis and viva-voce examination of Production Engg Dept, Jadavpur University, Kolkata on Sep. 6, 2021.

Dr G Selvakumar, Associate Professor / Mechanical has attended DC meeting (Online mode) on 17.9.2021 at VIT university, Chennai for the Comprehensive viva voce examination of Mr. S. Aravindh (19PHD11147), Internal Full Time Research Scholar, working on the Ph.D. thesis titled ' Investigations on Electrical/Mechanical Properties of Coir Fiber Reinforced PVC Composites'.

Dr. Satheesh Kumar Gopal chaired a session on 24.09.2021 in the "Second Virtual International Conference on Robotics, Intelligent Automation and Control Technologies" organized between 23rd and 25th of September 2021 by VIT Chennai

Dr. B. Jayakishan (AP/Mech) was a session chairperson at the Virtual 2nd International conference on Waste, Energy and Environment (ICWEE - 2021) organized by Centre for Waste Management, Sathyabama Institute of Science and Technology, Chennai during 23-09-2021 to 24-09-2021

Dr. V. Rajini, Prof/EEE (PI) and Dr. K.S. Vijay Sekar, Prof/MECH (Co-PI) submitted an Internal funded - Inter Departmental collaborative faculty project proposal titled "" Design and Development of an Efficient Electric Trike Power Train for Indian Automotive Sector "" with a budget of 7 lakhs, duration of 2 years.

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech filed a patent Titled, "A Thermo-Warmer for LPG Stoves", on 4.9.2021.

Dr. N. Lakshmi Narasimhan, filed a patent application Titled, "A thermo-warmer for LPG Stoves", on 4.9.2021. Patent Application Number: TEMP/E-1/45183/2021-CHE

Dr. K. Jayakumar, Associate Professor/Mech. conducted the Seminar-II/Pre-synopsis presentation and third DC meeting for his Ph.D. Research Scholar Mr. T. Suresh (17142991208-Full Time SSN JRF) on 15.09.2021 and 17.09.2021 respectively.

Dr. Alphin M S Convened first doctoral committee meeting for the Research Scholar Mr. Sunil Kumar on 23.09.2021.

Dr. K.S. Vijay Sekar, Prof/Mech attended a DC meeting for a research scholar registered in Anna University under Dr Kumar, St. Joseph's college of Engineering, Chennai on 29.09.2021.

Dr. K. Jayakumar, Associate Professor/Mech. conducted the Seminar-II/Pre-synopsis presentation for his Ph.D. Research Scholar Mr. S. Senthur Vaishnavan (Full Time-SSN JRF) on 29.09.2021.

Dr. Alphin M S Convened Pre-synopsis Doctoral Committee Meeting for Part time PhD Scholar Mr. Paul Chandra Kumar on 29 Sep 2021.

Dr. Alphin M S, Convened First Doctoral Committee meeting for a full-Time scholar Mr. Athikesavan.

Dr. Srinivasan S A, attended AICTE - ATAL FDP on Additive manufacturing: From 3D printing to factory floor. Completed course on "PATENT CO-OPERATION TREATY" conducted by World Intellectual Property Organization (WIPO), Germany

Dr. B. Jayakishan, AP/Mech, attended a SAE webinar on the topic "AUTONOMOUS VEHICLES - FUTURE OF TRANSPORTATION" on 28-09-2021 conducted by SAEISS Amaravati Division.

Dr Nalla Mohamed and Dr.D.Ananthapadmanaban jointly organized a guest lecture on Advances in Foundry Technology and career opportunities on 11/03/21.The speaker was Mr.Sekar, CEO ,RVJ Foundries Ltd ,Chennai

Dr Nalla Mohamed organized a guest lecture on the topic "Methodological approach to injection molding process optimization" on 16.04.21. The speaker is Mr.S.Jeevanantham, Supply chain management manager, Flextronics, Malaysia.

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech, Organized a One Day (Online) Workshop on "Higher Studies In and Abroad - Essential Info Sharing", on 27.9.2021. This workshop was Organized jointly with Mancomp and T.I.M.E, as part of the activities of our IEI Student Chapter in the department.

Dr L Poovazhagan, Associate Professor, Mechanical Engineering received the best teacher award for the academic year 2019-20.

Dr. B. Anand Ronald, conducted Doctoral Committee Meeting for Mr. A. Johnny Varghese, for placing the response to reviewer comments and Subject expert panel finalization.

Dr A S Ramana Asso Prof conducted ISO (9001:2015) Internal auditing- Phase 2 in Stores Department on 1 Sep 2021.

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech Coordinated the filing of AICTE-CII Survey Questionnaire 2021. Filing was done on Sep 30, 2021. Dr. Vimal Samsingh Co-coordinated the activities.

Dr. K. Jayakumar, Associate Professor reviewed a paper in the area of Manufacturing Engineering submitted for AIMTDR 2021 conference. All India Manufacturing Technology, Design and Research (AIMTDR 2021) Conference is planned during Dec 9 - 11, 2021, by PSG Tech.

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech, Coordinated at Institutional level the task regarding AICTE-CII Full Survey Questionnaire submitted to AICTE on 30.9.2021. Dr. Vimal Samsingh, ASP/Mech supported the task as a Coordinator at Dept. level.

Student Write-Up

Student Activities

S.no	Date	Activity done during the month
		SECOND YEAR
1)	13/09/2021	SARATH,**2nd Year**.
	17/09/2021	➢ TVS Internship On Electric Vehicle ➢ Volunteered to design for the AutoQuiz-an Invente Event
		THIRD YEAR
1)	22/08/2021	SHIVANI SATHYANARAYAN ***3rd year***. ➢ Successfully completed an online course on Design, Technology and Innovation from NPTEL.
2)	03/09/2021	ROSHAN NATARAJAN,**3rd year** ➢ Internship at ARCI
3)	03/09/2021	S.SRINIVAS,**3rd year.** ➢ Industrial Visit to Hindustan National Glass And Industries Ltd.
4)	22/08/2021	VALLIKANNAN M,**3rd year.** ➢ Nptel- Computational fluid dynamics for incompressible flows
5)	22/08/2021	SARVESH KARTHIKEYAN S,**3rd year**. ➢ Nptel course exam finished Introduction to industrial 4.0 and industrial internet of things
6)	03/09/2021	NAVEEN M,**3rd year**. ➢ Implant training

		FINAL YEAR
1)	14/09/2021	KRISHNANAND M,**4th year.** ➢ Internship at Allison Transmission India Private Limited
2)	24/09/2021	SURYA PRAKASH S,**4th year.** ➢ In plant Training at Hyundai Motors India Limited
3)	16/09/2021	AMBARISH S,**4th year**. ➢ EY placement
4)	01/09/21	SHARAN V,**4th year** ➢ Selected for internship at Caterpillar
5)	27/09/21	AKSHAYA R,**4th year.** ➢ Placement at Dow Chemicals, PPO
6)	01/09/21	R KARTHIK,**4th year** ➢ Placed in TCS DIGITAL
7)	27/09/2021	SHOBA E,**4th year** ➢ Internship got converted to FTE
8)	27/09/2021	VISWAPRIYA G,**4th year.** ➢ Placement at Dow Chemicals, PPO
9)	27/09/2021	VARUNA G R,**4th year.** ➢ Placement at Dow Chemicals, PPO
10)	02/09/2021	AKASH S,**4th year** ➢ Completed an Online Course to help with my Final Year Project. ➢ Innovation by Design course to help waive 8 Semester Courses
11)	02/09/2021	GAUTAM R,**4th year** ➢ Completed Innovation by Design course on Nptel

Sarath ,II-Year, writes....

I am Sarath of mechanical 2nd year. I recently got the opportunity to take up the TVS Internship on Electric Vehicle. The highlight of the program was we assembled and disassembled a Royal Enfield Twinspark 350 Engine, which is the most amazing and satisfying experience of my life, along with understanding how the engine works, because for the first time in my life I had grease in my hands.

Above is the Image of the Spark Plug, with the inlet valve open

Even this amazing activity I described above could be worse, if not Wilson Sir was our guide. Sir patiently explained, even when I asked the same question four five times

and explained why each part exist in the engine assembly as we were taking it apart, step by step.

The Program was Perfectly balanced by having theoretical session in the morning and practicals in afternoon along with a task sheet to complete. First day we learnt about the basics of Internal Combustible Engine, second day we went on to Hybrid Vehicles, and then we started learning all about Electric Vehicle Starting from Motor in the Third day, about Batteries on the Fourth day, and on the fifth day we learnt about the challenges for EV, policies

The Future is definitely Electric!

Roshan Natarajan ,III-Year, writes....

International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI)

An Autonomous R&D Centre of Dept of Science & Technology, Government of India

ARCI 25 Translating Research to Technology

Hello everyone, I am Roshan Natarajan, currently pursuing my third year in Mechanical engineering. I have had the honour of interning at **ARCI** (**International Advanced Research Centre for Powder Metallurgy and New Materials**), Chennai. I was privileged enough to be acquainted with Dr.Gopalan, Regional director of ARCI Chennai, who offered me an internship.

ARCI is a central government organisation renowned for their Research and Development. ARCI is located at **IITM Research Park**.

They have departments that work on Hydrogen fuel cells, Li-ion batteries, Magnetic materials, Automotive energy materials to list a few. ARCI is well known for their scientific advances, and they transfer the technology to commercial companies.

I worked in the **Thermoelectric module department** where I was given an opportunity to conduct experiments on the automotive exhaust thermoelectric generator (AETEG).

In modern day cars, only a minor percentage of the heat which is generated by burning the fuel is used. The remaining heat is lost. To improve the efficiency of the car, this device was fabricated. This device uses the Seebeck principle to operate.

I conducted a series of experiments on the test rig keeping the temperature constant and by varying the mass flowrate. Few parameters such as Reynolds number and mean free path for a corresponding mass flowrate was calculated.

I tried to find a relationship between these parameters by plotting graphs and by applying various theories. Further an experiment was conducted to determine the time taken to achieve steady state by the AETEG.

During my internship at ARCI, I was able to develop my knowledge on thermoelectric devices and learned to apply my prior knowledge on fluid mechanics. This internship did involve a lot of brainstorming and analytical thinking and I hope these skills that I picked up would be helpful in the future.

Srinivas, III-year, writes ...

I am S.Srinivas, currently pursuing my Bachelor's Degree (B.E) in Mechanical Engineering. Recently I got an opportunity for an industrial visit to **"Hindustan National Glass & Industries Ltd"** from 01/09/21(Wednesday) to 03/09/21(Friday). This industry is located at Thondamanatham Village, Villianur – Sedarapet Main Road, Puducherry.

- **First Day of Industrial Visit (01/09/21) Visited Batch House, Glass Furnace, Production & Testing Unit**

On my first day of industrial visit (01/09/21), I went to "Batch House" where raw materials are stored. Raw materials used in manufacturing glass are:
• Sand 1 & Sand 2 • Soda Ash & Limestone • Dolomite & Feldspar • Premix (substance that determines the colour of the bottle)
Now these raw materials are carried by trucks/rails to factory and are visually inspected. Then the materials are discharged into unloading pit, which is sent by elevator to the batch house. Before going into glass furnace the raw materials are proportioned into 8 batches and are weighed on scales.

Once weighed, the raw material is sent to mixture, and it is mixed with "Cullet" (waste glass material which can be recycled to produce glass) and carried by conveyor belt to silo (storage unit of the mixture).

The usage of silo is to store the mixture for a week even though the conveyor belt doesn't work. Then the mixture from the silo is carried by conveyor belt to glass furnace for further process.

- **Second Day of Industrial Visit (02/09/21) Visited Foundry, Mould Making Shop & Designing Lab Second day of my Industrial Visit** (02/09/21)

I went to foundry where they made mould for blank & blow. Initially the model is received from the design lab. Then the raw materials are received and stored securely.

- **Third Day of Industrial Visit (03/09/21) Undergone training in Designing, Solidworks & Bottle Drawing**

The third day of the industrial visit is the Design department. Initially the bottle is designed as per the customer's requirement and the bottle is designed using software called as "Solidwork".

I have gained practical knowledge about the glass industry. This gave me the opportunity to take on significant responsibility, which provided me with a depth of knowledge, which I would not have gained in the classroom learning alone.

Srinath Venkatesh, IV year, writes...

Name: Srinath Venkatesh

Role Offered: USI Consulting Analyst

The entire process of Deloitte happened within a couple of days and was conducted smoothly. It included two rounds:

1. **Online Test**

This round was a basic AMCAT test which included questions from quantitative, verbal and logical ability. The difficulty of the test is subjective but overall feedback implied that it was quite easy. Personally, a little bit of practice in Quants and school level maths helped me crack it.

2. **Interview**

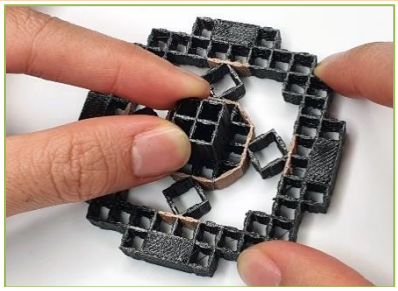
This interview included both technical and HR questions. My interview started off with a personal introduction, followed by questions from my resume. A little bit of focus was given to the project work I had done and my role as part of the team. The panellist clearly asked if I knew any coding languages and I said I was comfortable with python and C++ after which she tested my knowledge in the basics of said languages. The questions were quite straightforward and simple. I was asked to write a sorting program in python. Towards the end of the interview, I was given several situations and was asked how I would deal with each of them under certain criteria. The panellist was calm and composed which made me more confident during the entire process.

Questions were asked entirely from your resume and the answers you give to the prior questions.

- Tell me about yourself
- What have you been working on in the past month or two?
- Write the code for Linear regression and decision trees assuming a random dataset and explain the models (Since I had mentioned that I was working on basic ML algorithms)
- Difference between list and tuples
- Write a python program to find if the given number is prime or not.
- Don't you think 4 years of studying mechanical would be a waste if you joined Deloitte. What is your view?
- Assuming you are given a technology to work on that doesn't suit you, what would you do?
- Are you willing to relocate?

Mech Marvel

Meta - Smart - Materials



'What if we can create a metamaterial door handle, that can know when the door handle is being rotated, and by how many degrees?'

Researchers at MIT have found a possible answer to queries like these by 3D printing metamaterial structures with electrodes directly integrated into them. This can allow objects to sense user interaction. The method can be used to 3D print "interactive input devices," like a joystick, switch, or handheld controller, in one go.

As metamaterials are made from a grid of cells, when the user applies force to a metamaterial object, some of the flexible, interior cells stretch or compress. The team used this to create 'conductive shear cells'. Using capacitive sensing, the stretch/compress changes can be measured and used to calculate the magnitude and direction of the applied forces, as well as rotation and acceleration. To demonstrate this, they made a prototype joystick controller that could play PAC MAN. They also developed a 3D editor that enables rapid prototyping. Users can manually integrate sensing into a metamaterial design or let the software automatically place the conductive shear cells in optimal locations.

Here is the research paper for further reading, and the video of the prototype in action.

Corporate Story

Bellatrix Aerospace

India has a bustling space tech start-up scene, one of the top companies in that list is Bellatrix Aerospace. The IISC incubate has built homegrown electric as well as chemically powered engines/thrusters to manoeuvre satellites in space. Their indigenous Hall Thruster propulsion system is eco-friendly, efficient and is said to offer satellite manufacturers at least 3x higher return on investments.

Bellatrix was one of the first companies to collaborate with ISRO in tech development. Currently, they are building an Orbital Transfer Vehicle that will work as a "taxi in space" to ferry small satellites into multiple orbits. The vehicle can also carry its own payload to become a satellite after dropping other satellites. They've partnered up with fellow Indian start-ups Skyroot Aerospace and Dhruva Space to further the country's space efforts. All eyes are firmly on India's space sector, with increased investments and advancements in tech, the only way for Bellatrix is up.

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

Amazing Innovation 201

Discovering New Materials Through AI

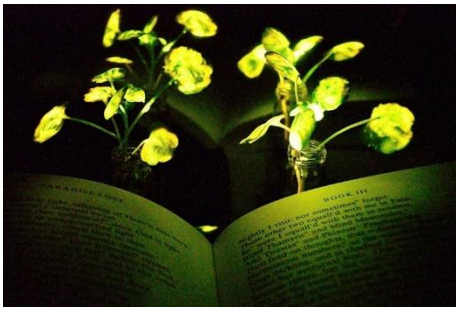
What if researchers could work together with Artificial Intelligence to carry out their endeavours efficiently? Researchers at the University of Liverpool have created a collaborative artificial intelligence tool that reduces the time and effort required to discover truly new materials. This new tool has already led to the discovery of four new materials including a new family of solid-state materials that conduct lithium.

Discovery of new materials is a risky, complex and tedious process as there is an infinite set of possibilities in combining elements in the periodic table, and it is also not known if even possible, where these materials might exist. The tool examines the relationships between known materials at a scale unachievable by humans. These are used to identify and numerically rank combinations of elements that are likely to form new materials. The rankings are used by scientists to guide exploration of the large unknown chemical space in a targeted way, making experimental investigation far more efficient.

This tool is an example of one of many collaborative artificial intelligence approaches likely to benefit scientists in the future. Here is the journal paper for further reading.

Amazing Innovation 202

Next-Gen Light Emitting Plants



Through embedded nanoparticles leaves, Engineers at MIT have created a light-emitting plant that can be charged by an LED. After 10 seconds of charging, plants glow brightly for several minutes, and they can be recharged repeatedly. The ability to mix and match functional nanoparticles inserted into a living plant to produce new functional properties is an example of the emerging field of "plant nanobionics."

Their first generation of light-emitting plants contained nanoparticles that carry luciferase and luciferin, which work together to give fireflies their glow. To improve on this, the next gen uses a light capacitor that can store light in form of photons and then release it over time. The capacitor was made of phosphor material as nanoparticles infused into the plants through their leaf pores. They accumulate inside and create a thin film which can absorb photons either from sunlight or an LED. The researchers showed that after 10 seconds of blue LED exposure, their plants could emit light for about an hour.

They are now working on implementing this in large plants to make a possible outdoor lighting source. Here is the journal paper for further reading.

Alumni association activity

Event 1

Name of the event: Caterpillar placement overview
Date(s) of the event: 16-09-2021
Number of persons attending: 40
Faculty Coordinator: Dr.C.Arun Prakash
Student Coordinators: Mohanraj A, Sabareesh A, Biju R
Alumni: Balakrishnan & Akhil C Kuriakose

On 16th September, the Alumni association coordinated an interaction with the alumni from the 2021 batch to acquaint the students with the selection process by the mechanical dream company, Caterpillar. The session was headed by current Caterpillar employees, Akhil C Kuriakose and Balakrishnan.

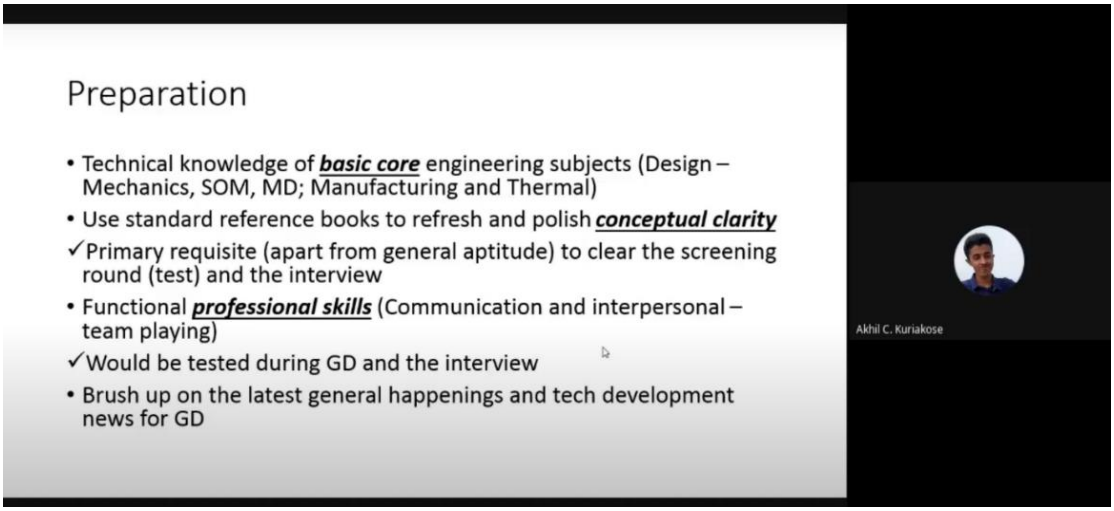
Akhil started off the meeting by outlining the preparation checklist for the selection process. The most crucial criteria for a core company is the fundamental knowledge of core mechanical courses (Mechanics, strength of materials, machine design, manufacturing, and thermal engineering). It is advisable to use standard textbooks to revise and polish conceptual clarity.

Apart from the technical skills, it is imperative to display professional communication and teamwork skills. Such soft skills will be tested in the group discussion and interview. It also helps to be cognizant of the current happenings including technical developments for the group discussion as the topic could be technical or non-technical.

Subsequently, Balakrishnan elucidated the execution required to ace the selection process. The first motive should be to obtain the overall cut-off necessary to clear the round, so one should try not to get stuck with a difficult question. In the GD round, it is favourable to be clear and concise; one should refrain from voicing his opinion with aggression.

In the case of the general interview, practicing and rehearsing to possible HR-inspired questions would aid in answering without hesitation. One such question is: tell me about yourself? Nailing such questions would enable smooth sailing through the rest of the interview.

For the technical interview, enumerating the steps (i.e., 1: Draw the free body diagram, 2: calculate the reaction forces, etc) to solve the problem is recommended. A momentary pause



is acceptable when you are on a gambit to properly phrase your answer. When presenting the project, it is essential to convey individual contributions and learning. It is better to accept if you do not happen to know the answer to a specific question. Politely acknowledge it and go along with the learning process.

Finally, it is important to know about the company: caterpillar is a construction and mining equipment manufacturer. The alumni shared their experience of the work environment, citing the company's inclusive and adaptive employee-centric work culture. Towards the end of the session, the speakers answered a stream of questions from the participants with patience and clarity.

Event 2

Name of the event: McKinsey placement overview
Date(s) of the event: 26-09-2021
Number of persons attending: 20
Faculty Coordinator: Dr.C.Arun Prakash
Student Coordinators: Mohanraj. A, Sabareesh.A. Biju R
Alumni: Aravindh V, Vigneshwar, and Karthik

The department alumni association organized another session to guide McKinsey aspirants on 26th September 2021.

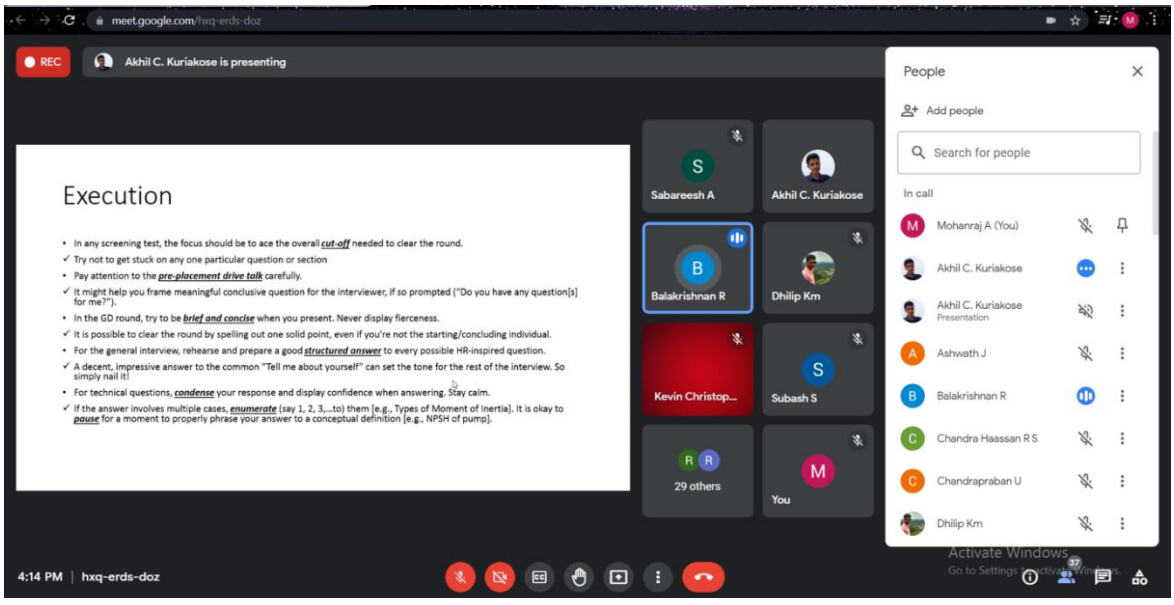
On commencement, the three spokesmen shared their experience in McKinsey & Company. The firm offered a congenial work environment with high flexibility, including the possibility to work from various branches throughout India. Fixed company timings aren't the norm, and working hours are to the choice of employees. Next, there was a Q&A session regarding the work experience.

Later, the speakers moved on to the placement selection process and provided suggestions to help students shine through the placement process. The speakers notified their experience during their interviews and explained the company's mode of screening. The first of the rounds was the gaming round (Imbellus), it was in this stage that majority of the candidates were filtered. Essentially, the participant is given a plethora of species, of which he is required to select species to optimize the natural ecosystem, ensuring a sustainable environment. The game was designed to test the data analysis and task prioritization skills of candidates.

The second stage is comprised of 'Guesstimates' and case study. Guesstimates were all about estimating answers to quantitative questions; the focus is more on the approach undertaken by the candidate to solve the problem rather than the final answer. Such questions are not abundant in other forms of tests, and one would do better without specific preparation for this round, except for some rudimentary general knowledge.

With respect to case studies, the candidate would be placed in a corporate situation and questioned on the requirements or planning needed for the proposal. Questions of this type can be found on websites such as BCG and McKinsey.

In the end, the event was wrapped up with a general questionnaire from the participants.



Research news & Forthcoming events

Students Events and Conferences with Scopus/SCI Publication

IUAC - Call for Project Proposals under for Accelerator User Committee (AUC-71), Inter University Accelerator Centre (IUAC)
Last date for submission of the project proposal: **15-Oct-21**
https://www.iuac.res.in/user-dashboard

Call for Project Proposals under Advanced Manufacturing Technologies (AMT) Program - 2021, Department of Science and Technology (DST)
Last date for submission of the project proposal: **15-Oct-21**
https://dst.gov.in/sites/default/files/AMT%20Call%20for%20Proposal.pdf

Allergy and Infectious Diseases Research
Last date for submission of the project proposal: **07-Dec-21**
https://www.grants.gov/web/grants/search-grants.html

Conference with Scopus/SCI Publication

4th International Conference on Computing and Communication Technologies (ICCCT 21)
Sri Sairam Engineering College, International Conference, Chennai, Tamil Nadu
16th - 17th December 2021
https://iccct21.org

International Conference on Advances in Computer Science and Technologies (ICACST 21)

SRM Institute of Science and Technology Ramapuram Campus, International Conference, Chennai, Tamil Nadu

8th October 2021

http://icacst.co.in

Applications open for Joint Admission Test for Masters (JAM 2022)

For M.Sc. (Two-year), Joint M.Sc.-Ph.D., M.Sc.-Ph.D. Dual Degree, and other Post-Bachelor's Degree Programs at IITs

Last date to apply – 11th October 2021

Exam – 13th February 2022

https://jam.iitr.ac.in/index.html

Applications open for Graduate Aptitude Test in Engineering (GATE 2022)

Last date to apply – 24th September 2021

Exam – 1st and 2nd Weeks of February 2022

https://gate.iitkgp.ac.in/

Global AI Student Conference (International Conference)

16 October 2021 from 15:30 till 23:30

UTC+05:30 Asia/Calcutta

https://aiconf.education/

GreenTech21 Website

https://sites.google.com/ssn.edu.in/greentech2021/home

Accepted papers will be published in Journal indexed in various databases such as, **SCOPUS, Clarivate** etc

International Conference on Advances in Material Science 2021

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

Inspiring Life Stories

Stay Connected

Mother is flying a kite. Her son is watching her carefully. After some time, son says "Mom, because of the string the kite is not able to go any further higher.

Hearing this, the mother smiles and breaks the string. The kite goes higher and then shortly after that, it comes and falls on the ground. The child is very dejected and sad.

The mother sits next to him and calmly explains: "Son, in life we reach a certain level and then we feel that there are certain things that are not letting us grow any further like Home, Family, Friends, Culture etc."

We feel we want to be free from those strings which we believe are stopping us from going higher. But remember son that our home, family, friends and culture are the things that will help us stay stable at the high heights.

If we try to break away from those strings our condition will be like the kite. We'll fall soon.

Moral: Never go away from Home Culture, Family, Friends and Relationships as they help keep us stable while we are flying high

Source: Stay Connected - Short Stories (shortstoriesshort.com)

Pic Source: 5 Reasons to Stay Connected to Extended Family During the Holidays - Family Business Advice (familybusinessperformance.com)

Corporate Wisdom

From the desk of Ramki -– Aspire to Inspire

Happy Morning

What happens to us is an event. How we process, perceive and interpret that even becomes our experience. So, the same event becomes different experience for different people, depending on how they process, perceive and interpret it.

Being pushed out of the train at Pietermaritzburg railway station in South Africa was an event. However, the way he chose to process, perceive and interpret that event turned out to be a turning point not only for him, but also for a great nation.

So, it is evident that more than problem, it is our reactions to the problem that hurts us more. More than the calamity, it is our fear of the calamity that hurts us more. More than our actions, it is how we process, perceive and interpret our action that has a bearing on the relationship, it also has a bearing on my peace of mind.

The way we see the problem is the problem. The way we see the problem can also be our solution. If we see it as a failure, it is a failure. Instead, if we see failures as a mere outcome with feedback, we can improve with every experience. Success has its share of lessons and so do failures. In fact, what failures can teach, success cannot; and what success can teach, failure cannot. Good times, bad times, or filtering times are all matters of perceptions. We can choose to perceive any event the way we want. So, progress and stagnation are just the result and effect of how we choose to process the events of our life.

What happens to us is not in our control. But, how we process what happens to us is completely in our control. And in controlling that, we control our whole life. So, if everything about our life has to change, all we have to do is to change the perceptions we hold in our head.

Events are Creator's responsibility. Experiences are human's responsibility.

#WishingMostAndMore

Have a wonderful day

R. Ramakrishnan

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