Volume 4 Issue 01 -January to March, 2021

Dr.M.G.R.
Educational and Research Institute
(DEEMED TO BE UNIVERSITY)
(An ISO Certified Institution)
University with Graded Autonomy Status
Maduravoyal , Chennai - 600 095

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING

MEXPRESS

Department Vision and Mission

Vision:

To educate, nurture and motivate the upcoming Engineering professionals with moral and ethical values to become a committed punctilious Engineers to the Nation.

Mission:

M1: Providing quality education through well structured curricula supplemented with practical training, guest lectures by eminent professionals, field visits to leading industries and also in-plant training.
M2: Enhancing skills through faculty development programmes.
M3: Providing ambience for innovative projects and extra-curricular activities.
M4: Equipping the department with contemporary infra-structure and the state of art R&D centre to cater to the needs of research scholars and industries.
M5: Providing training to students in emerging areas like robotics and CAD/CAM.
M6: Nurturing students having creative ideas to adopt innovative projects which can be subsequently Commercialized.

Program Educational Objectives (PEO):

1. Graduates will learn and utilize the basics of science and Mechanical Engineering knowledge to excel in their Industrial, Academic, Research and entrepreneurship career.
2. Graduates will contribute to the society as technically educated, ethical and responsible citizens with proven expertise
3.Graduates will fulfill their goals with thrive to pursue lifelong learning with creativity and innovation.

Program Specific Outcomes (PSO):

1. Students will have knowledge of Mechanics of Fluids, Thermal Energy and their applications.
2. Students will learn to design Mechanisms and Mechanical components.
3. Students will learn the various concepts of Manufacturing in Industrial scenario .
4. Students will be exposed to multi disciplinary subjects in Engineering field.

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HOD-DESK

MESSAGE

by,
Dr.M.Ganesan
HOD / Mech

The department of Mechanical Engineering is publishing the News Letter with a frequency Half yearly from 2017.The activities of the department related to student achievements, staff research details, awards and other relevant details pertaining to the department in the last 6 months will be available in the News letter at a glance. I am very happy and delighted that the department is releasing the News letter for the period January 2021-to March 2021.
I wish this edition of News letter will be very informative to all students and faculty members of the department.

MESSAGE

by,
Dr.Ethiraj,
Deputy HOD/Mech.

Welcome to the January 2021 to-March 2021 edition of Mechanical department newsletter. The pandemic has created a different life style among us. The impact of pandemic on educational system is alarming and imposed a need to explore a method to overcome this situation. Eventhough the digital learning is gaining popularity, there is a concern among the academicians regarding the conduct of practical classes. Hybrid learning, both online and classroom teaching and learning, is possible in theoretical subjects. But, some of the theory subjects such as problematic subjects and design-oriented subjects definitely need the guidance of teachers in applying the fundamental knowledge of the subjects. Also, without having the hands-on training during practical classes, the understanding of the concepts and principles is very difficult for the students and may not be possible to apply their knowledge in industry. So, a big challenge lie in front of the academicians is to develop a learning platform using the latest technologies such as augmented reality, virtual reality, animation etc. I hope that the teaching fraternity will successfully overcome these situations like the way by which we fought against the pandemic.

MESSAGE

Dear Readers,

We are pleased to release newsletter MeXpress of our Department for the period, January 2021-March 2021. We thank our beloved chairman and president for their constant encouragement in all endeavors of the department.

Besides, inspirational and informative articles, the news letter has riddles to kindle the forgotten art of reading for many. In the era of digital world and social media, reading out from print media should be refreshing and strengthen an individual's mental muscle. Success stories from past and present always brings out the best flashbacks and bound to inspire many others in aspiring for greater heights. Department is elated and thrilled to have them onboard and wishes them to conquer the unconquered territories.

Your suggestions and criticisms are most welcome for embellishing this newsletter. "Happiness is a Habit"

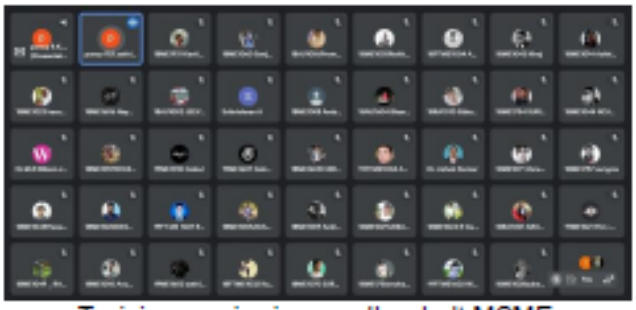
EDITORIAL BOARD

ACTION CORNER

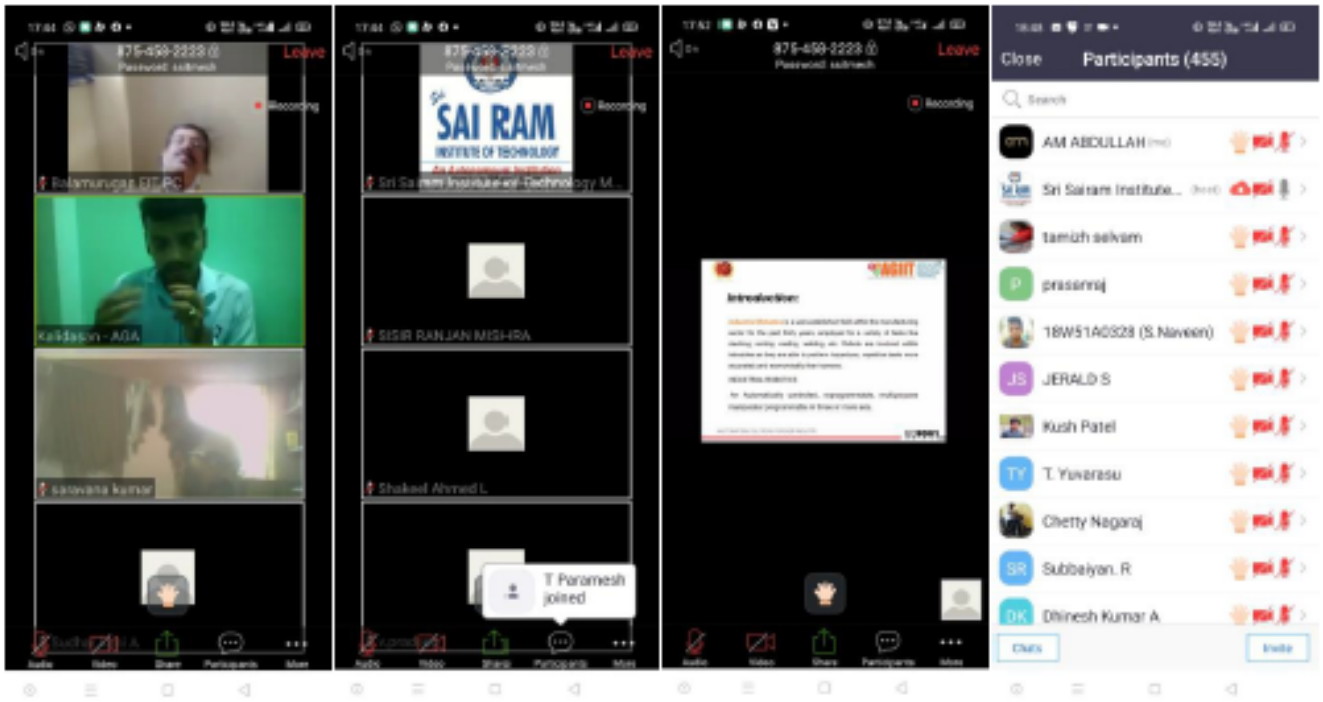
JAN-2021 to MARCH-2021

Technical Events Organized for Students

Sl. No.	Topic	Date	Resource Person
1	Training on six sigma yellow belt MSME	22-02-2021	Dr.J.Jayaseelan, Assistant Professor MGR E& RI / ME
2	Training on Creo by Aksans technologies	25-02-2020	Dr.Ashok Kumar, Assistant Professor, MGR E& RI / ME



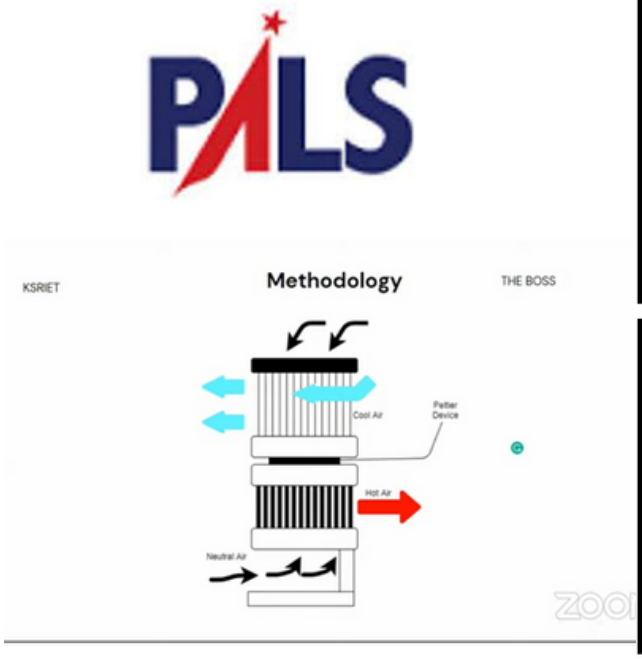
Training on six sigma yellow belt MSME



Training on Creo by Aksans technologies

PALS EVENTS

PROGRAM NAME	PROGRAM DATE & TIME	TOPIC
PALS ANALYZE - A CASE STUDY BASED EVENT	23rd FEBRUARY.2021-2.30PM-4.30PM	AIR CONDITIONER FOR HOT METAL HANDING CRANES
PALS CARES AND SHARES WEB SERIES	27TH FEBRUARY.2021-10.30AM-12.30PM	INDUSTRY 4.0 AND ITS APPLICATIONS
T2P - THEORY TO PRACTICE LECTURE	3rd MARCH.2021-03.00PM-04.30PM	VISUAL ANALYTICS WITH SELF ORGAN ISING MAPS
T2P - THEORY TO PRACTICE LECTURE	9th MARCH.2021-03.00PM-04.30PM	APPLYING THEORY TO WORKSPACE PROBLEMS
InnoWAH ! VIRTUAL EXHIBITION	20th MARCH.2021-2.30PM-5.00PM	COMPETITION RESULTS WILL BE ANNOUNCED
VIRTUAL INDUSTRY TOUR	26th MARCH.2021-3.00PM-5.30PM	BREAKES INDIA FOUNDRY DIVISION, SHOLINGHUR
PRE PLACEMENT TALK WITH BUDDI	13th APRIL.2021	
VALEDICTION	7th MAY.2021-10.30AM-1.00PM	



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ARTICLES CORNER

THERMAL ENERGY STORAGE

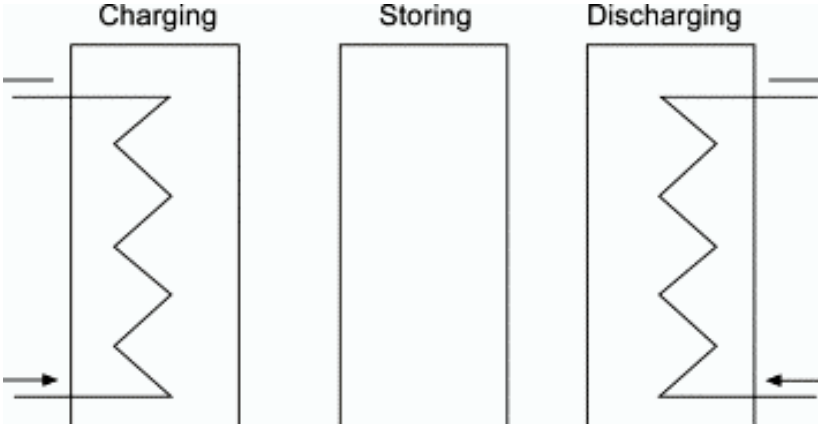
by,
Dr.K.Rajan, Professor/
Mech Engineering.

Energy storage systems are designed to accumulate energy when production exceeds demand, and to make it available at the user's request. They can help to match energy supply and demand, exploit variable renewable (solar and wind) energy sources, increase the overall efficiency of the energy system and reduce carbon-dioxide emissions.

This brief deals primarily with heat storage systems or thermal energy storage (TES), a technology that stocks thermal energy by heating or cooling a storage medium, so that the stored energy can be used later, either for heating and cooling applications or for power generation. TES systems are used particularly in buildings and industrial processes.

With these applications, approximately half of the energy consumed comes in the form of thermal energy, the demand for which can vary within the day and from one day to the next.

TES systems can help balance energy demand and supply on a daily, weekly and even seasonal basis. They can also reduce peak demand, energy consumption, emissions and costs, while increasing overall system efficiency. The conversion and storage of solar and wind energy helps to further increase the share of renewable in the energy mix.



TES is becoming particularly important for electricity storage in combination with concentrating solar power (CSP), whereby solar heat can be stored for electricity production when sunlight is not available.

There are three kinds of TES systems, namely: 1) Sensible heat storage that is based on storing thermal energy by heating or cooling a liquid or solid storage medium (e.g. water, sand, molten salts, rocks), with water being the cheapest option; 2) Latent heat storage using phase change materials or PCMs (e.g. from a solid state into a liquid state); and 3) thermo-chemical storage (TCS) using chemical reactions to store and release thermal energy. Sensible heat storage is relatively inexpensive compared to PCM and TCS systems and is applicable to domestic systems, district heating and industrial needs. However, in general sensible heat storage requires large volumes because of its low energy density (i.e. three and five times lower than that of PCM and TCS systems, respectively). Furthermore, sensible heat storage systems require proper design to discharge thermal energy at constant temperatures.

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BIASED ALGORITHMS

by,
Dr.J.Jayaprakash., Professor/
Mech Engineering.

Biased Algorithms are systematic and repeatable errors in a computer system that creates unfair outcomes, such as privileging one arbitrary group of users over others.

In October 2019, researchers found that an algorithm used on more than 200 million people in US hospitals to predict which patients would likely need extra medical care heavily favored white patients over black patients. While race itself wasn't a variable used in this algorithm, another variable highly correlated to race was, which was healthcare cost history. The rationale was that cost summarizes how many healthcare needs a particular person has. For various reasons, black patients incurred lower health-care costs than white patients with the same conditions on average.

In 2015, Amazon realized that their algorithm used for hiring employees was found to be biased against women. The reason for that was because the algorithm was based on the number of resumes submitted over the past ten years, and since most of the applicants were men, it was trained to favor men over women. As we grow up, we take in information from various sources. We learn to walk, to run, to talk, to write. There are also other factors that we don't consciously learn. For instance, someone may have grown up in a very conservative household. So their views get shaped from a conservative point of view. So issues such as tax, education, job and healthcare may be skewed

towards their upbringing and environment. In the same way the above two sample cases have given clearly that chance of AI algorithms leads to bias based on the data/information available, training pattern, and framework, etc.

"The future depends on some graduate student who is deeply suspicious of everything I have said."

— Geoffrey Hinton (Godfather of Deep Learning)

Biocon Chairperson Kiran Mazumdar Success Story

By,
Ravi Rajan N
II Robotics and Automation Engineering

Introduction:

Kiran Mazumdar-Shaw is an Indian self-made female billionaire entrepreneur and celebrated business woman. She is one of the richest women in India and is the chairperson of Biocon Limited based in Bangalore India. Biocon is a leading company in making breakthroughs in clinical research. She is also the former chairperson of the Indian Institute of Management in Bangalore. In 2019, she was listed as #65 on Forbes list of Powerful Women in the world. She is also the board member of the governors of the Indian School of Business.

Details	Description
Name	Kiran Mazumdar
Birthdate	23 March 1953
Age	67 Years
Birthplace	Pune, Maharashtra, India
Nationality	Indian
Education	Bangalore University, Melbourne University, Australia
Occupation	Founder & chairperson of Biocon
Net Worth	$1.3 Billion

Kiran Mazumdar Early Years

Kiran Mazumdar was born in Pune, Maharashtra in a Gujarati family. She was educated at Bangalore's Bishop Cotton Girls' High School and attended the Mount Carmel College in Bangalore for higher education. She studied biology and zoology and graduated in 1973 with a degree in zoology from Bangalore University. She hoped to attend medical school, but couldn't because of a scholarship.

Kiran's fascination with the research started in her early life. Her father was the head brew master at United Breweries. He believed in women empowerment and therefore, suggested that she study fermentation science and become a brew master. Upon her father's encouragement, Mazumdar attended Melbourne University in Australia and studied malting and brewing.

Eventually, she topped the class and was the only woman in the course. She earned her degree as a master brewer in 1975. She went on to get a job as a trainee brewer in Carlton and United Breweries. She also worked as a trainee master at Barret Brothers and Burston, Australia. She further developed her skills and worked as a trainee consultant at Jupiter Breweries Limited in Kolkata and also worked as a technical manager at the Standard Maltings Corporation in Baroda.

She wished to advance her career in Bangalore or Delhi, but faced criticism for being a female in the particular field. Not letting discouragement take over, she began to look for other opportunities outside India and was soon offered a position in Scotland.

In an interview, Mazumdar said that if you think about brewing, it is biotechnology. She said that whether she fermented beer or enzymes, the base technology was the same. She returned to India and started Biocon in a garage of her rented house in Bengaluru with a Capital of Rs. 10,000. At that time, the Indian laws restricted foreign ownership in a company to 30%, which gave 70% to Mazumdar. She eventually moved the business into manufacturing medicines. The enzyme sales were bringing in cash when allowed funding the research and production of pharmaceutical drugs. She once said that at that time, there was no venture funding in India, which forced her to create a business model based on revenues and profits.

With the prejudice against her gender and many challenges with the business model, she did face some hard times with meeting her financial needs. She also faced difficulty in getting a loan from a Bank. Finally, a meeting with a banker at a social event helped her to get her first financial backup. Her first employee was a retired garage mechanic and her first factory was nearby a 3000- square foot shed. However, success came her way within a year with Biocon India becoming the first Indian company to be able to manufacture enzymes and export them to the U.S. and Europe.

By the end of her first year, she used her Earnings to buy a 20-acre property to expand her business.

She headed the evolution of Biocon from being an industrial enzyme manufacturing company to a completely integrated biopharmaceutical company with a research focus on diabetes, oncology and auto-immune diseases. Soon, she established two subsidiaries called Syngene in 1994 and Clinigene in 2000. Syngene provides early research and development support services on a contract Basis and Clinigene focuses on clinical research trials and development of both generic and new medicines.

Clinigene later merged with Syngene. It was listed on the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) in 2015. The current market cap of the combination is Rs. 14.170 crores. In 1997, Kiran's fiancé, John Shaw, personally raised $2 million to purchase Biocon's outstanding shares from the Imperial Chemical Industries (ICI) after Biocon was sold to them by Unilever in 1997. The couple married in 1998. Shaw left his post as chairman at Madura Coats and joined Biocon in 2001 becoming the firm's first vicechairman. In 2004, Narayan Murthy advised Kiran to list Biocon in the stock market. Her intention remained to raise capital to develop Biocon's research programmes.

Biocon became the first biotech company in India to issue an IPO, which was oversubscribed 33 times. It's the first day closed with a market value of $1.1 billion and it became India's second company to cross the $1 billion mark on the first day of being listed in the stock market.

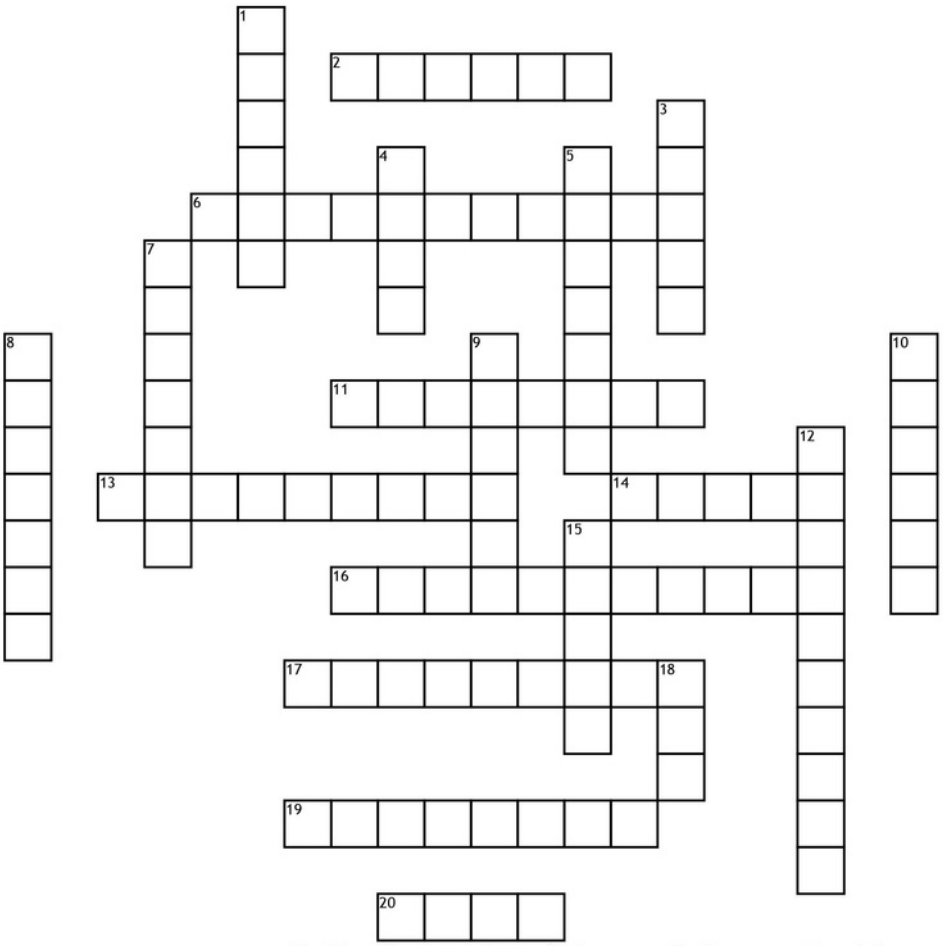
Conclusion

Kiran Mazumdar-Shaw is an amazing woman who has proved to the world that women can excel in any field. Society needs to accept women for their potential and talent.

PUZZLE

BY,
JOEL.,
2 ND YEAR /AUTO DEPT.

Cars



Across

2. Is a structure attached to or integrated with the front and rear ends of a automotive

6. Italian brand manufacturer of luxury sports cars and SUVs based in Santagati Italy. This company is owned by the Volkswagen Group.

11. Car division that was founded on August 2nd 1902

13. An American Automobile division of the American manufacturer General Motors

14. In the early 1900's they were originally a supplier of parts for Detroit based automakers

16. Ford car first produced in 1955

17. Gives fire to engine cylinders

19. One of the Big Three American automotive companies

20. A wholly owned subsidiary of Fiat Chrysler Automobiles

Down

1. Japanese multinational automobile manufacturer headquartered in Nishi-ku, Yokohama

3. An upscale automobile brand of the American manufacturer General motors

4. This Brands first car is the Model A

5. Brand that was founded in 1917 by Henry M. Leland

7. German automobile manufacturer specializeing in high-performance sports cars,SUVs,and sedans

8. The "original" wheel covers

9. Used in an internal combustion engine to derive motion

10. Stopping power for your car

12. "All the better to see you with"

15. Company was initially founded in 2003 by Martin Eberhard and Marc Tarpenning

18. General Motors that primarily focuses on trucks and utility vehicles

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ACHIEVER'S CORNER

Dr.K.R.VIJAY KUMAR

Professor/ Mech

Dr.K.R.Vijaykumar is a charismatic person who keeps striving forward to explore new avenues in his field of excellence. Has been associated with many high end research projects funded ISRO and DRDO. AICTE ATAL sponsored online FDP, a first of its kind at Dr.MGR Educational and Research Institute, was conducted successfully with over 200 participants., on waste Management Technology .Has published around 40 research articles in peer reviewed journal and has also submitted proposals to SERB and DST.Has 3 patents to his name and is currently guiding a bunch of scholars besides has successfully has helped 3 researchers through their PhD program.

S.KARTHIKEYAN (2016-2020)

S.KARTHIKEYAN
161131101047
MECHANICAL ENGINEERING
2016-2020

INTERNSHIPS ATTENDED

- 1. ARIHANTH FORGINGS 25/12/2018-25/01/2019
- 2.RANE MADRAS LTD 01/07/2019-31/07/2019
- 3.BRAKES INDIA PVT LTD 01/02/2020-23/03/2020

SYMPOSYUMS – CONFRENCES – TRAINING PROGRAMS

- 1.YANTRAM 2019 MECHNAICAL ENGINEERING – ORGANIZED QUIZ EVENT
- 2. MECHANICAL AND ELECTRICAL CONFRENCE IN IIT PALS
- 3. TRAINING ON REPAIR AND MAINTENANCE OF MPFI PETROL ENGINES FROM ADVANCED TRAINING INSTITUTE, GUINDY

CERTIFIED COURSES - PROJECTS

- 1. HANDS ON EXPERIENCE IN CREO
- 2. CERTIFIED COURSE IN SOLIDWORKS.
- 3. ELECTRONIC WASTE MANAGEMENT PROJECT –IIT PALS (PROPOSED)
- 4. DESIGN AND DEVELOPMENT OF SOLAR OPERATED AUTOMATIC SEED SOWING MACHINE –FINAL YEAR PROJECT – (COMPLETED)


Dr. M.G.R.
M.G.R.


Brakes India Private Limited
RECEPTION
Shot on vivo S1
AI Triple Camera

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ALUMINI CORNER

An Experience to share "Teenager to Undergraduate in Dr. MGR College and thereafter to Corporate life"

By,
Yash Prakash(2007-2011)

I am Yash Prakash 2007-11 batch, Mechanical department Alumni. I would share my journey through Dr. MGR College. An eager to grow, college entry enthusiast psyche can be correlated as I am sure we all would have come across with this thinking and perception. I would share as to how I came to this wonderful institute and pursued my degree. Currently I am on the role of Sr. Key Account Manager for Automobile OEMs across Asia developments for Automobile Lubricants.

There are many advancements since the day I first came to college to get myself enrolled during my visit to Anna Block somewhere in May'2007. Though I would not call myself as a meritorious Rank holder in AIEEE (Around 21000), still for getting enrolled below 40000 ranking were allowed for entry and during those times Mechanical department of our College i.e. Dr. MGR educational and Research Institute used to be renowned. It was primarily due to the experienced Faculty members which was rare elsewhere to find. With word of mouth and other seniors' recommendations, I got myself enrolled. 1st Year was fantastic as the subjects were almost similar to that we studied in 12th grade however the 2nd year onwards it made me really feel that Mechanical department was not fancy thing to hear and get oneself enrolled.

There were chapters which used to be felt as whole book. There was no doubt about teaching and focus of professor which used to be reaching to almost all the students but it was us who were not so attentive. I would blame the reckless age of us which made more diversions than productive attention. The time came for evaluation, i.e. exams came and me along with my class mates appeared. I remember the treo subjects SOM(Strength of Material), MOM(Mechanics of Material) and DOM(Dynamics of Material) which used to be nightmare just because of lack of focus. We used to burn midnight lamps to get ourselves equipped with the subjects for appearing and clearing exams. Those were really wonderful days and as the proverb is said simply “it cannot be understood until experienced by oneself to feel the feeling”.

There is huge change as we come in teenage mindset and the time we go being graduates with several precious experiences which is rare to have and necessary to excel in life. Of course Degree is prime objective to have admission however there are other experiences as well such as how to manage our day to day life & How to live independently after coming from homely environment. Also we learn How to groom oneself to be a professional during our final year days as the feeling of jobless graduate initiates haunting since at that point of time the companies which used to approach our college were less and students were more in Mechanical department. I appeared for one of the companies and was placed in Fabrication industry as planning engineer. There I used to relate the subjects and got hold of what were taught as those were the practical applications in real life.

After an year, I got opportunity in Automobile company and from there I went to Japan for prolonged period and it was there again I could recall the subject's practical application during the tests of products such as Torque, Coefficient of Friction, Rotation and Translational movement. Those 4years we studied in College will remain all through life and it acts as pillar in future advancements. As the career advances, development depends on the efforts we make i.e. it can be corporate life or entrepreneurial venture.

If with my current maturity, I were to decide what could have been improvised at that point then I would suggest there should be more Focus. Although the younger self of us is difficult to hold as we think we can do everything at single point but that's not actually true. Anyways we should give our focus and approach should be consistent and then expect things would turn up as per our desire. There should be "CAN DO" attitude and rest will be accomplished.

Thank you,

Yash Prakash

linkedin.com/in/yash-prakash-05880518


GLIMPSES OF COLLEGE DAYS
JOURNEY FROM TEENAGE TO GRADUATE AND THEN TO CORPORATE


ATTENDING LECTURE IN 1ST YEAR


CHENNAI MEMORIES
MMT Racing Circuit visits being enthusiast
Birthday celebrations with Roomates


FINAL YEAR DURING PASSOUT


PROFESSIONAL JOURNEY
Placed in Techno Fab as Planning Engineer
Joined OILES Corporation Japan as Technical Sales manager
Currently Working as Sr. Key Account Manager
at Japanese Corporation – Idemitsu Lube

RANK HOLDERS

MECHANICAL TOPPERS 2016-2020 BATCH

ARRANGED BY PERCENTAGE

VAIKUNTA SUJITH –CGPA 9.45 ,89.89%

SATTI RAJA SAI PAVAN KUMAR REDDY- CGPA 8.83 , 83.94 %

KARTHIKEYAN.S- CGPA 8.87, 83.28%

JASHIM UDDIN – CGPA 8.90, 82.69%

AADITYA KUMAR – CGPA 8.78 , 82.00%

PUBLICATIONS

STAFF PUBLICATIONS
JANUARY - MARCH 2021

TITLE OF THE PAPER	NAME OF THE AUTHOR	JOURNAL/ CONFERRENCE	MONTH-YEAR Of PUBLICATION
An improved machine learning approach for predicting ischemic stroke	N.Suresh kumar, M. Thangamnani, V.Sasikumar, S. Nallusamy	International Journal of Engineering Trends and Technology	JANUARY-2021
A comparative study of spherical and cylindrical shells thermal energy storage systems using paraffin wax-palmitic acid and their eutectic mixture	K.Rajan, P.Bhagyalakshmi, K.R. Senthil kumar	International Journal of Ambient Energy.	JANUARY-2021
Investigations on silicon nitride superimposed nanocoated cutting tool by physical vapour deposition and atomic force microscopy	S. Nallusamy	Applied Nanoscience (Switzerland)	FEBRUARY-2021
Effect of nanoparticle-blended biodiesel mixtures on diesel engine performance, emission, and combustion characteristics	K.R.Senthil kumar, K.Rajan, K.purushothaman	Environmental Science and Pollution Research . https://doi.org/10.1007/s11356-021-13367-x	MARCH-2021

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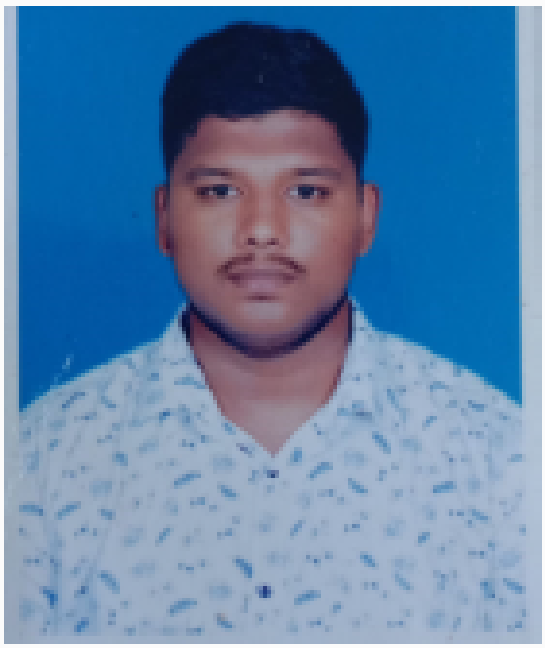

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