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All About Nobel Prize- Part 78

The story behind Higgs Boson...

Peter Ware Higgs, (born May 29, 1929), is a British physicist who was awarded the 2013 Nobel Prize for Physics for proposing the existence of the Higgs boson, a subatomic particle that is the carrier particle of a field that endows all elementary particles with mass through its interactions with them. He shared the prize with Belgian physicist François Englert.

Higgs was born in the Elswick district of Newcastle upon Tyne, England, to Thomas Ware Higgs and Gertrude Maude née Coghill. His father worked as a sound engineer for the BBC, and as a result of childhood asthma, together with the family moving around because of his father's job and later World War II, Higgs missed some early schooling and was taught at home.



When his father relocated to Bedford, Higgs stayed behind in Bristol with his mother, and was largely raised there. He attended Cotham Grammar School in Bristol from 1941–46, where he was inspired by the work of one of the school's alumni, Paul Dirac, a founder of the field of quantum mechanics.

Higgs has been honoured with a number of awards in recognition of his work, including

- the 1981 Hughes Medal from the Royal Society,
- the 1997 Dirac Medal and Prize for outstanding contributions to theoretical physics from the Institute of Physics,
- the 1997 High Energy and Particle Physics Prize by the European Physical Society,
- the 2009 Oskar Klein Memorial Lecture medal from the Royal Swedish Academy of Sciences,
- the 2010 American Physical Society J. J. Sakurai Prize for Theoretical Particle Physics, and
- a unique Higgs Medal from the Royal Society of Edinburgh in 2012.

Higgs was appointed to the Order of the Companions of Honour in the 2013 New Year Honours and in 2015 the Royal Society awarded him the Copley Medal, the world's oldest scientific prize.

How Higgs boson was found:

At Edinburgh, Higgs first became interested in mass, the basic physical feature of any object, including the fundamental particles. When physicists in the 1960s modelled the behaviour of these particles using equations rooted in quantum physics, they encountered a puzzle.

If they imagined that the particles were all massless, then each term in the equations clicked into a perfectly symmetric pattern. This symmetry was not just mathematically elegant; it explained patterns evident in the experimental data.

But here's the puzzle - physicists knew that the particles did have mass, and when they modified the equations to account for this fact, the mathematical harmony was spoiled. The equations became complex and inconsistent.

Here is what Higgs proposed:

Don't shove the particles' masses down the throat of the beautiful equations. Instead, keep the equations pristine and symmetric, but consider them operating within a peculiar environment. Imagine that all of space is uniformly filled with an invisible substance (now called the Higgs field) that exerts a drag force on particles when they accelerate through it. When a fundamental particle in this field is pushed, in an effort to increase its speed, drag force would be felt as a resistance. This resistance is the particle's mass.

In 1964, Higgs submitted a paper to a prominent physics journal in which he formulated this idea mathematically. The paper was rejected, not because it contained a technical error, but because the premise of an invisible something permeating space, interacting with particles to provide their mass seemed like heaps of overwrought speculation. The editors of the journal deemed it "of no obvious relevance to physics."

In pursuit of the evidence of Higgs Field, tests were conducted in the Large Hadron Collider (LHC), the world's largest and most powerful particle accelerator, which cost on the order of \$10 billion and involved thousands of scientists from dozens of countries.

The math showed that if the idea is right, if we are really immersed in an ocean of Higgs field, then the violent particle collisions should be able to jiggle the field, much as two colliding submarines would jiggle the water around them.

And, the jiggling should be just right to flick off a speck of the field - a tiny droplet of the Higgs ocean - which would appear as the long-sought Higgs particle. The calculations also showed that the Higgs particle would be unstable, disintegrating into other particles in a minuscule fraction of a second.

After months of experimentation, the LHC confirmed the existence of Higgs particle. This particle was called Higgs boson, which later got to be nicknamed as the God's particle.

Source: <https://www.nobelprize.org/prizes/physics/2013/>

Info to Alumni- Campus Update

Activity List

May 2 – President anchors Online meeting for discussion on conducting online tests.

May 6 – Trial online test for faculty! (by Dr.Aravindan Chandrabose)

May 18 – Training on English Language Proficiency started by English dept.

May 18 – Training on HR-ERP usage – common for all SNF organisations.

May 22 – SSN Team wins First Prize in Ford Hackathon (details in faculty write up)

May 25 – President anchors Online meeting to discuss next admissions .

May 27 – Principal holds HoD meeting in campus for discussion with Dr.Ganesh Samudra on introducing Engineering Fundamentals and Practices concept in our curriculum.

Message from Dr.S.T.JothiBasu, Manager-Placement



CDC is planning to conduct a series of placement training programs for the 2021 batch from the first week of June to make the students placement ready. The training programs will be a blend of both online & offline modes. The following are the details pertaining to the training programs:

1) Placement-fit Product & Services training program: This program is MANDATORY for all the students who want to sit for placements.

2) Aptitude & communication training program: This program is designed for lateral entry/Tamil medium/rural /vocational /PG students. In addition to the placement-fit (product & services) training program, the students from LE/TM/Rural/Voc/PG streams will go through this training program also to improve their skills. This program will help them crack the interviews.

The **orientation session** for online training programs will be conducted on the **01st of June (Monday) at 11:00 AM**. PFB the link for orientation session: <https://youtu.be/eGolc99sS0s>
The students are requested to attend the orientation session without fail.

1) The online technical product & services training will be conducted every week on Tuesdays, Thursdays and Saturdays between 11:00 AM and 01:00 PM.

2) The aptitude & communication training for lateral batch (LE/TM/Voc/Rural/PG) will be conducted on Mondays, Wednesdays and Fridays of every week. The timings for this program will be announced during the orientation session.

3) A telegram group has been created for disseminating information related to the training. Weekly and daily online class links will be shared in the telegram group from time to time.

Students are requested to join the following telegram group:
https://t.me/joinchat/EEHh6UJOcr_pSMqP_h_m2w

Info to Alumni- Department Update

Due to Lockdown, college was also officially closed-since March end, but all academic activities went ahead through online mode. All faculty were conducting online classes. Project reviews were also happening at Zoom platform.

The Challenge was to conduct online tests, to complete the requirement for internal marks. After a meeting with President , methodology of conducting online tests were arrived at.



As usual, Dr.Aravindan Chandrabose lead the team through the process. **He surprised us by asking us to take the test!** That was interesting-and we could understand how the students will feel, when they take the test. He made us take a quiz type test and an assignment type test, both followed by online discussion on how to go about conducting the test. That was a nice experience.

Thanks to his enormous support, we have conducted one set of online tests successfully. The other set of tests have also started on May 29.

Thus, with able support from all, the academic activities went smooth, irrespective of not being able to come to college. Perhaps this is a lesson on how much we can adopt technology in our future Regulation amendments. It really removes the constraint of time and the need for physical presence in a common place.---**VeA**

Dr.N.LakshmiNarasimhan writes on Dept Tech Training for Placement

Technical Training in the Core Areas of Mechanical Engineering will be conducted ONLINE this year.

Tentatively the Training will happen between June and August 2020 and will be made available throughout the year as a continued support from our end. This training will be in addition to the IT placement training offered through our CDC.

Indicative titles and faculty

S.No:	Name of the Faculty Member	Topic
1	Dr.V.E. Annamalai	TQM/Industrial Expectations
2	Dr.N.Nallusamy	IC Engines - Fundamentals, Alternate Fuels
3	Dr. K. Subbaiah	Basics SOM
4	Dr.S.R.Kotteswara Rao	Basics of Welding
5	Dr. S. Vijayan	Fundamentals of Industrial Engineering
6	Dr.N.Lakshmi Narasimhan	Fundamentals of Thermal Engineering
7	Dr. K.S. Vijay Sekar	Computer Integrated Manufacturing
8	Dr.B.Anand Ronald	Measurements
9	Dr.K.Babu	Fundamentals of Engg. Graphics
10	Dr. M. Selvaraj	Strength of Materials- an Industrial perspective
11	Dr.M.Suresh	Ref & AC - Basics Terminologies to face Interviews
12	Dr.K.S.Jayakumar	Introduction to Automation
13	Dr.M.S.Alphin	Basics of Vibration
14	Dr.Suresh Kumar.S	Basics of Design, Theories of Failure
15	Dr.K.Rajkumar	Special Materials
16	Dr.A.K.Lakshmi Narayananan	CNC Machining & Simulation Using Fusion 360
17	Dr.D.Anantha Padmanabhan	A glimpse on Material Science for interviews
18	Dr.S.Rajkumar	Advanced Topics of Interest in IC Engines
19	Dr. R. Prakash	Engine Transmission - Basics
20	Dr.Soma Sundaram.S	Basics of Thermodynamics & Fluid Mechanics
21	Dr.A.S.Ramana	Basics of Energy Conservation and Power Plants
22	Dr.M.Nalla Mohamed	Special Machines - A glance
23	Dr..M.Dhanacheyian	Fundamentals of Fluid Power
24	Dr.G.Satheeshkumar	Introducing Robotics
25	Dr.R.Damodaram	Light weight Materials & High Temperature Materials
26	Dr.L.Poovazhagan	Composite Materials & Fundamentals in Manf.
27	Dr.K.Jayakumar	Unconventional machining processes
28	Dr.G.Selvakumar	Modern Machine Tools
29	Dr. Hari Krishna.K.L	Dynamics of Machines - An industrial perspective
30	Dr.Vimal Sam Singh	IoT, Current Special Topics in Mechanical Engg.
31	Ms.R.Rajeswari	Computer Integrated Manufacturing
32	Mr.D.Ebenezer	Basics of Heat Transfer
33	Mr.B.Jayakishan	Automotive Engineering - current trends
34	Mr.C.Arun Prakash	Basic Hydraulics and Pneumatics

External Recognition



Dr.L.Poovazhagan was invited by the Department Of Mechanical Engineering, Abdul Hakeem College of Engineering, Arcot , to deliver a webinar lecture on 29.5.2020, through Zoom App. 72 participants attended the webinar.

Dr. N. Lakshmi Narasimhan, Associate Prof/Mech, delivered an invited online lecture on May 14, 2020 on Lithium-Ion Battery Thermal Management during the Two Weeks Online Refresher Course on Advancements in Mechanical, Production and Civil Engineering and ICT in Teaching-Learning Process Organized by Sri Sai Ram Engineering College. About 115 Participants across India attended the session online.



Dr. N. Nallusamy, Professor delivered a lecture on "Thermal Energy Storage: Materials and Applications" on 23-05-2020 in the Faculty Development Programme organized by Sri Sairam Institute of Technology, Chennai

Research Publications



Dr. M. Dhananchezian, Associate Professor has published the following four papers in the international Journal of Materials Today: Proceedings (Scopus indexed, Elsevier publications).

1. **M. Dhananchezian** and K.Rajkumar, "Cryogenic turning of Hastelloy C-22", Materials Today: Proceedings 22 (2020) 3075–3081.
2. **M. Dhananchezian** and K.Rajkumar, "Comparative Study of Cutting Insert Wear and Roughness Parameter (Ra) while turning Nimonic 90 and Hastelloy C-276 by Coated Carbide Inserts", Materials Today: Proceedings 22 (2020) 1409–1416.
3. K. Rajkumar, C. Balasubramaniyan, **M. Dhananchezian** and K. Ramraji, "Analysis of Triangular WEDM Cut Corner Inaccuracy of Aluminium Composite Mold Material", Materials Today: Proceedings 22 (2020) 1341–1350.
4. K. Ramraji, K. Rajkumar, **M. Dhananchezian** and P. Sabarinathan, "Key Experimental Investigations of cutting dimensionality by Abrasive Water Jet Machining on Basalt Fiber /Fly ash Reinforced Polymer Composite", Materials Today: Proceedings 22 (2020) 1351–1359.

Dr. K. Rajkumar's research paper titled ' Experimental Characterization of Dimensional and Surface Alteration of Straight and Angular Cutting on Self-lubricating Composite: A Wire EDM Approach' has been accepted for publication in Arabian Journal for Science and Engineering, Clarivate analytics impact factor 1.518



Dr S Rajkumar, Associate Professor, submitted a book chapter titled "The potential of various alcohol fuels for advanced internal combustion engines" for the monograph titled, "Combustion and Emission Characteristics of Alcohol fuelled Internal Combustion Engines". The book will be published by Springer under a special series entitled "Energy, Environment and Sustainability". (1-5-20)

The research work carried out by Dr. S. Suresh Kumar and V. Naren Balaji titled “**Mode-I, Mode-II, and Mode-III Stress Intensity Factor Estimation of Regular- and Irregular-Shaped Surface Cracks in Circular Pipes**” has been accepted for publication in the Journal of Failure Analysis and Prevention. (Scopus index, SJR: 0.237). This is the final year project work of Mr.Naren Balaji who has passed out in the year 2015.

Programs Attended

Faculty Development programs

Dr.L.Poovazhagan, Assoc.Prof./Mech., participated in one week online FDP organized by Sri Siaram Institute of Technology, Tambaram, from 11.5.2020 to 16.5.2020. The title of the FDP is "Engineering and management teaching pedagogy - An Industry Perspective".



Dr. R.Vimal Samsingh attended an Online FDP on the topic "Enhancing Interpersonal Relationships for the Teaching Community" conducted by the Department of Management studies of SRM Engineering college.(27-5-20)

Dr.R.Vimal sam singh , participated in an Online Faculty Development Programme on Introduction to Finite Element Analysis which was conducted by Department of Mechanical Engineering, Panimalar Institute of Technology from 11.5.2020 to 15.5.2020

Jaikishan. B, Asst. Prof/ Mech. Attended FDP on Design & Development Of Electric And Hybrid Electric Vehicle Technology (12 to 16-5-20)



Workshops

Jaikishan. B, Attended two day workshop on Advancement in Rocket Science and Additive Manufacturing organised by CSI College of Engineering, The Nilgiris along with Society of Aerospace and Mechanical Professionals (18& 19-5-20)

Dr. B. Anand Ronald and Dr. R. Damodaram, attended the 2 Days Online Workshop on "Additive Manufacturing" organized by Dept. of Mechanical Engineering, S.A. Engineering College, Chennai (15 & 16-5-20)

Dr.K.S.Vijay Sekar, Asso.Professor, attended the 2nd International workshop on "Smart materials sensors and energy devices, SMSED2020" organised online, by Dept. of ECE, SSN College of Engineering between May 25-30, 2020.

Webinars

Dr.R.Prakash, Associate Professor, attended "Seven days webinar for Motorsport Vehicle teams" organised by Rajarambabu Institute of Technology, Maharashtra, India.(22 to 29-5-20)

Dr. B. Anand Ronald, Dr. D. Ananthapadmanabhan and Dr. R. Damodaram, attended a webinar on "Applications of Fracture Mechanics in Offshore Industries, conducted by Dr. Shashi B. Kumar, DNV - GL, Singapore (5-5-20)



Dr.R.Prakash



Dr.Anand Ronald



Dr.DAP



Dr.R.Damodaram



Dr.G.Selvakumar

Dr G Selvakumar, Associate Professor attended Webinar on 'Hangout with Successful Start Ups' organized by Chennai Institute of Technology (5-5-20).

Dr.K.S.Vijay Sekar, Asso.Professor, attended

- a webinar on "5G - A Catalyst to Digital Twin Technology In Manufacturing Industry" delivered by Mr. Anwar Athar Khan, Senior Director, Capgemini on 12th May 2020 on the NPTEL platform.
- a talk by Srikant Datar, Harvard Professor and a leading authority on Design thinking and innovation through Conversations, a platform created by the Shiv Nadar Foundation on 13th May 2020.
- an online Master class on The Genius Formula, delivered by Robin Sharma, World renowned author and life coach organised by Mind valley on 22nd May 2020.
- a webinar on " AI for India and Beyond" delivered by Manish Gupta, Director of Google Research India organised by ACM India council, under the India Industry webinar series on 23rd May 2020.

Dr.L.Poovazhagan , Associate Professor, attended webinars on

- "Fighting Corona - Leveraging Scientific Research & Innovation".
Date: 03.05.2020, Speaker: Prof. Ashutosh Sharma, Secretary, Department of Science & Technology, Government of India.
- "3D Printing Applications in Fighting with Covid19", organized by Sri Sairam Institute of Technology.
- "Improving Research Planning at Technical Institutes" co-organized by Elsevier & VTU Consortium.

Other Events



Dr.K.Jayakumar participated and received the certificate in the event “QUIZANTHON – Online Mechanical Quiz” organized by Department of Mechanical Engineering, A. V. C. COLLEGE OF ENGINEERING on 9 MAY 2020.

STUDENT ACTIVITIES:

Survesh S and Swamenathan R, of third year, Won the GME FORD Hackathon 2020.They built behavior model of controllers for Virtual Commissioning methodology. (22-5-20)

Srinivasan, of third year, participated in sports quiz competition during this lockdown period, which was organized by Mohammad Sathak college of engineering and Don Bosco engineering college. (21-5-20)

Online Courses completed:

Jayaperumal CM, of second year , completed an online course on Basics of Python programming in Coursera.(17-5-20)

Sabareesh A , of second year, completed an online course on introduction to psychology.(18-5-20)

Sam Sherin Raj.S, of second year , completed online courses on:

- MATLAB Onramp
- Simulink Onramp
- Introduction to self driving cars State Estimation and Localization for Self-Driving Cars
- Programming for Everybody (Getting Started with Python).
- Python Data Structures. (1-5-20)

Srinath Venkatesh, of second year , completed online courses in Coursera (under supply chain management specialisation)

- Supply Chain logistics.
- Supply chain Operations.
- Supply chain planning.
- Supply chain sourcing. (9-5-20)

Sai Charen V, of second year , completed online course on:

- Ø Data science Tool Box.
- Ø Mathematics for Machine Learning - Linear Algebra.In Coursera. (4-5-20)

Tharun VS, of second year , completed an online course on Ecology and Ecosystem in Coursera.(25-5-20)

Karan R J, of third year, completed online course on

1. Career Edge- Knockdown the Lockdown offered by TCS iON.
2. Aptitude for placements 2020 in Udemy. (25-5-20)

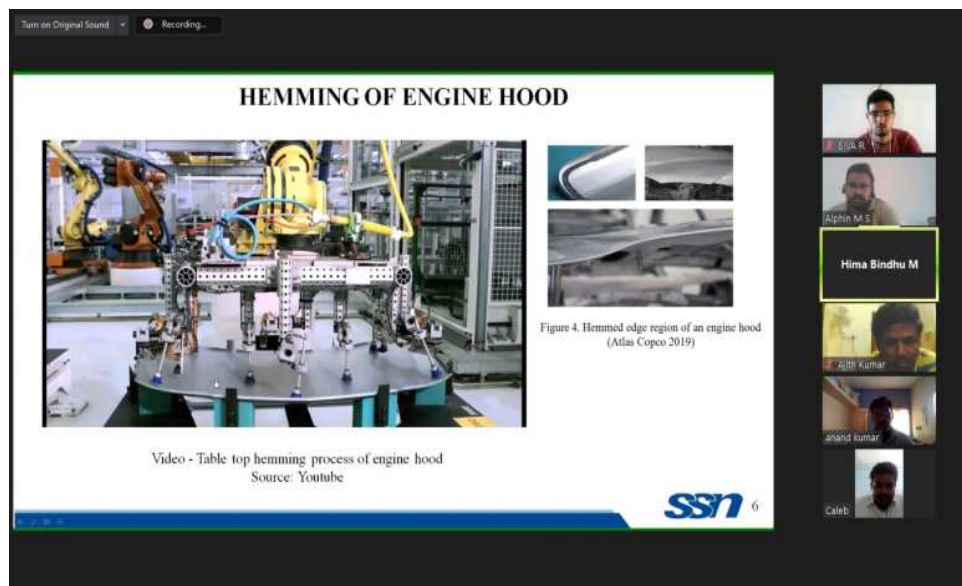
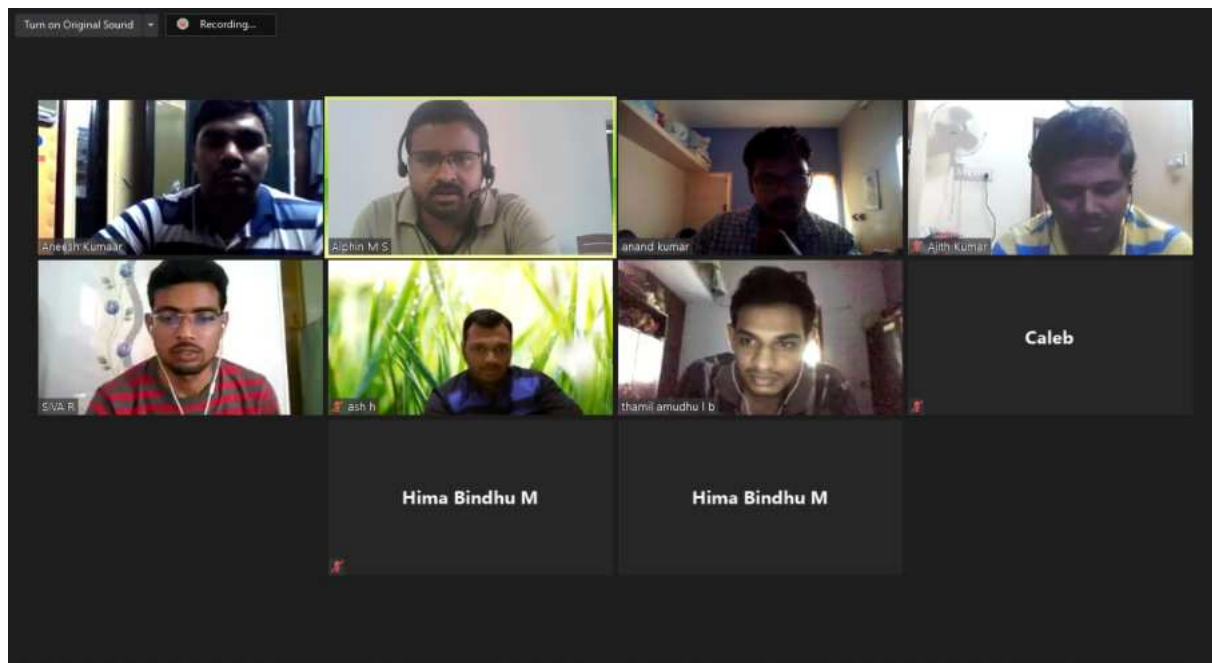
V Vishnu Srinivasa Prasad, of third year, completed online courses on:

- Ø Successful Negotiation: Essential skills and strategies. (5-5-20)
- Ø Fundamentals of graphic design.(12-5-20)
- Ø Excel skills for business: Essentials.(20-5-20)

Harish Kumar A, of final year, completed an online course on Introduction to Mechanical Engineering Design and Manufacturing with Fusion 360 in Coursera. (12-5-20)

Online review of ME Manufacturing Projects by Dr.M.S.Alphin

Dr. M S Alphin, Convened Project Review for ME Manufacturing Engineering Students through online Video conferencing in Zoom. The review started by 4:00 PM and went on till 6:30 PM. All the students presented their project through the Meeting portal. The students also submitted review reports through our Institution Moodle LMS.



Online review of BE Projects, by Dr.K.S.Vijaysekar..

Dr.K.S.Vijaysekar conducted Project reviews for the VIIIB Mechanical Engineering class between 10 AM - 12 Noon on 8th and 9th May 2020 through Zoom platform. I was happy to see the students in full attendance making their project presentations with vigour despite the lockdown dampener and keeping their spirits high amidst the uncertainties of routine life. There is no doubt these students will be better prepared to face the world when they step out of college.

SSN Team Wins Ford Hackathon

FORD Hackathon 2020

SSN TEAM THAT WON THE FIRST PRIZE :

(Exclusively for Pre-Final Years)

Total Teams (Pan India) : 120

Teams shortlisted for finals : 10

(III Year Students)

SURVESH S (MECH)- 312217114104

SWAMENATHAN R (MECH)- 312217114106

PRAVEEN KUMAR R (CSE)- 312217104114

(OUT OF THAT 4 TEAMS FROM SSN)

Hearty Congratulations To the Students and the Dept. of Mech and Dept. of CSE, SSNCE.!!

Keeping in view the Industry 4.0 revolution, Ford recently announced an exclusive Hackathon for III Year Engg./Tech students across the country. The objective of the event was to build behavior models to control virtual environments based on the concept of Virtual Commissioning for improving manufacturing cycle performance. Students were allowed to form a 3-member inter-disciplinary team encouraging cross-functional project interactions. The event targets only pre-final year students of Engineering & Technology. As per the norms of the event, there could be only three in a team with one compulsorily from a different department. Core Discipline students such as those from Mech/Civil/Chem were encouraged to team up with the dept. of CSE/IT for forming a cross-functional team. There was an initial screening round comprising a test / Questionnaire which the student teams had to answer and send online their response on or before Jan 20, 2020. In response to the call, there were many participations from SSN.

Only 10 Teams across India got shortlisted based on the massive Initial screening round, out of which 4 were from SSN. Post that, there was an orientation session at Ford GME campus (Global Manufacturing Engineering), Ford Motor Private Limited, Sholinganallur, Chennai on February 11, 2020.

The expectations and the deliverables were detailed to the students by FORD Hackathon Organizers during the orientation session. The Grand Finale was originally scheduled during the second week of March which had to be later postponed due to Covid-19. Finally, it was decided to have an online version and the same was held on May 22, 2020. Students made their presentation online and defended their work in style. It was a tough task for the Judges to evaluate as the competition was very stiff. Finally, the SSN team comprising Survesh, Swamenathan and Praveen Kumar emerged as Winners and won the Coveted First Prize !!

A Brief on the Task Assigned by FORD post the First Round

With the advent of Industry-4.0, manufacturing industries have employed advanced risk management measures to ensure low-cost failures. Thus, before even starting the construction of a factory, the proposed model for the factory is simulated in a virtual environment thereby reducing the cost of the experiment failures. The Student Participants were delegated to develop the core components of this simulation. The physical appearance of the components was designed a priori by Ford. Participants were asked to write the control logic of these components. These virtual components have been called as behavioral models. Later, FORD made the Finale Online on May 22, 2020 and the teams were asked to submit & present the working behaviour of their model over video conferencing.



Survesh.S (mech)



Swamenathan.R. (mech)



Praveen Kumar .R (CSE)

Out of the 4 SSN Teams, the Team comprising Survesh S (Mech), Swamenathan R (Mech) and Praveen Kumar R (CSE), all from III Year emerged as the Winners. Second and Third Places were bagged by teams from Manipal Inst. of Tech and IIITDM.

From the Winner's Desk:

A Glimpse of our Hackathon Task:

Post the screening round, we got shortlisted and the teams were asked to develop behavioral models for various tools that were to be simulated in a virtual environment. Our team was asked to work upon models for E-Stop, Nutrunner and Vision System. The programming was done using Python and necessary Python tools, namely tkinter which is the standard GUI (Graphical User Interface) for Python and the Open OPC module.

Another important tool employed was the Matrikon OPC server. We developed the required models and submitted the code along with documentation and demonstration videos, successfully on the 7th of May, 2020. The finale was scheduled to be conducted online on the 22nd of May, 2020.

We had managed to satisfy all their testing parameters quite satisfactorily. The evaluation criteria were namely 'Technical Assessment' and 'Delivery and Presentation'. Under Technical assessment, we were assessed on whether we had incorporated required inputs, if the code was easy to understand and modify and if the developed model was successfully tested with OPC and so on. This was for a total of 12 points out of a grand total of 20 and we secured a total of 11 points. The Delivery & Presentation segment consisted of evaluating the user interface design and how impactful the demonstration and communication of the team was.

We managed to secure 7 out of 8 points for this and for a grand total of 18 on 20, which was the highest in the Hackathon. Consequently, we were declared winners of the event.

At the outset, we would like to Thank our Management, Principal, HOD/Mech and HOD/CSE for the kind support and encouragement. Finally our Thanks are reserved with glad memories to M/s Ford Motor Pvt. Ltd. and Mr. Suresh T Viswanath Rao, Project Manager, Ford Motor Pvt. Ltd., for all the encouragement, support and opportunity given. Also, we would like to thank Dr. N. Lakshmi Narasimhan, Associate Prof/Mech for liaising with Ford regarding student's participation in the event.

A Brief Interaction With the PR (Public Relations) Team of our Prestigious Shiv Nadar Foundation (SNF)

We express our Thanks from the departments of Mech & CSE to Mr. Ananda V Raman N. (Assistant Director – Marketing), SSN Institutions, for highlighting the Winners to the Corporate Communications Team of our Prestigious SNF. There was a special interaction arranged through him for our student winners with the PR Team of our SNF on May 29, 2020. A brief experience-sharing post the interaction as filed by one of our Student Winners is here below:



“We had a video conference session through Microsoft Teams with the Public Relations team of Shiv Nadar Foundation on May 29, 2020. We shared a brief info on the concept of Virtual Commissioning and how it could change/impact the future of manufacturing industries. The behaviour model that we built for FORD in this hackathon event was summarized in brief sharing some info on the advantages, applications and cost of implementation. The team was very encouraging throughout the discussion and asked us about existing industries doing research on this topic and how the same could benefit industries after Covid-19. Our special thanks to the entire PR team of SNF, SSN Management, HoD/Mech, HoD/CSE, Mr. Ananda V. Raman, and Dr. N. Lakshmi Narasimhan for all the encouragements and support.”

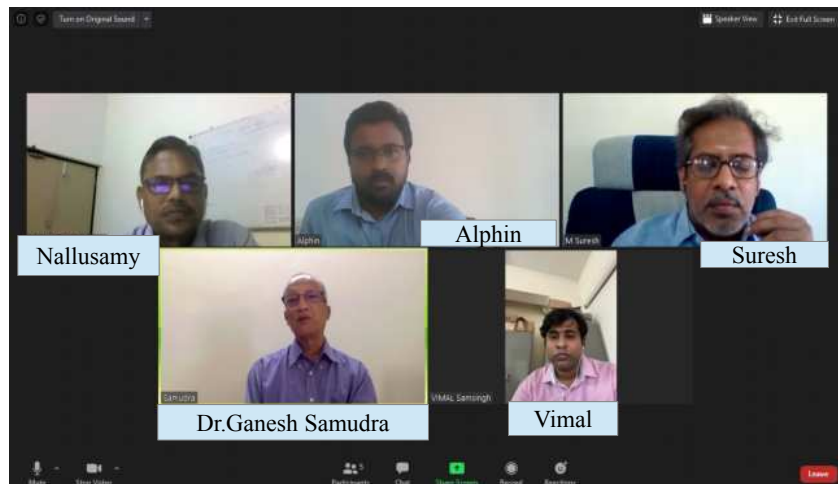
Compiled by the SPOC for the Event : Dr. N. Lakshmi Narasimhan, Associate Prof/Mech, SSNCE.

Discussions with Dr. Ganesh Samudra

1) Discussion on Curriculum and change in CO-PO mapping

First meeting towards the revision on curriculum for 2021 batch and change in CO-PO mapping for the subjects in 2018 regulation for the department of mechanical engineering was initiated by Dr.N. Nallusamy with Professor Dr. Ganesh Samudra on 29th May 2020.

Dr.N. Nallusamy was accompanied by the department faculty members Dr.M. Suresh, Dr. M.S.Alphin and Dr.R.Vimal Samsingh. The meeting started with a brief review on the existing syllabus and evaluation system in place by Dr. N. Nallusamy. He further stressed up on the various initiatives taken by the department earlier with reference to syllabus revision and practical difficulties encountered by the department in order to make it a reality.



Dr. Samudra provided feedback by comparing the curriculum of our department with the curriculum of other esteemed institutions such as IIT, NUS, University of Michigan, etc.

He requested us to look at the possibility of combining subject like Kinematics and Dynamics of machinery into one subject because none of the above mentioned university has it separately and suggested it can be combined and framed as a 4 credit course.

He also suggested that courses like power plant engineering, finite element analysis shall be studied as electives instead of core subjects and consider introducing a subject on Industrial automation.

Dr. N. Nallusamy provided feedback stating the department is already looking forward in that direction to combine the courses and come up with Theory Cum Practice subjects wherever possible in order to fall in line with the model curriculum proposed by AICTE in which the total credits is expected to come to around 160.

Dr. Samudra provided us with suggestions on the thought process to be adopted while preparing the curriculum for 2021 batch.

Possibility of change in the current internal assessment model to two CATs and other mode of evaluation was discussed.

He further added stating that while designing curriculum room should be provided to accommodate self-learning courses and wherever possible try to focus on Skill development rather than feeding too much knowledge.

He also requested us to look for the possibility of providing SSN Certificates if a student completes three group professional elective towards a particular stream of specialization. This will avoid students from going after easy scoring subjects and motivate them to courses that will help them to improve their skill set.

He suggested on introducing one credit courses on project management that will help them to practice the skills which are essential for their day to day life in workplace.

Finally he also provided suggestions on how to change the CO- PO mapping for the subjects listed on the 2018 regulations.

To conclude, by means of the whole exercise, the team along with Dr Samudra will benchmark the best practices from various universities and try to establish a program structure which will give way to unique learning experience, establishing the brand SSN.

2) Discussion on introducing Engineering Fundamentals and Practice in Mech Syllabus

Proposal for introducing EFP approach in Mech subjects.(without change in Regulation)

Team : Dr.A.K.Lakshminarayanan, Dr.K.Jayakumar and Dr.M.Dhananchezhian

In R2018-Autonomous curriculum, there are already three subjects integrated with corresponding labs

- Sem III UME 1303 Manufacturing Processes I
- Sem IV UME 1402 Manufacturing Processes II
- Sem VI UME 1501 Metrology and Measurements

Credits and contact hours

- There are five units, each with a corresponding lab component.
- Total credits 3 + 1 (3 theory hours + two practical hours)
- 1 additional practice hour usually engaged from other free periods. So practice=3 hours.

Evaluation method for internal 40 marks

Existing	Proposed
Two test converted to 15 marks	Continue as existing
One model exam for practice 15 marks	Offer as mini project for 15 marks
Regular Practice work 10 marks	Regular Procedural work – 5 marks Presentation on assigned topic – 5 marks (2.5 by Tech faculty and 2.5 by English Dept Faculty)

For both the topic for presentation and mini project, we will adopt EFP model of making the student think at system Level.

An example from manufacturing processes II

We have a unit on chip formation and force measurement using dynamometers (in lathe). The theory is explained in class and the procedural work done now is to give them a dynamometer and ask them to measure the force as per procedure.

The proposed thinking activity will be to ask them to measure the chip thickness and from there, draw the Merchant Circle and then derive the cutting force involved. They learn to estimate the force involved, without the use of a dynamometer.

Dr.Samudra's suggestions:

- That is quite good. Although studio session will be bit short, it will be still fine for one year. As you said, the revised curriculum will allocate periods appropriately.
- One more change you need to do for EFP implementation is to stress more on self and peer learning. Hence reduce 1 lecture hour and convert it informally to 2 tutorial hours for tutorial/reflection.
- Provide videos/handouts for self learning. Self study material (video/handouts) and learning centred studio sessions need to be developed.
- Also you can let them even decide procedure in some labs.
- EFP can actually be TCP or can also be managed as separate courses in the revised curriculum. It is just how labs and theory are delivered is different.

We will carry out these suggestions and deliver these three subjects on EFP Mode- VeA

From Internship to Placement-

Dept. Placement in Charge, Dr.N.Lakshmi Narasimhan writes....

A Report on the Recent Success Path of Our Three Students

Changes are inevitable!! In the recent past, there have been unprecedented dynamic changes happening in the Talent Acquisition process with companies elsewhere. The way employments- especially campus placements are happening are undergoing a sea change. Yes! there can be many straight forward paths to one's placement as a student/fresher from an Institution. Yet, the most successful has been realized as the "Internship - Placement" path wherein there is always a win-win scenario right through the journey. During the internship, the student interns are given a task that can be handled with their existing capabilities. With the absence of any unwanted external pressure/stress, the opportunity is well explored and utilized by the interns. Over a short time frame, either a *like or dislike* happens with a sufficient level of understanding on either side between the student and the company. A like on both sides results in giving and receiving of the Placement Offer at the end. Once, the intern joins the company, he/she will join no more as a Novice or a Fresher but as a candidate with sufficient prior knowledge about the company and the Job as well ! No special training is warranted with the interned candidates. Understandably, the platform is well utilised by those Institutions which have the full Academic Autonomy (for ex. Deemed Univs). The same is also leveraged legitimately with institutions that are affiliated to Universities. At SSN, our students are encouraged to take-up summer internships with industries for their career development.

In line with the Institution, We have been encouraging in our department a lot of student internships with different industries over the last 10 years. Here is a small example based on our recent experience on how internships get converted to Placement Offers for UGs as well as PGs. Last December, three students from UG and Two Students from PG Energy Engg, were recommended for Internships with Navson Technologies Pvt. Ltd., Chennai and OGNI ESCO Hyderabad respectively. We are very happy to share that the two PG students and one UG student were offered full placements based on their performance during the internship. We express through this Aspire Edition, **Our Hearty Congratulations!!** to the three students for their Successful Venture filled with Passion and Perseverance!!

Internships are now being envisaged as the most promising mode of Talent Acquisition by companies as well as institutions. It's time for Institutions to set the academic schedules aligned/designed conducive for promoting more and more internships to create more job opportunities. No doubt, it's a good message from the three students to all those aspiring juniors of our department. We share our appreciations to the three students once again. We express our sincere thanks to our Management and the Companies. Special Thanks to the HRs of the Companies listed.

Student Name	Reg No	Year / Program	Company	Internship period
Aneep Shyl	182001003	II yr ME Energy	OGNI ESCO, Hyderabad	Dec 19 – May 20
Elanchezhian. B	182001004	II yr ME Energy	OGNI ESCO, Hyderabad	Dec 19 – May 20
Monesh Kumhar .K.	312216114068	IV yr BE Mech	Navson Technologies Pvt.Ltd	Dec 19 – May 20

OGNI ESCO, Hyderabad - This is an Energy Company at Hyderabad. Another branch at Mexico is soon expected. Best suited for PG Energy Engineers.

Navson Technologies Pvt. Ltd., Chennai - This is a Design Company working extensively with Fusion 360, Ansys and other modelling softwares. Best suited for those aspiring Design, Modelling & Simulation jobs.

Dr.K.S.Vijay Sekar writes about programs attended by him in May 2020.....

I had the opportunity to attend the following programs during the past month.
I wish to share some snapshots of each program.



1. Webinar on "5G - A Catalyst to Digital Twin Technology In Manufacturing Industry" delivered by Mr. Anwar Athar Khan, Senior Director, Capgemini on 12th May 2020 on the NPTEL platform.



The idea is to use the 5G bandwidth and speed to create an interface between the actual product and its identical digital twin so that any product design changes can be quickly done on the digital prototype and once ratified can be quickly incorporated into the product development which further will reduce time to market.

2. Talk by Srikant Datar, Harvard Professor and a leading authority on Design thinking and innovation through Conversations, a platform created by the Shiv Nadar Foundation on 13th May 2020.



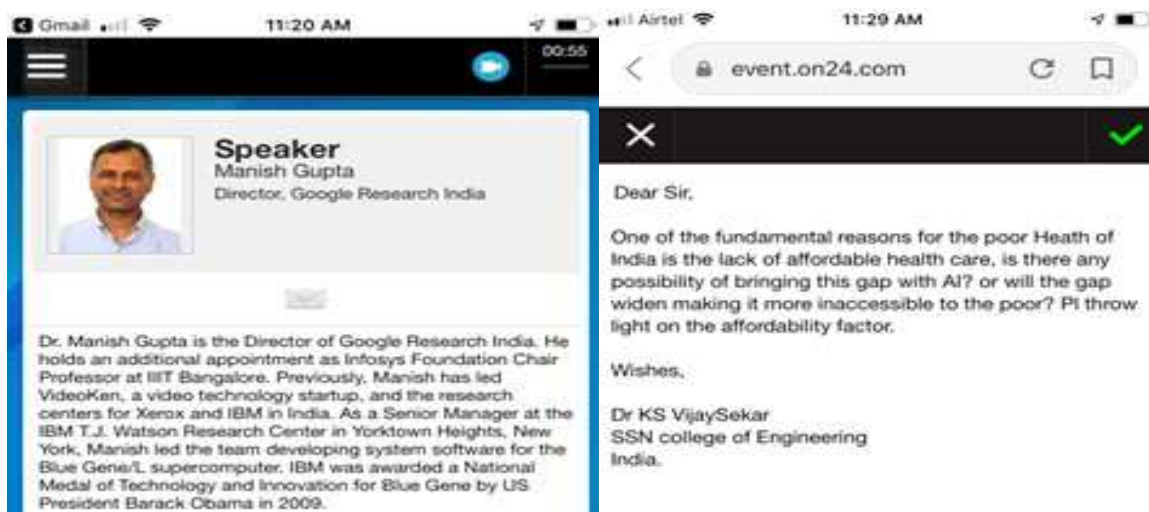
Srikant Datar, a World leading authority in design thinking and innovation, Professor at Harvard University and on the Board of large global organizations in conversation with Saurav Adhikari, Senior Advisor, Shiv Nadar Foundation, stressed the importance of design thinking and how it is fundamental to the process of innovation, cutting across industries and product lines. He shared an interesting anecdote about how earning gives a living, but its giving that makes a life. He also emphasised how his tutelage at IIM A shaped his thoughts and methods in his life later.

3. Master class on The Genius Formula, delivered by Robin Sharma, World renowned author and life coach, organised by Mind valley on 22nd May 2020.



Some key messages from Robin Sharma were
"consistency is the mother of mastery",
"your day is your life in miniature",
"do not go to sleep until you have spent 60 minutes in learning".
The trinity of peak performance assets are focus, will power and energy", "The 90-90-1 rule - For the next 90 days, your first 90 minutes at work, make it focused on your single most important project."

4. Webinar on " AI for India and Beyond" delivered by Manish Gupta, Director of Google Research India organised by ACM India council, under the India Industry webinar series on 23rd May 2020. The talk focused on how AI is going to drive the medical industry by helping with quick and effective diagnosis of various diseases such as cardiovascular problems, eye disorders etc. which will not only aid in accurate diagnosis but could also help in prevention at early stages. He said that Google was also closely working with Governments for creating an accurate rain forecasting hydraulic model aided by powerful satellite data and on the ground data. I posed a question on the affordability of AI medical devices for the poor for which he replied that along the way low cost technologies would come about making testing cheaper though not at the outset.



5. 2nd International workshop on "Smart materials sensors and energy devices, SMSED2020" organised online, by Dept. of ECE, SSN College of Engineering between May 25-30, 2020. I had the opportunity to attend the six day workshop which brought experts from various institutes working on Nano-materials and Nano-technology to the fore discussing their research on fluid, medical, solar cell and nano electronics and emphasising the powerful benefits of leveraging materials at the nano level. At 2 lectures per day, the 12 lectures were informative and rewarding.



Webinars attended

Dr. S. Suresh Kumar has attended **"The Design Thinking Refresher Session"** organized by School of Design Thinking on 29th May 2020. This webinar session is an extension of a faculty development programme which was attended in the year 2018 as a residential workshop. Professor Ashok Korwar (IIM-Ahmedabad), Dr. Anbu Rathinavel and Ramakrishnan V handled the session.



Ashok Korwar

Professor – IIM (Ahmedabad)
Management Consulting Growth
Catalyst, Pune



Anbu Rathinavel

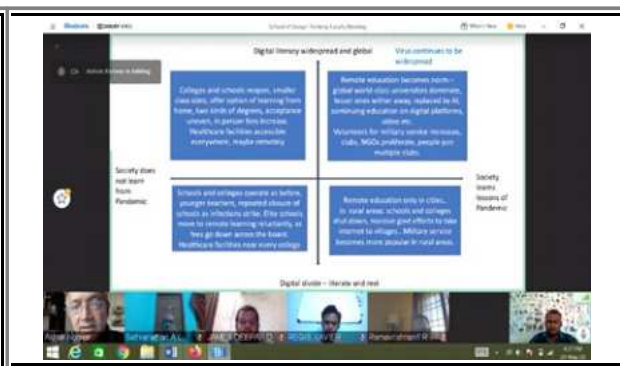
Chief Design Officer - Intellect Design
Arena and **Head - School of Design
Thinking**



Ramakrishnan V

Design Thinker at School of Design
Thinking Chennai, Tamil Nadu, India

In this workshop, participants shared their experience about implementation of Design Thinking practice in their institution. I have highlighted the design thinking workshop conducted to first year students to write their personal vision statement and one day workshop organized to third year students to innovate a new product using the concepts of DT. In addition, discussions went around to enhance the online learning experience of students, parents & management's perspectives towards online teaching, future challenges awaiting for online teaching etc. The online session's clippings are given below.



Professor Ashok Korwar highlighted the role of higher education and its future journey. He has suggested the following alternate strategies for higher education community.

- Knowledge transfer (can be replaced by technology)
- Creation of knowledge (cannot be done by technology)
- Building of capabilities (social skills, networking skills, communication skills can be substitute by other means such as, clubs, social service requirements and military service)

He has also suggested an open challenge of how are we going to empathize the students and their parents after the lock down period and under the presence of Covid-19 virus. In addition he has predicted that, "remote education" can become a norms in future.

Report on Online Workshop attended- "Additive Manufacturing" , during 15 & 16 May 2020

Dr. B. Anand Ronald and Dr. R. Damodaram, attended the **2 Days Online Workshop on "Additive Manufacturing"** organized by **Dept. of Mechanical Engineering, S.A. Engineering College, Chennai**. Since the organizers had overwhelming response for the workshop, it was decided to live stream the workshop via YouTube live. The first day session was on 15 May 2020 from 2.00 – 4.00pm on *"How 3D printing is helping in the fight against COVID 19"*, by Dr. K. Senthil Kumaran, Assistant Professor, Dept. of Mechanical Engineering, Indian Institute of Information Technology, Design & Manufacturing - Kancheepuram. The second day session, was on 16 May 2020, from 9.00 – 11.00am, on the topic *"Additive Manufacturing for Metallic Parts"* by Dr. T. Ram Prabhu, Scientist, DRDO.

Webinar on Application of Fracture Mechanics on offshore structures.

Dr. Anand Ronald, Dr. Ananthapadmanaban and Dr. Damodaram attended the webinar on Application of Fracture Mechanics on offshore structures. Dr. Shashikumar, Technical lead, DNV Singapore gave a presentation. He started by saying that 2/3rd on the earth is under water and this shows how important underwater exploration is. Seismic profile was shown and flow diagram of reliance pipeline was explained. A video was shown on the offshore activities aboard the Sapura 3000 vessel in Brunei. Offshore activities are normally done 24 hours a day, working in 2 12 hour shifts.

Pipeline welding is very important as the life of a pipeline should be anywhere between 10 to 25 years. Pipeline welding assumes a lot of significance because total contribution to Global energy production from the oil and gas Industry Typical phases in a project were explained in detail with the help of a flowchart.

Fracture Mechanics approach to welding was started with the Griffith's theory and Irwin's modified Griffith's theory for Mode I. Two case studies were discussed regarding Infinite plate and finite plate. It was emphasized that Fracture toughness encompassed three main parameters-K, crack tip opening displacement and J integral. Videos on the tensile test and fracture toughness test were shown clearly. On the whole, we felt that we got some new ideas for our research work.

REPORT ON THE WEBINAR attended ON 03/05/20 -INDUSTRIAL SAFETY- Dr.D.ANANTHAPADMANABAN

Among the series of webinars on offer during the lockdown, this was also one. Though it was not directly related to my field of specialization, I decided to attend this webinar since safety is an important aspect of professional and personal life, which all have to be aware of.

Dr. R.K. Elangovan, Director General, Factory Advice and Labour Institute, India, was the speaker. At present, Dr. Elangovan is helping the Government to frame legislatures on safety issue. He started the webinar by saying that -Accidents do not happen by accident, there is some operation which is out of control. Section 41(C) of the labour act was touched upon and the trainer concept was discussed.

There was a brief, but important discussion, on Investments for safety and health. Employee engagement and motivation plays a major role in safety. Safety recognition and awards must be given, Safety stewards need to be appointed and best practices to be shared. Evolution of safety from the past follows the path-Technical improvement leads to Management System leads to Safety culture.

Legal compliance is a must for any Industry. The industry should carry out a legal compliance audit and have a compliance Management system. Prevention, control and hazard identification are important, as also the role of a safety officer. Employee, Contractor and visitors safety should be provided for in the management system.

Every Industry passes through phases of growth. It progresses from Management driven to Employee driven to Society driven. Bench marking has to be followed and best practices noted down and shared with all departments. Some aspects of occupational health such as occupational diseases, management of first aid, health audits and surveillance, health hazard mapping and factory medical officers are to be given emphasis.

Lastly, innovations are to be taken into account, especially in these COVID times and adequate modifications should be done according to International Labour Organization rules. The webinar ended with an advice to new entrants, namely -have patience.

Dr.M.NallaMohamed writes on Webinar Organized



A webinar was organized by the **Mechanical Engineering Department** on **29/05/2020** between 10.15 and 11.30 A.M, through the contact established by Dr.D.Ananthapadmanabhan.

Faculties from various colleges and students including some of our SSN College were actively participated in this technical webinar.

The webinar was delivered by **Dr.Margam Chandrasekar, Founder, Wise Consultants and Services Ltd, Singapore**. The topic of the webinar was **"Importance of Mechanical standards in medical devices"**.

Highlights of the session:

- Dr.Margam classified standards as **voluntary and Mandatory**.
- He dwelt on the **need for standards** as a reference criterion, for enhancing safety reliability and improving the performance of the products.
- **Nine problems** in a non-standard situation pertaining to the medical devices field were discussed.
- **Safety aspects** in medical devices was touched upon. The benefits of standardization were discussed in detail and National and International standards for some countries were tabulated and explained.
- **Difference between validation and verification** was touched upon and the 10 commandments of medical device design were explained in detail.
- **The question answer session** lasted for 10 minutes and the webinar was well received by the audience.
- **While webinars could become the new norm due to COVID, this webinar also offers scope for joint work in the future between Wise Consultants, Singapore and SSN College of Engineering.**

Dr. S. Suresh Kumar has **delivered** two invited lectures in a one week online FDP titled “Manufacturing and Analysis of Advanced Materials and Engineering Structures. The FDP was organized by MARRI LAKSHMAN REDDY (MLR) Institute of Technology, Hyderabad. The theme of the FDP was to focus more on advanced materials which are being used in engineering structures and their performance. The entire FDP was conducted using zoom app. The topics of the invited lectures are

26-5-20	10.30 am – 12.30 pm	Ballistic performance determination of defence structures
30-5-20	9 am – 11 am	Life estimation of structural components using fracture mechanics approach

The online Brochure for the FDP is shown below:

One Week Online FDP on
MANUFACTURING AND ANALYSIS OF ADVANCED MATERIALS AND ENGINEERING STRUCTURES
 26-30 May 2020 (10:30am – 12:00pm)

Organized by Department of Aeronautical Engineering, MLR Institute of Technology

26.05.2020 Ballistic Performance Determination of Defence Structures
27.05.2020 Characterization of Natural Fiber Composite
28.05.2020 Incremental manufacturing
29.05.2020 Micro Contact Behaviour of Rough Surface
30.05.2020 Life Estimation of Structural Components using Fracture Mechanics Approach

Key Points of FDP

- To refresh the fundamentals related to mechanical behavior of materials
- To understand the importance of natural composites in engineering structures
- To acquire knowledge on recent trends in manufacturing techniques
- To predict the likelihood of failure of a structure subjected to combinations of applied stresses

Registration (free of Cost): <https://bit.ly/3McPK0M>
 ✉ acadhod@mlrinstitutions.ac.in
 ☎ 7893974728 and 9959984365

Participants
 FDP is deliberately designed for industry participants, faculty member and research scholars of Engineering, Technology and Science under the domain structures and materials can participate.
 Digital certificate will be provided after successful completion of FDP.

Patron: Dr. K. Srinivas Rao, Principal
Convenor: Dr. M. Satyanarayana Gupta, HOD, Aeronautical Engineering
Co-convenor: Dr. A. Vivek Asand, Professor, Aeronautical Engineering
Coordinators: Mr. Nimish Kumar Mishra, Assistant Professor, Aeronautical Engineering
 Mr. A. Sai Kumar, Assistant Professor, Aeronautical Engineering



In the day-1 presentation, around 208 participants from various states attended the session. The concept of ballistic impact dynamics, determination methods and several case studies were highlighted. In addition, the ongoing research work in this field, locations about research facilities available to conduct low and high velocity ballistic performance were also discussed elaborately. During the session, information about gas gun set up facility (**which was purchased through faculty internal funded project**) available in our department was also shared.



In the day-2 lecture, concepts of fracture mechanics, its historical evolution and its applications were discussed.

In addition, case studies in the field of damage tolerant design were discussed with the participants.

The response and feedback from the participants were good.

Non-Teaching Staff debut with Online Learning

The following non-teaching staffs participated in a **Five Days Online Webinar Series** on

“Essentials of Soft Skills, Interpersonal Skills and Laboratory Documentation in line with NBA Accreditation” for Laboratory Technician in Polytechnic & Engineering Institutes from 26 - 30 May, 2020. Organised by, Department of Automobile Engineering, Rajarambapu Institute of Technology, Rajaramnagar, Islampur, Dist.: Sangli, Maharashtra, India and Shivaji University, Kolhapur Lead College Scheme.

1. **Mr. NAGARAJAN S, Lab Instructor**
2. **K. Arumugam, Senior Grade Carpenter**
3. **M. Krishnasamy, Lab Assistant**
4. **M.Giridharan, Lab Assistant**
5. **B. Bharathi, Lab Assistant**



**Training sessions attended by
Mr. NAGARAJAN S, Lab Instructor,
Department of Mechanical Engineering**

1. **Participated in an online Webinar on “Power Point Learning Session”** for all its Group employees on **April 30, 2020** being **HCL** organized on **Microsoft Teams**.
2. **Participated in an online Webinar on “Business and Professional Etiquette “Thursday, May 14 2020.**
3. **Participated an online Webinar on “Prospects of Civil Engineering in the current Scenario”** on Sunday May 31, 2020. The session was organised by **Amrita Vishwa Vidyapeetham Coimbatore**.

Thanks to the lab-in-charge faculties,
who motivated their lab staff
to take up Online learning
---VeA

Student write up

Vignesh M , Third year B Section writes..

Coursera courses on patents, trademarks and copyrights:

Firstly I would like to express my heartfelt gratitude to the management, SSN CE for their noble and thoughtful initiative to partner with Coursera.

I completed all three courses with good grades (>90%) and I'm also planning to complete the fourth course in the series: "*PROTECTING BUSINESS INNOVATION USING STRATEGY*"

Brief course review:

The courses are interesting and the lectures are engaging with vivid presentations and intriguing case studies. It is programmed predominantly and specifically based on federal laws and facets sans elements of Indian/European patenting system (US patent, trademark and copyright acts)

The quiz questions are very much akin to our part C questions (4*2=8)
Similar questioning style, case based and application oriented questions which necessitates the students to put on their thinking caps.

All Faculty requested to take this survey.
.....VeA

- Shailesh Kumar and Aravind of third year mech are trying to develop an app, exclusively for the education sector that will facilitate Online meeting sessions.
- If they get to know the drawbacks of the existing system , they will try to rectify on the new platform built by them. They need your help and inputs for this.
- As there is a huge demand for video calling apps for online learning (eg. zoom), they want to understand the tools needed for effective and smooth conduction of online classes from professors perspective.
- The survey is to understand how teacher friendly, the apps are, and to get suggestion on tools needed to be added to make online teaching easier.
- This survey is to record the responses and implement it in the app they are planning to develop.
- They have also taken students survey and now to get an insight of professors, this survey is created. SSN faculties are requested to share their response and help them build a better app.
- PI support their initiative by responding at the google docs link

Link:- https://docs.google.com/forms/d/e/1FAIpQLSd84wQHAKNbPliQbT4ofH0SeATL-2UpPSIH5qls4uh99GXLlw/viewform?usp=sf_link

For clarifications and suggestions, you may speak to

Shailesh Kumar (3rd yr mech-B) (9791496480)

Aravind S (3rd yr mech-A) (9790859070)

Off-grid lighting innovator Deciwatt is back with a new manually powered light to illuminate unwired spaces, ranging from remote villages, to campsites, to backyards. The NowLight drops the weight of Deciwatt's previous gravity-based design, leaving a more streamlined path for creating electricity to power the light. The linkable multi-lamp design brightens an expanded space from a single power source charged by hand, solar or mains power.



The original idea was to source gravity as a cheap, omnipresent form of energy, eliminating the need for expensive solar panels and batteries. But after piloting the GravityLight 2 in Kenya, Deciwatt found that users wanted more light and enough power to charge mobile phones.

Deciwatt went back to the drawing board, reshuffled priorities and came up with a new design. Batteries are now in, specifically a 3,200-mAh LiFePO4 battery large enough to charge a smartphone. The new NowLight still **relies on kinetic motion to create energy** but instead of the lift/slow-drop of the GravityLight, a looped cord makes for a smooth, continuous motion. The user simply pulls the cord to keep it rotating for quick, simple energy generation.

The NowLight was designed to fully charge its battery in under half an hour of working the cord, and Deciwatt says that just two minutes' work creates enough power for more than an hour and a half of light at 20 lumens. The small display on the light's face shows a readout of how much runtime is available, providing motivation for the person generating energy and a warning when power dips to critical level. The NowLight can also be charged via the 3-W solar panel or DC-to-USB cord.

The NowLight offers six individual light settings, ranging between a 5-lumen "night light" and 160-lumen full-brightness mode. It also includes a USB outlet for powering or charging portable devices such as mobile phones and radios. Those looking to spread the light can link up to four small, orb-like SatLights together to a single NowLight. Each SatLight includes a 16.4-foot (5-m) cable and its own six-mode brightness adjustment.

In addition to providing a simple, versatile light solution for developing areas that lack electricity, the NowLight has a lot of potential uses in developed areas, too — camping, lighting up a storage shed, and providing a flexible, self-powered light source just about anywhere one's needed. While the threaded hanging hook won't work for every use case, it appears easy enough to hack something from the likes of string, bungee cords, carabiners and other common gear. The lights have a "showerproof" IP33 water-resistant rating for use outdoors, but Deciwatt doesn't recommend leaving them outside permanently.



Deciwatt got the first NowLights out to backers of its 2018 Indiegogo campaign earlier this year and has launched preordering for its next production run. A full kit with NowLight, SatLight, solar panel and DC charging cable costs US\$109. For \$60, buyers can also donate a kit (minus the DC cable) to a family displaced by natural disaster or conflict. Deciwatt hopes to begin deliveries in June.

Source: <https://deciwatt.global/>



CHIZEL

In 2016, two years after the launch of the “Make in India” project, Chizel was founded by three ex-IIT Roorkee graduates, Ravi Ranjan, Devang Saini and Yash Rane.

Headquartered in Pune, Chizel is building a unified cloud platform providing data driven solutions for on-demand manufacturing using 3D Printing, Machining and Injection moulding.



Their online platform is a data centre of diverse manufacturing processes, materials, vendors, quality control and logistics using which customers can select the suitable manufacturing solution for the most optimised and efficient output.

The startup enables hardware companies to manufacture engineering components on demand. Chizel works as a single platform to find different manufacturing processes, materials, and finishing options.

It also provides quick tips that help design engineers go to market faster with their designs. 3D CAD designs can simply be uploaded online and proprietary algorithms analyse the CAD geometry & based on requirements, providing real time manufacturing solutions.

Website: <https://www.chizel.io>

Alumni Update

Hello. My name is Deepakram and I am an alumnus of the Mechanical Engineering department (2014-18 batch). After graduating from SSN, I pursued the [Teach For India Fellowship](#) program (2018-20 Cohort) and I currently work as a Makerspace consultant for the [Heritage group](#) of International schools. In this article, I wish to share about my fellowship experience.

Teach For India Fellowship Experience:

During my fellowship, I worked as a full-time STEM educator for an enthusiastic bunch of 150 students from 6th and 7th grade in an under-resourced Corporation School in MGR Nagar, Chennai. These students hail from an under-privileged community and most of their parents are daily wage workers. The Fellowship has been a transformative experience which has shackled my beliefs and assumptions about various aspects of life and pushed me to unlearn and relearn continuously.



Drawing inspiration from Richard Feynman's learning technique of mastering a concept by teaching and Einstein's quote "***If you can't explain it simply, you don't understand it well enough***", I comprehended concepts by imagining myself teaching in front of an audience and I challenged myself to elucidate complex ideas to my peers in simple language. I have found it easy to answer questions like "Calculate the stress induced when a load is applied....". But, during the fellowship, the kind of questions which I often faced in my daily class were open-ended like "Sir, how did our Earth form? What is happening behind the computer screen?". The more I delved into these open-ended questions, the more I unlearned about my previous assumptions and started approaching concepts and problems through **first principle thinking**. I strongly believe in student leadership, student driven learning and **constructionist learning theory** which advocates that students learn by constructing their own meaning out of the experiences by exploring and making connections to their prior knowledge. Thus, I focused on curating learning experiences for students where they can engage, explore, construct their own meaning and leverage their learning to create something meaningful for them. In this spirit, I have curated and designed a **Makerspace** in one of our classrooms where students can create and tinker with products and conduct and analyse Science experiments. Makerspaces fosters creativity, inquisitiveness and provides an environment where innovation can thrive. I believe that students should have the **opportunity to create as much as they consume**. Check out these clips ([What we do](#), [How we learn](#), [Makerspace](#), [Student Musical production](#)).

By working with key stakeholders like students, parents, Government teachers and officials and IAS officers I had an opportunity to **understand the grass-root level realities of our public education system**. In my opinion, although the national schemes and policies appear good, the breakdown happens in the implementation of policies due to political pressure, lack of technical infrastructure, poor investment, communication protocols and human resource. The sad reality is that **almost 50% of a teacher's time goes into admin work**, most of which are redundant and could be enhanced by technology.

One of my biggest learning during the fellowship is the **power of collective action**. During my fellowship, I have established and nurtured partnerships with a lot of organizations like [Just For Kicks](#) to nurture leadership in kids through football, [American International school](#) to train our students in Model United Nations, [SpaceKidsIndia](#) to provide an opportunity and resources for our students to build their own micro-satellites, [Young Entrepreneur Academy](#) to train students in Entrepreneurship, [Reap benefit](#) to train our students in solving civic problems through design thinking and so on. As a school team of 4 fellows, have invested and mobilized our stakeholders like parents, volunteers, donors, partner organizations, government teachers, government officials, janitors, watchman and shopkeepers in creating a rich ecosystem of support for our students.

Some of our proud achievements

- Our student team was one of the top ten teams in India selected to present their research paper on 'Judicial use of Electricity' at the '**City as Lab**' **National Conference in Mumbai**.
- Our student team has won the '**First Lego League**', an **International Robotics competition** and won the best project presentation award across 25 plus teams in Tamil Nadu.
- Our students have conceptualized, developed a mobile app using [App Inventor](#) which will help people to report civic problems in their community and presented the same at the **Young Entrepreneurs Academy conference**
- Our students have piloted and successfully implemented a solid waste management project in our school.
- Our students have presented their projects at **ICON conference held at SSN**



Currently, as a makerspace consultant, I am curating and designing a catalogue of online courses with dedicated LMS which will enable middle school students to create apps, games, 3d models and animation films (Check out this [link](#)) .

In the long run, I hope to start a chain of community and school makerspaces which will drive innovation and cultivate maker mindset in individuals.

If you want to know more about the Teach For India Fellowship program or about Makerspaces, feel free to reach out to me on

Email: deepakram14025@mech.ssn.edu.in

Phone: 9677067840

Amazing Innovation- 165

Shoot a photo and drop it on computer screen

How would you like to take a photo and then in the same way drop it on your computer screen? It is magical, like a reverse of photographing!



Normally, we might take the photo on our phone, e-mail it to our computer and then import it into Photoshop.

But a new smartphone and desktop app coming from **Cyril Diagne**, an artist-in-residence at Google, greatly simplifies the process. Called **AR Copy Paste**, it can literally take a photo of a plant, mug, person, newspaper—whatever—on your phone, then, through a magical bit of UX, drop that object right onto your canvas in Photoshop on your main computer.

You have to see it to believe it. So take a look: <https://twitter.com/i/status/1256916982764646402>

How does that paste work? It's actually the result of two photos taken at once, Diagne explains. When you hit the paste button in the app, your phone's camera takes a photo of your monitor, and your computer takes a screen grab of what's showing on the monitor. So for this effect to work, you need software installed on both your mobile device and your computer. The software cross-references these two images to figure out your position in relation to the computer screen and create that perfect paste moment.

Source: http://rev.vu/xxeAZ7?utm_campaign=Issue&utm_content=domain&utm_medium=email&utm_source=Compass

Amazing Innovation- 166

Wearable hand sanitizer

Maintaining good personal hygiene is always important to reduce the risk of catching infectious diseases, but in the midst of a global pandemic it is downright vital. Washing your hands may be pretty easy when at home, but as lockdowns around the world ease and people venture out more, keeping hands clean becomes much more difficult. That's where the Go.C Sanitizer comes in. Carrying a bottle of hand sanitizer has quickly become essential in the wake of COVID-19, but it's hardly convenient. The bottles don't fit in a pocket well and are easy to lose in the bottom of a bag or backpack – not to mention the hassle of fumbling with the caps that are even easier to lose. And needing to reach for them every time you come into contact with multitude of surfaces that potentially harbor viruses – from door handles and keyboards to money and doorbells – can quickly become a nuisance.

Developed by Wellness Innovation Labs, the Go.C is a personal, wearable hand sanitizer dispenser that ensures clean hands are conveniently always within reach. Designed to clip onto a belt, pocket or bag using the built-in fastening system, the device dispenses the optimal amount of liquid hand sanitizer right into the palm of your hand at the push of a button – no mess, no fuss and, most importantly, no risk of contamination.



Its ergonomic design makes the Go.C easy to use at all times of the day. Plus, it's made from recycled and recyclable plastic that's resistant to alcohol without painting, meaning it's much better for the environment than using disposable bottles of hand sanitizer. Additionally, the device's button and tube are made from hypoallergenic silicone, and two color options are on offer to ensure it'll match your style.

Measuring 3.74 x 1.97 x 1.18 inches (95 x 50 x 30 mm), the Go.C is compact enough to sit unobtrusively on your belt all day, even when sitting down. It holds 1.12 oz (33 ml) of liquid, which means it easily comes in under the carry-on limit for air travel. When empty, the device is easy to refill with your preferred sanitizer using the simple refill cap.

Source: <https://www.kickstarter.com/projects/wilabs/goc-personal-wearable-hand-sanitizer>

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Free mask vending machine

Hong Kong is installing new vending machines where low-income residents will be able to pick up free face masks to help stop the spread of COVID-19.

While Hong Kong had managed to suppress the spread of coronavirus earlier this year, the return of residents who have traveled back from other parts of the world has sparked a spike in new cases.

New World Development has partnered with eight non-profits who will be distributing smart cards that low-income, at-risk residents can use to get the masks from the vending machines.

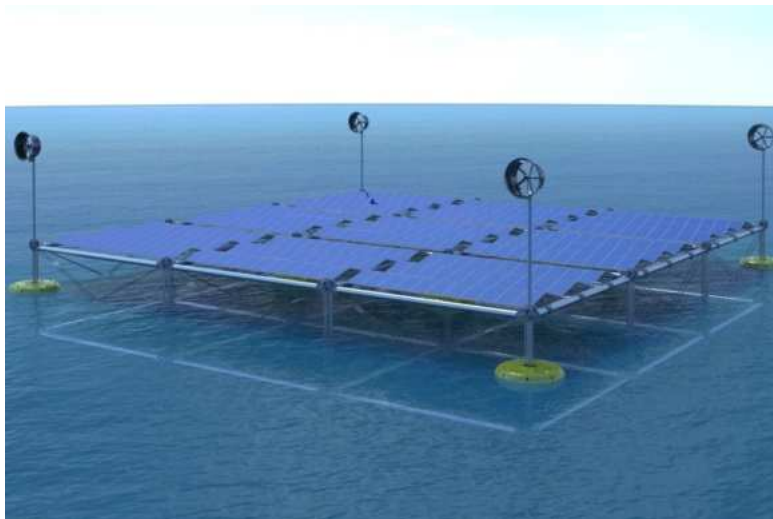
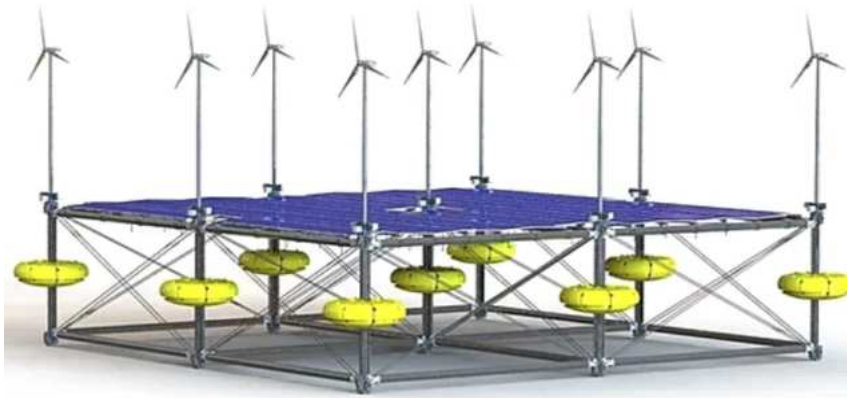
The goal is to get the masks to the most vulnerable to the virus without them having to wait in lines and risking exposure to the virus.



<https://www.ideaconnection.com/new-inventions/face-mask-vending-machines-15181.html?ref=n1042920042820>

Floating ocean platform harvests wind, solar and wave energy

German company Sinn Power has proposed a hybrid offshore power generation platform that combines wind turbines, solar panels and wave energy harvesters to generate off-grid electricity for people living close to the coast. It's conceived as a modular system that can be specified with any or all of these features, depending on where it's being deployed and what your power needs are. Designed to handle waves up to six meters (19.6 ft) in height, it can harvest energy from waves up to 2 m (6.5 ft) high without the platform itself moving much at all, thanks to a series of floats that move 10-ft (3-m) pushrods up and down in response to wave activity. Each of these can generate up to 24 kW in ideal conditions, and there's one at each corner of each 12 x 12-m (39.3 x 39.3-ft) floating unit. On top of that, you can place 6 kWp wind turbines at each junction point, and cover the entire top surface with solar panels, which could contribute up to a total of 20 kW to the final output of the unit. You can stick units together to scale the whole thing up. Sinn Power is pitching this as a renewable power option for island resorts, particularly in the Caribbean, presumably with a sizeable cable snake to get the power back onshore. Watch its action at <https://youtu.be/vxVhLC4dCbg>



Source: <https://www.sinnpower.com/post/the-world-s-first-floating-ocean-hybrid-platform>

Forthcoming events

The Department of Mechanical Engineering of CMR Institute of Technology Hyderabad is organizing 2nd International Conference on Manufacturing, Material science and Engineering (ICMMSE 2020), during **7th and 8th August 2020** in CMRIT Hyderabad Telangana, India. For more information about the conference log on to <http://www.icmmse.in>. The submission deadline for papers is 15th July 2020.

The Third Malaysian International Tribology Conference will be held during **Sept 28-30, 2020** at Langkawi islands. MITC2020 official website: www.mitc2020.mytribos.org
Submission page: <https://www.mitc2020.mytribos.org/page-3/>
Submission link: <https://cmt3.research.microsoft.com/MITC2020>

The **2nd Innovative Product Design and Intelligent Manufacturing System: National Conference (IPDIMS 2020)** will be held at National Institute of Technology, Rourkela, India during **December 02 - 03, 2020**. Authors are requested to follow any of the following methods for manuscript submission: Online submission: <https://easychair.org/conferences/?conf=ipdims2020> (OR)

Submit the article via email: icpdims@gmail.com Last date April 15
Website: - <http://nitrkl.ac.in/Academics/Events/Conference.aspx>
<https://sites.google.com/view/ipdims/>

Corona info

1.The Govt of India has launched '**COVID Katha**', a multimedia guide on the COVID-19 disease. It has excellent information on COVID with animated videos. Have a look at

<https://dst.gov.in/sites/default/files/COVID%20KATHA%20English.pdf>

2.Message from Dr.Chitra Babu (HoD-CSE)

Lot of scientists across India have come together to curate information regarding COVID19 and the group is named as ISRC(Indian Scientists Response to Covid19). It provides both higher level information to scientists/healthcare professionals as well as information to the common public in multiple local languages.

You can check out the link <https://indscicov.in>



ஹெள்ளத் தணை மலர்நீட்டம் மாந்தர்தும்
உள்ளத் தணைது உயர்வு.

Thirukkural 595



Mr. V. Kumarasubramanian
Formerly, GM Learning and Development,
Tube Investments of India Ltd
Member, Dept Advisory Committee

The above Thirukkural means 'The stalks of water flowers like Lotus grow proportionate to the depth of water in the pond. Similarly, Men/Women also grow in lives, proportionate to their minds/thoughts'.

It goes without saying that if we think big, we can become big in life.

Karsanbhai Patel was born in a farmer family in Mehsana District of Gujarat in 1945. He studied Chemistry and after graduation, began his career as a humble Laboratory Assistant in New Cotton Mills, Ahmedabad. Then he changed his job and joined the Geology and Mining department of Gujarat government.



Karsanbhai Patel, pushed by his urge to have his own business, started mixing chemicals to make Soap Powder at his home in a 10' x 12' room.

As a person who had good knowledge in Chemicals, he was the earliest to formulate **phosphate free synthetic detergent powder** that was **much cheaper** compared to big brands from giants like Hindustan Lever (Now Hindustan Unilever Ltd, HUL).

- He used to pedal his way on a bicycle to his Government office, 17 kms away, daily. He didn't waste even that time. He chose to carry the hand made detergent powder and sold to house holds on the way.
- He clearly identified and targeted the lower- middle-income group, which formed the major chunk of population in his area, while branded products from multinational giants were focussing on premium segments.
- His product was liked by the users as it was of good quality and lower priced, almost one third of the price of competitive products.
- As the product became a hit, Karsanbhai Patel grew in confidence and decided to make a plunge into full time business in 1969. He gave his products a name, Nirma, after the name of his daughter Nirupama, whom he unfortunately, lost in a car accident.

Nirma became a big brand itself, thanks to his efforts. “Washing Powder Nirma” with that swirling little girl was one of the popular ads in the media attracting house wives. A small start up Nirma gave the multinational giants like HLL and P&G a run for their money. Nirma, within about 15 years grew up as the largest selling detergent powder and detergent bar brand in India. They then started manufacturing entire range of soaps and detergents including premium ones.

Nirma then expanded to produce chemicals required for manufacture of their products as part of their **backward integration**. They are now, one of the largest producers of Soda Ash in the World. Their product range now include Soda Ash, Linear Alkyl Benzene (LAB), Soaps, Detergents, Edible (Shudh) and Industrial Salts, Alpha Olefin Sulphonate, Sulphuric Acid, Glycerin, Phosphoric Acid, Cement, Flexible Laminate and the list goes on.



Karsanbhai Patel then started **focussing on Philanthropy** – with educational institutions under the name Nirma Institute of Technology, Nirma Institute of Pharmacy, which then became Nirma University of Science & Technology or simply Nirma University. Nirma Foundation, Nirma Memorial Trust are other institutions which he has created. He also runs Nirma Labs Education Project to help aspiring entrepreneurs to conceive and incubate their projects.

Nirma has now grown to employ about 25000 employees with annual turnover of about Rs.15000 Crores.

Karsanbhai Patel is recognised for his achievements with Padmashri Award, Udyog Ratna Award, Outstanding Industrialist of the Eighties award by Gujarat state government. .

- Humans can see only what they want to see.
- So, for us to succeed, our mind should be in a state of preparedness for what we want to do and achieve.
- We then will be able to discover opportunities lying around us and staring at us, as Karsanbhai Patel did.
- He was able to identify opportunity in the form of quality and cost effective detergent products needed by lower/middle income group which was not catered to by big players.
- In a way, this is what Design Thinking also suggests.



As human beings all our senses are designed with certain bandwidth of perception. Our eyes can see VIBGYOR. Infrared and ultraviolet, human naked eyes cannot perceive, and yet, there is infrared, and there is ultraviolet, just that we are not perceiving it, because our eyes is designed for a narrow bandwidth of perception. Anything this side and that side, we cannot perceive! There are microorganisms right now in all of us, which even if we want we cannot see, because the wavelength with which our eyes can perceive them is limited.

So which means, there is lot more to see, than what our eyes are seeing, our eyes is limited by, not by the objects in the world, our eyes are limited by the bandwidth of our visual perception.

Our ears have a limited bandwidth of perception. So there are sounds on that spectrum of decibels and there are sounds at this spectrum of decibels. And we are unable to hear it, which a dog will be able to hear, a bat will be able to hear. Which means there are more sounds in the world than what we can hear. And we are not hearing it because, we are limited by a narrow bandwidth of perception.

Our nose can only pick up this bandwidth of sensation. A dog will be able to smell, a cat will be able to smell. We are not able to because we are limited by our bandwidth of perception.

We have reached this modern times where, when we eat , even if salt is not there , we are not able to find out! We just say "Something is not okay".

Our grandmother, who has grown right through in a village, can smell food that is boiling there, and tell you, you have not yet put salt. She doesn't have to even taste it, and she can tell you. In fact, she can taste it and tell you, I think you added salt at the end, not in the beginning. I think as an afterthought only you added, correct? And she'll be able to do it.

We are all shrunk by narrow bandwidths of perception. So the world that we are perceiving, is more than what we are perceiving, and yet we are not perceiving the entire world, limited by our bandwidths of perception. Are you all with me?

Similarly, the life that is manifesting all of us, is limited by our bandwidth of beliefs. We are limited by our bandwidth. The only reason we are only a city-based brand, is because we believe we can only be a city-based brand. Somebody who is in the same line of business in which we are, is a national brand, not because they are more capable than you, but they believe they can be a national brand! Somebody in the same line of business in which we are, is now developing it into an international brand, not because they are more capable than you, but they believe they can be an international brand.

Your salary is twenty-five thousand rupees per month, and somebody else salary is one lakh per month, and somebody else is earning few crores per month. And that's because you believe you're worth only twenty-five thousand! You're saying, "No, my organization is not paying me more than this!" You are limited by your beliefs. In fact, the only reason poor people are poor, is because they don't believe they can be rich. Because lot of people their father or grandfather was poor, but they didn't believe they have to be poor, and hence we are living the life that we live. A lot of them, two generations, three generations later, continue to be poor because, they don't believe that they can be rich. You're an employee because you believe you're cut out to be an employee.

And lot of these employees have become entrepreneurs because they believe they can be an entrepreneur. Potential comes later! The skills can be cultivated, the attitudes and the competence that is required for you to do - that can be learnt.

There are people to mentor you, there are avenues to learn. We can create a child into a computer professional, and an extraordinary computer professional. This whole world believes, that we can take somebody out there who is illiterate, has no vocational basis and we can train them long enough, and they will know spoken English and they will develop a vocational capability.

Positive thinking does not guarantee success. Negative thinking guarantees failure.

There is a race and there are eight lanes there, and I'm there in one of the lane, and I'm telling myself, I know I'm going to be the champion, provided Usain Bolt is not running, and I know I'm going to be the champion, I tell myself, and I'm ready to run the race. I'm not saying because I believe I will win the race, I will win the race. Because the others also maybe believing.

But one thing I can guarantee you, I'm there in the starting block, and I am telling myself, looked at the left and looked at the right and said, no chance at all! Where am I going to win? I don't know why I'm running also. Can that person win? No, that person can never win.

Positive thinking does not guarantee success, but negative thinking guarantees failure. So it's better to think positive. I'm not saying because you believe you can be the number one, you will become the number one, but without believing you can be the number one, you're going to be nobody in life.

And without expanding the bandwidth of your beliefs, with the sort of multi-currency earning that is possible and the way the world has shrunk through technology, and the options that are available, none of you here should excuse yourself. Unless in this lifetime you can achieve something like where, you can lift hundred people, thousand people. In fact, this entire educational program should not be about lifting yourself! In fact, one of the metrics of success itself must be, you have to ask yourself, year on year, **in how many more lives have I become useful?**

- How many more people are living a life doing justice to their potential because of me?
- So it's not just about lifting yourself.
- There is a beautiful Vedic expression which says, lift yourself so that you can lift others.
- Because if I stay in the third rung of the ladder, all others will have to stay in the second rung of the ladder or the first rung of the ladder.
- **If people have to be lifted, then I have to move from the third rung of the ladder to the fourth.**
- **Then they can come to third. I have to go to the eighth, they can come to the seventh.**
- **So if you don't lift yourself, you cannot lift anybody else! And you are not going to lift yourself, unless you break this bandwidth of limiting beliefs.**

Have a great wonderful day & great week

R.Ramakrishnan

This issue has an annexure on
Coursera courses completed by Mech Faculty

The Team behind Aspire...



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Akshay Kanna



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