

Department Of
Mechanical Engineering
Presents

***MECH
MAG
2024***

MECHANICA

2023-2024

CYBER LOVE

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VISION

To transform students from rural background into professional leaders of tomorrow in the field of Mechanical Engineering with a strong sense of social commitment

To impart quality engineering education leading to specialization in the emerging areas of CAD/CAM/CAE, Energy Engineering and Materials Technology to provide continually updated and intellectually stimulating environment to pursue research and consultancy activities

MISSION

Programme Educational Objectives (PEOs)

PEO1. Technical Expertise: Actively apply technical and professional skills in engineering practices towards the progress of the organization or the entrepreneurial venture in competitive and dynamic environment.

PEO2. Lifelong Learning: Own their professional and personal development by continuous learning and apply the learning at work to create new knowledge.

PEO3. Ethical Knowledge: Conduct themselves in a responsible, professional and ethical manner supporting sustainable economic development which enhances the quality of life

Programme Outcomes (PO)

On successful completion of B.E. Mechanical Engineering programme, graduating students/graduates will be able to:

PO1. Apply knowledge of basic sciences and engineering concepts to solve complex mechanical engineering problems.

PO2. Identify, formulate, and analyze engineering problems using scientific principles and concepts.

PO3. Design products, manufacturing processes and facilities that deliver the requirements of the target customers and desired quality functions.

PO4. Conduct experiments, analyze and interpret data to provide solutions for engineering problems.

PO5. Use appropriate tools and techniques to solve engineering problems.

PO6. Apply contextual knowledge to make informed decisions in societal, health, safety, legal, entrepreneurial and cultural issues.

PO7. Demonstrate the knowledge of need for sustainable development in providing engineering solutions in global, environmental and societal contexts.

PO8. Practice Ethical responsibility.

PO9. Work effectively in teams and build/manage interpersonal relationships.

PO10. Communicate effectively through oral, non-verbal and written means.

PO11. Apply management principles to manage individual and team work for executing projects in a multidisciplinary environment.

PO12. Articulate and engage in pursuit of career and life goals through continuous Learning.

Programme Specific Outcomes (PSOs)

PSO 1: Demonstrate functional competencies for roles in design, manufacturing and service by learning through centers of excellence and industrial exposure.

PSO 2: Demonstrate behavioral competencies required for roles in design, manufacturing and service by learning through structured professional skills training

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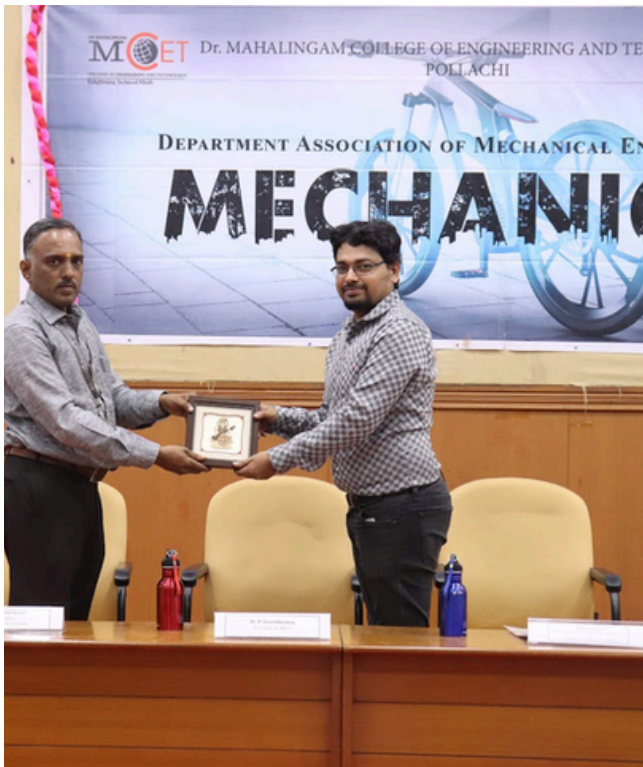


Aswin S
IInd Year
PHOTOGRAPHY



EVENT COVERAGE

ALPHA STEP



On September 11th, 2023, the Mechanical Engineering Department inaugurated the Mechanica association. The event was honored by B.E., M.S. (IITM), founder & CEO of FEM Logic Technology and SKYRAPTOR India Pvt. Ltd., who inaugurated the association and delivered a technical presentation on CAE analysis in product validation.



EVENT COVERAGE

EXPERT TALK - on entrepreneurship and innovation as career opportunity



On November 4th, 2023, Mr. Prithviraj B, an alumnus of the 2013 batch, delivered an expert talk on Entrepreneurship and Innovation as a career opportunity, engaging with students. He enjoyed his time with the students and cherished the memories created during the interaction



EVENT COVERAGE

MECHANICA ASSOCIATION PRESENT'S – PAPER PRESENTATION

TECHNOFETE'23



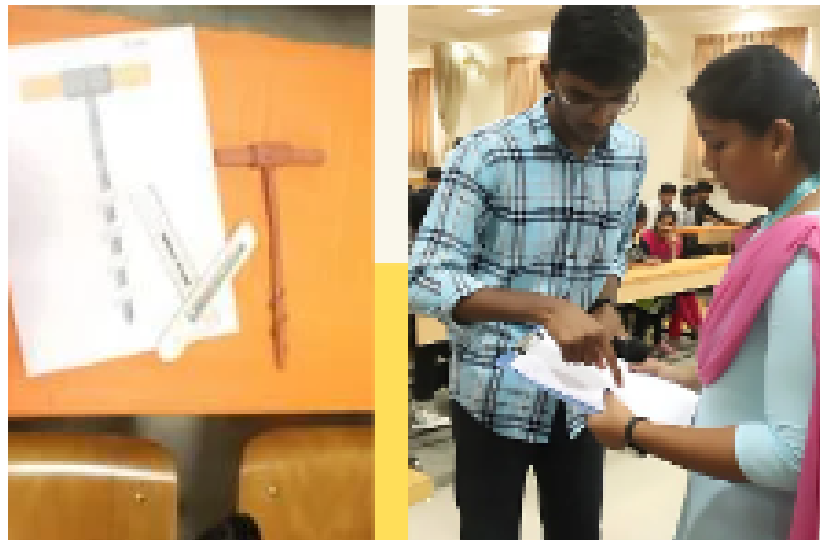
DAY-1 : PAPER PRESENTATION

On November 6th, 2023, during the first day of the Technofete event, a paper presentation session was held. Numerous teams participated enthusiastically, presenting their work in front of the examiners.



DAY-2 : MECHMANIA

On November 7th, 2023, during the second day of the Technofete event, Mechanica organized non-technical events consisting of three rounds. Students from all years actively participated in the Mechmania event.



EVENT COVERAGE

3D PRINTING WORKSHOP



On February 17th, 2024, Mechanical Engineering orchestrated an illuminating workshop on 3D printing tailored for second-year students. This engaging session delved deep into the intricacies of 3D printing, providing not only theoretical knowledge but also hands-on demonstrations of its practical applications. Facilitated by esteemed academics Dr. Hariharan and Mr. Gideon Ganesh, the workshop not only imparted technical know-how but also instilled a newfound ethical perspective, inspiring students to approach technology with a broader sense of responsibility and innovation.



Chinnampalayam, TN, India
Makkinampatti, Chinnampalayam, 642003, TN,
India
Lat 10.654644, Long 77.035513
02/17/2024 09:55 AM GMT+05:30
Note : Captured by GPS Map Camera

EVENT COVERAGE

in POWER HOUR WORKSHOP



ON THE 28TH OF MARCH, 2024, AN ENRICHING AND ENLIGHTENING “LINKEDIN POWER HOUR” SEMINAR TOOK PLACE, ENGAGING WITH THE SECOND-YEAR MECHANICAL ENGINEERING COHORT, CULMINATING IN A JUBILANT RECOGNITION OF THEIR BRIGHT HORIZONS. THIS SESSION, FOCUSED ON LEVERAGING THE PROWESS OF LINKEDIN FOR CAREER PROGRESSION, IMPARTED INVALUABLE WISDOM AND ACTIONABLE ADVICE, EMPOWERING STUDENTS TO CRAFT CAPTIVATING PROFILES AND CULTIVATE MEANINGFUL PROFESSIONAL NETWORKS.



EVENT COVERAGE

POSTER PRESENTATION



On February 24th, 2024, Mechanical facilitated an inspiring poster presentation session titled "PLM, NPD & MBSE." This engaging event, aimed at second, third, and fourth-year students, provided a platform for them to explore the critical steps involved in bringing their project ideas to life. Students showcased their exceptional presentation skills and effectively communicated their project concepts through well-structured and informative posters

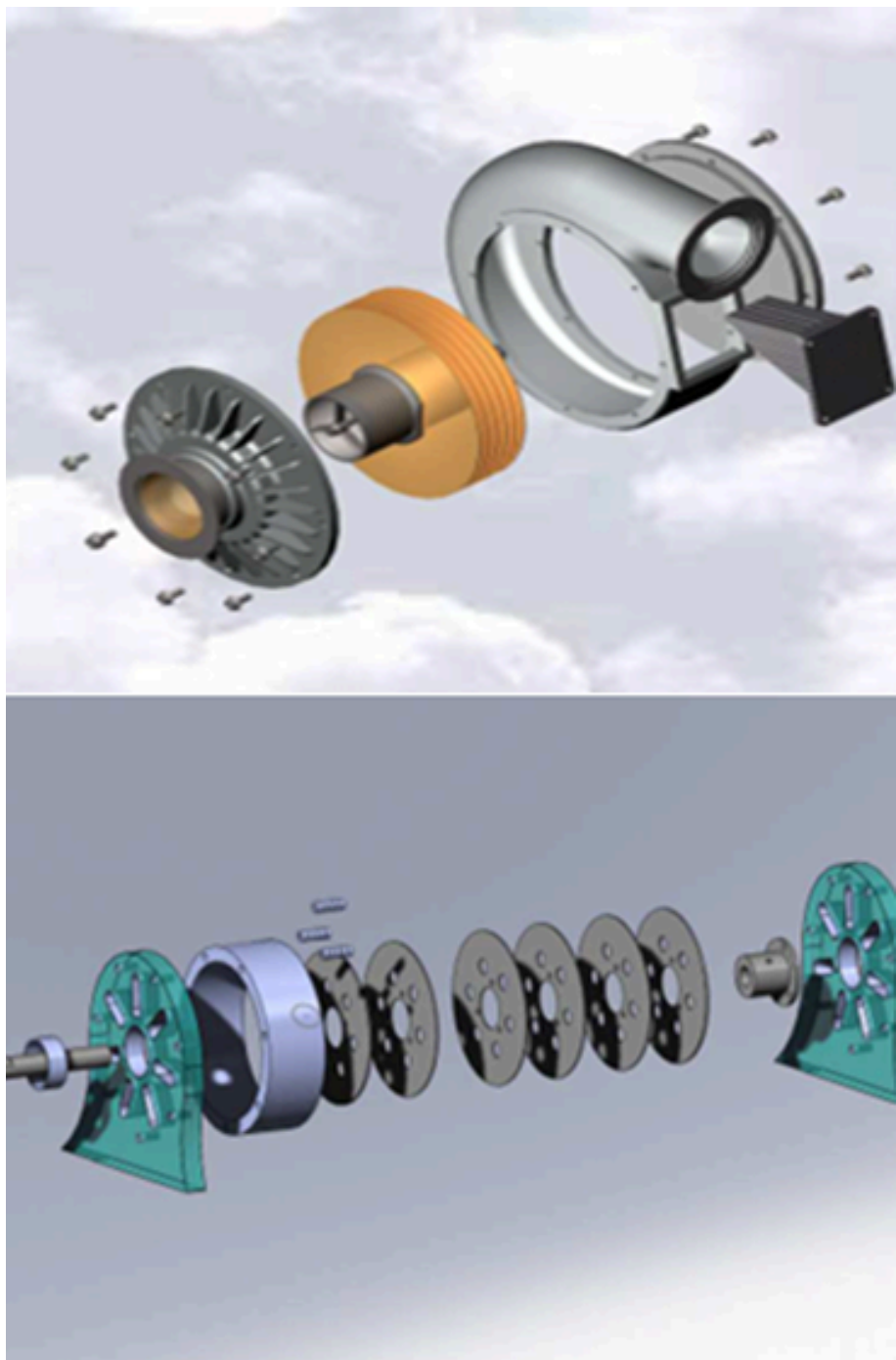


FEATURE ARTICLES

Tesla Turbines

ABSTRACT: The Tesla turbine is a non-conventional bladeless turbine which works on the principle of boundary layer. It consists of a number of parallel discs fixed on a shaft with gaps between the discs. The fluid is made to flow tangential to the discs inside a casing. Momentum is transferred from the fluid to the discs due to viscous and adhesive forces.

INTRODUCTION Turbomachines are machines which convert fluid energy into rotational motion. Tesla turbine, also called as Prandtl turbine and boundary layer turbine, is a nonconventional turbomachine which operates on the principle of boundary layer. It does not use friction for its working, instead it uses adhesion and viscosity for its functioning. Energy is transferred from fluid to the rotor by dragging discs mounted on the shaft due to boundary layer effect. Fluid flows tangentially towards the discs, follows a spiral path towards the center and exits axially. The fluid loses its kinetic energy to the discs, thus causing the rotation of rotor. Both compressible and incompressible fluids can be used. The manufacturing of Tesla turbine is much easier compared to the conventional turbines. Also, the turbine is unaffected by the quality of the fluid, thus can be used with fluids containing particulates. A tesla turbine is a reversible turbomachine therefore it can be used as pump. In a pump configuration, the fluid enters axially near the center. The discs provide energy to the fluid, following a spiral path and thereby exiting from the periphery.



CONSTRUCTION AND WORKING: The Tesla turbine consists of a number of discs mounted parallel to each other on a shaft. Nozzles are located at the periphery of cylindrical casing and tangential to the shaft, pointing toward the inside. The discs are separated by thin gaps for the fluid to pass through it. Exhaust ports are located near the center of the turbine. Fluid enters tangentially into the turbine from the periphery. It is made to enter the gap between the discs. The moving fluid drags the discs in the direction of the flow. Due to this there is a transfer of kinetic energy from the fluid to the discs. This transferred energy causes the discs to rotate with the shaft. The fluid thus slows down as it moves towards the centre in a spiral path exiting from the exhaust ports.

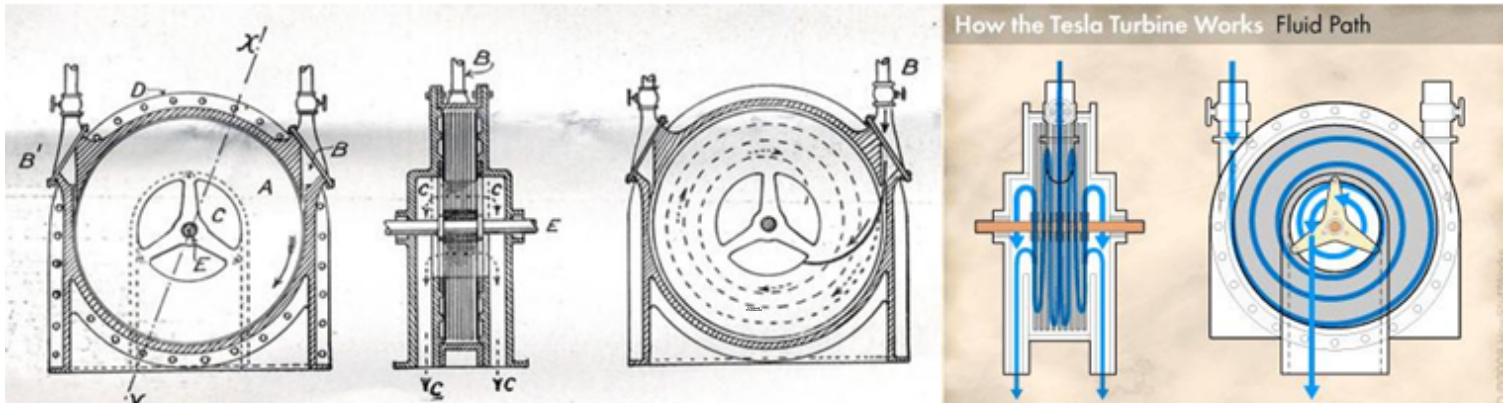
FACTORS AFFECTING PERFORMANCE:

Performance of tesla turbine is affected by various parameters. Few of them are:

- Number of discs: The number of discs can be increased to increase the torque obtained.
- Dimension of the discs: The inner and outer radius determine the length of the spiral path followed by the fluid. The more the area of the discs the longer path will be travelled by the fluid.
- Size of the gaps between the discs: The thickness of the gap should be equal to twice the boundary layer thickness.
- Number of nozzles: The torque obtained will be increased if the number of nozzles are increased.
- Reynolds number: The laminar boundary layer thickness depends upon the Reynolds number.
- Velocity of the flow: The velocity of the fluid causes the kinetic energy which is transferred in the turbine.

APPLICATIONS: Tesla turbine was designed to use fluids as motive agents to rotate the rotors. It is found to be useful in low power applications but lacks in performance in high power applications. Many experiments have conducted using tesla turbines for various applications such as steam turbines, turbo for automobiles. One of the most important applications of Tesla turbine is that it can be used where the working fluid contains particulates such as salt water or impure water. It also has applications when working with low and high viscous fluids. Though Tesla turbine has not been successful in finding commercial utilization since its inception, Tesla pump on the other hand has been widely used in applications which require pumping abrasive fluids such as industrial waste etc. Tesla pumps for blood transfusion have become widespread.

CONCLUSION: The tesla turbine is a nonconventional promising technology that is yet to be fully researched and optimized. More applications are yet to be studied and developed. Complete optimization of tesla turbine performance is beyond the scope of this paper.



N.NISHANTH
727622BME362
III YEAR MECH-A

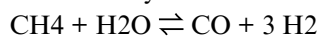
Hydrogen : Future's Fuel

Hydrogen is one of the most abundant and promising fuel source available in the air. It is lighter than air and incredibly pure. When used in the fuel cell, it is highly efficient and leaves no carbon emission behind. And best of all, it is virtually everywhere. It is found everywhere in the plants, water, manure, etc. But the problem arises before it can be used; it has to be separated.

There are a lot of ways to produce hydrogen:-

I. Steam reforming:

Steam reforming of methane is the most common method for the hydrogen production. It combines methane with the high temperature steam to trigger a reaction and separate the hydrogen. At high temperatures (700 – 1100 °C) and in the presence of a metal-based catalyst (nickel), steam reacts with methane to yield carbon monoxide and hydrogen.

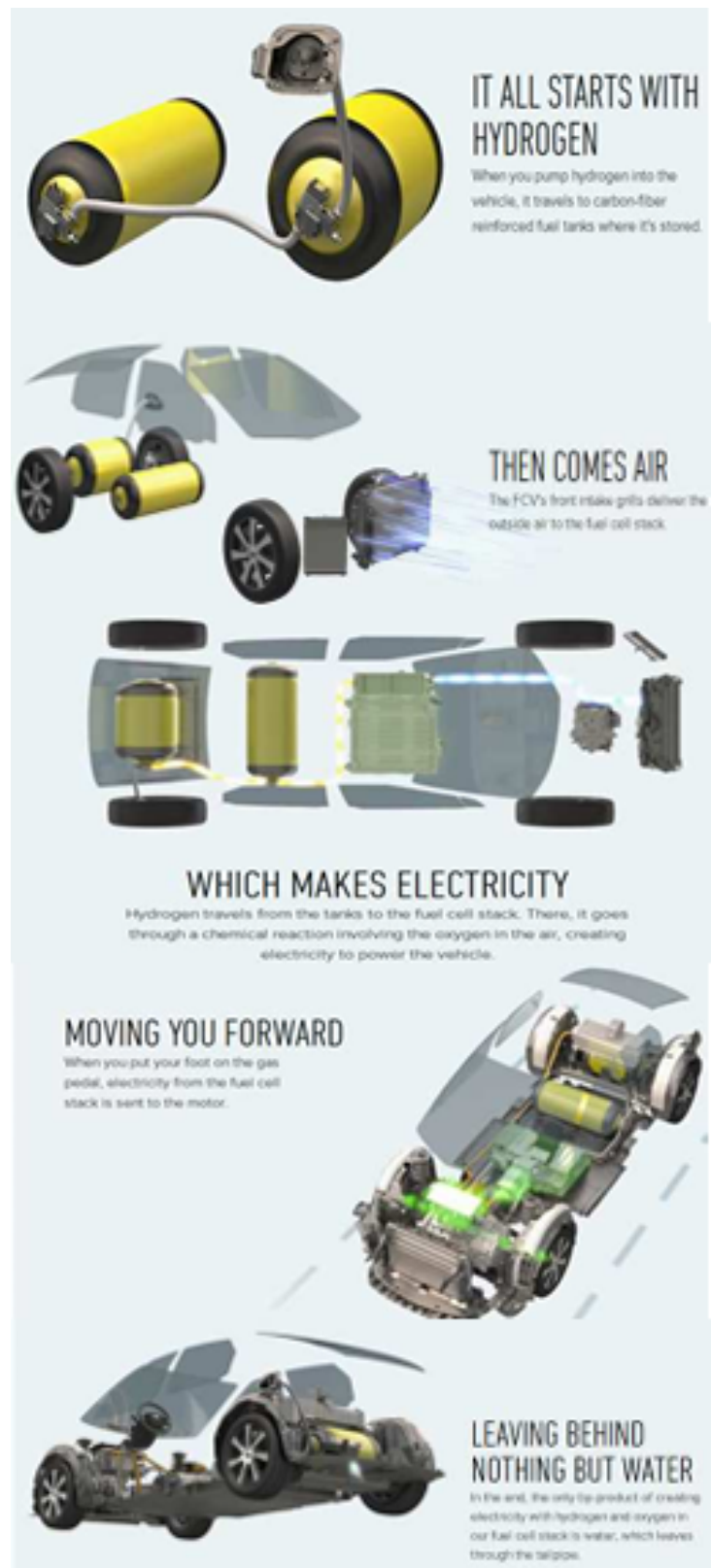
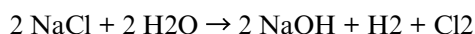


II. Gasification:

Gasification is a process that converts organic or fossil fuel based carbonaceous materials into carbon monoxide, hydrogen and carbon dioxide. This is achieved by reacting the material at high temperatures (>700 °C), without combustion, with a controlled amount of oxygen and/or steam.

III. Electrolysis:

Hydrogen can also be produced by separating water into its two primary elements—hydrogen (H₂) and oxygen (O₂). This process, known as electrolysis, passes an electrical current through the water to extract hydrogen. The electricity can be sourced from clean, renewable energy such as wind, solar, or hydro.





FCV concept (using hydrogen):

One such FCV (Fuel Cell Vehicle) concept car is Toyota mirai. The unveiled FCV concept was a bright blue sedan shaped like a drop of water "to emphasize that water is the only substance that hydrogen-powered cars emit from their tailpipes. The FCV uses Toyota's proprietary, small, light-weight fuel cell stack and two 70 MPa high-pressure hydrogen tanks placed beneath the specially designed body. The Toyota FCV concept can accommodate up to four occupants.

The FCV concept also uses portions of Toyota's Hybrid Synergy Drive technology including the electric motor, power control unit and other parts and components from its hybrid vehicles to improve reliability and minimize cost. [18] The hybrid technology is also used to work together with the fuel cell. At low speeds such as city driving, the FCV runs just like any all-electric car by using the energy stored in its battery, which is charged through regenerative braking. At higher speeds, the hydrogen fuel cell alone powers the electric motor. When more power is needed, for example during sudden acceleration, the battery supports the fuel cell system as both work together to provide propulsion

High-pressure hydrogen tanks

The Mirai has two hydrogen tanks with a three-layer structure made of carbon fiber-reinforced plastic consisting of nylon 6 from Ube Industries and other materials.

The tanks store hydrogen at 70 MPa (10,000 psi). The tanks have a combined weight 87.5 kg (193 lb) and 5 kg capacity.

Safety features:

1. multi-patented, carbon-fiber-wrapped, polymer-lined tanks are built in a three-layer structure and absorb five times the crash energy of steel.
2. In a high-speed collision, sensors stop the flow of hydrogen.
3. Any leaked hydrogen is quickly dispersed. Since the gas is lighter than air, it rapidly disperses, reducing the time window to cause damage in the event of an ignition.

Thus with the help of scientific studies and curious minds if we can create and store this hydrogen easily then it would be revolution in the field of technology. As we would get efficient and pollution free energy for the future. Thus encouraging the concept of sustainable development.



LAL NIVEDH S
727621BME029
III YEAR MECH-A



Underwater Turbine

There are a lot of renewable energy resources sources which are used to obtain energy such as the solar energy obtained by placing solar panels, wind energy obtained by placing windmills on fields so that by wind energy it will give rise to rotation of blades and producing electricity further.

Similarly this new technique has been coming into practice to the coastal areas where the turbine blades which are used for the wind energy purpose are placed underwater near the coastal areas. Because the coastal area receives the high and low tides due to the gravitational effect by sun and moon and the rotation of earth.

Ocean currents have the tendency to produce more currents as oceans are more dense than air(they are 832 times more dense than air),due to which it applies greater force on turbines .

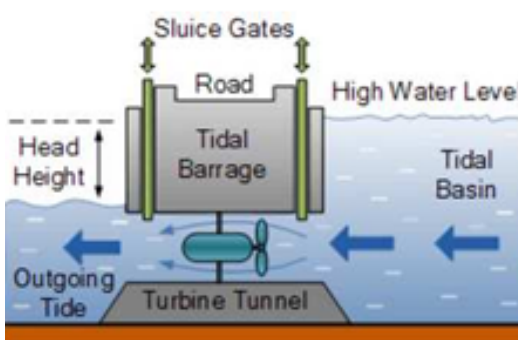
Tidal energy can be produced by many technologies, the major ones are:

- 1) Tidal barrages
- 2) Tidal fences
- 3) Tidal turbines.

Hence tidal has one very distinct benefit it is virtually 100 predictable as unlike windmills which are criticized for spoiling the views on land. With underwater turbines you cannot hear it or see it and hence they are very environmentally beloved and does not produce any noise



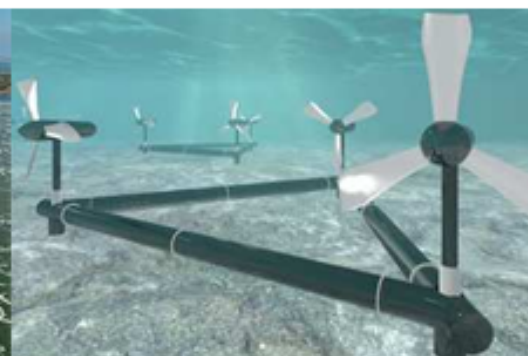
PRAVEEN KUMAR M
727622BME360
III YEAR MECH-A



Tidal Barrages



Tidal fences



Underwater Turbines

Advanced Composite Materials in Aircrafts

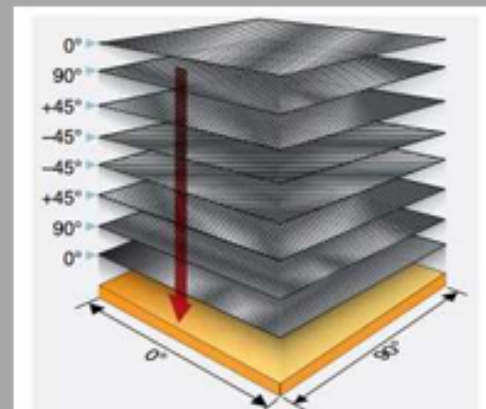
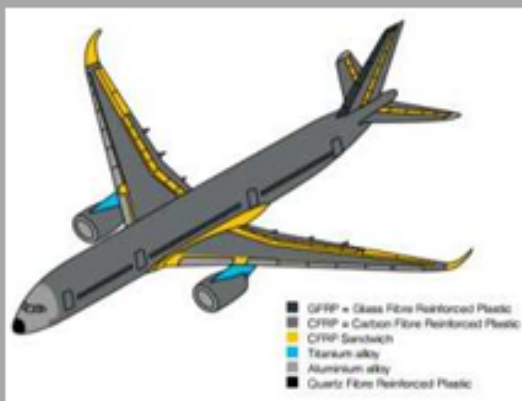
Advanced Composite Materials came in to existence to modify the existing materials in a way that it will enhance the physical and chemical properties of the material. ACMs are necessary in aircraft manufacturing since ACMs are light weight, more strong then conventional materials such as aluminium and fiberglass.

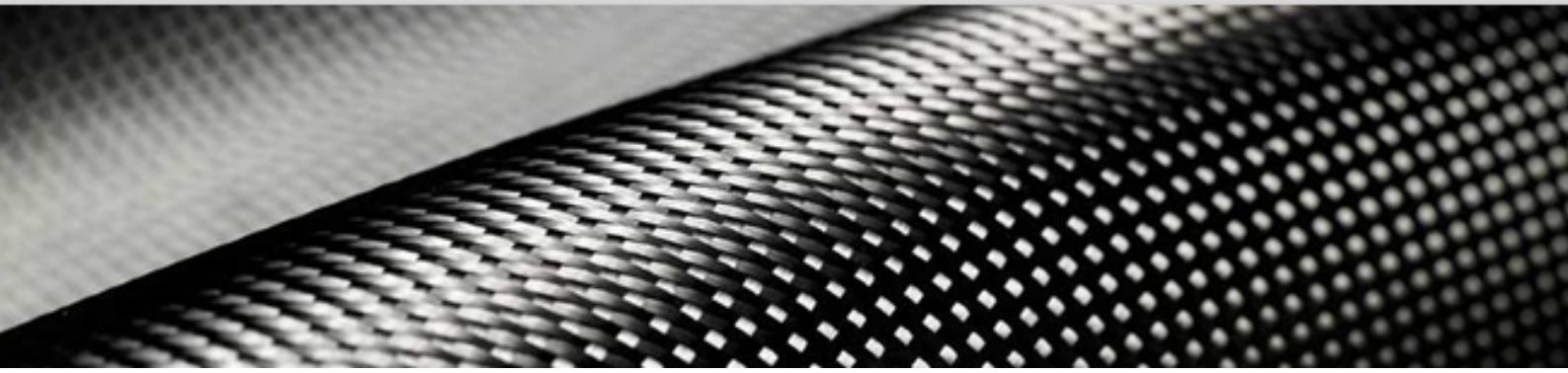
The aerospace industry and the manufacturers' unrelenting passion to enhance the performance of commercial and military aircraft is constantly driving the development of improved high performance structural materials. Composite materials are one such class of materials that play a significant role in current and future aerospace components. Composite materials are particularly attractive to aviation and aerospace applications because of their exceptional

strength- and stiffness-to-density ratios and superior physical properties.

Composite materials in aviation came into existence about 60 years ago when boron-reinforced epoxy composite was used for the skins of the empennages of the U.S. F14 and F15 fighters. Although it was only 2% and was used in secondary structures but as development improved its use in primary structures such as fuselage and wings has increased widely.

For example – The Airbus A350 XWB (Extra Wide Body) is the first aircraft whose primary structures (wings and fuselage) are completely made out of carbon-fibre-reinforced polymer. A350 consists of 53% composites, 19% Al/Al-Li, 14% titanium, 6% steel, and 8% miscellaneous.





Not only has this structure improved the aircraft's performance (weight), but also its maintenance and repair procedures. It has been designed to fulfil in-service requirements with benefits such as increased resistance to accidental ground service impacts, simplified damage assessment processes and proven repair solutions.

Advantages of using composite is that they can be formed into more complex shapes than their metallic counterparts, weight reduction, formability, better corrosion resistance and good resistance to fatigue.

The B2 stealth bomber requires a radar-absorbing material to be added to the exterior of the aircraft with a concomitant weight penalty.

Composite materials are therefore used in the primary structure to offset this penalty.



The strength and stiffness of a composite buildup depends on the orientation sequence of the plies. The practical range of strength and stiffness of carbon fiber extends from values as low as those provided by fiberglass to as high as those provided by titanium. This range of values is determined by the orientation of the plies to the applied load. Proper selection of ply orientation in advanced composite materials is necessary to provide a structurally efficient design. The part might require 0° plies to react to axial loads, $\pm 45^\circ$ plies to react to shear loads, and 90° plies to react to side loads. Because the strength design requirements are a function of the applied load direction, ply orientation and ply sequence have to be correct. It is critical during a repair to replace each damaged ply with a ply of the same material and ply orientation. This makes carbon fiber quasi-isotropic in nature



KARTHICK KUMAR S
II YEAR MECH



Simulations

Automotive

The automotive industry has undergone profound changes in recent years. Cars need to be more fuel-efficient and environmentally friendly. Traditional combustion engines are being replaced by fuel cells, batteries, opposed-piston technologies or electric traction motors. Innovations come at a high cost, while customers always want the latest innovations at the lowest price.

Innovations require lots of testing using expensive prototypes and equipment. This is where mechanical simulation comes into its own by providing efficient ways to simulate any automotive part or system with a lower overall cost and less time.

Simulation provides an efficient platform for both simulation analysts and designers in one interface, improving the communication between the teams and allowing designers to perform simple simulations upward in the automobile design process. Also provides all types of high end analysis (linear, nonlinear and dynamic) in the same work environment, eliminating the tedious task of platform changing for specific analysis (Crash, Impact, Fluid dynamics...)

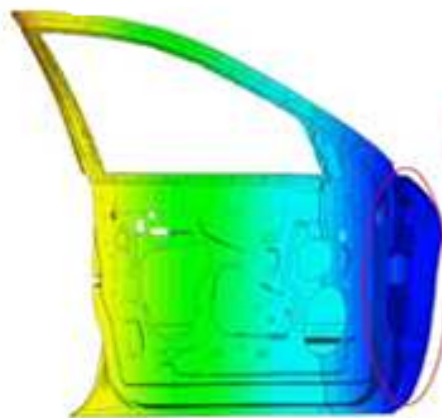
Introduction

Door assembly is a very important part in vehicle design because its frequent interaction with outside world. Designers faces so many different problems during the vehicle door design such as weight, cost, excessive reinforcement, water leakage, and etc. FEA analysis can help designers to reduce lead time as well as cost of design and meet various design goals.

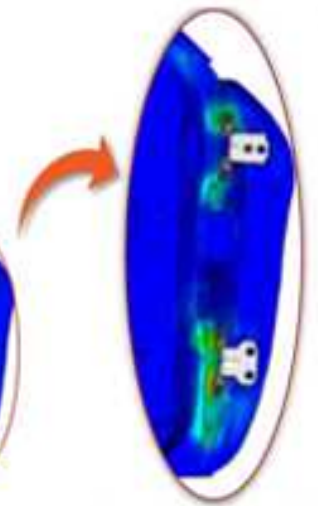
This article introduces two common analysis types performed on vehicle doors Simulation software: Door vertical stiffness analysis and door shell stiffness analysis Door vertical stiffness analysis



DHANALAKSMI S
727622BME352
III YEAR MECH-A



Vertical displacement distribution



Stress distribution (Hinge)



DIGITAL TWIN - A REAL MIRROR OF YOUR PRODUCT OR YOUR PROCESS -BRIEF INSIGHT

Digital Twin is the simulation-based planning and optimization concepts with great potential in many industrial fields.

Based on the research, the phrase “digital twin” was itself first mentioned in 1998 in Alan Alda meets Alan Alda 2.0. The technical use of the term has become known after 2002 when Michael Grieves started to make lectures and presentations about the possible use of digital copy in industrial and technological development. To be Exact the growth of DT technology is after 2017.

Digital twin in mechanical engineering is described as “The DT consists of a virtual representation of a production system that is able to run on different simulation disciplines that is characterized by the synchronization between the virtual and real system, thanks to sensed data and connected smart devices, mathematical models and real time data elaboration. The topical role within Industry 4.0 manufacturing systems is to exploit these features to forecast and optimize the behavior of the production system at each life cycle phase in real time.”

TYPES

«Testing model

Digital copy of a physical object but there Is no data received from the physical object on a continuous basis, the digital copy is mainly used for testing,

«Surveillance model:

In this case, the digital twin receives Information and data from the physical object but there are no interaction between the physical object and the digital twin, the twin only has a supervisory function over the physical object.

APPLICATION OF DIGITAL TWIN IN MANUFACTURING UNIT

Digital twin can monitor and model every part of the production process to identify where quality issues may be detected. The application field of this technology may vary from manufacturing to aerospace industry.

Main processes within the manufacturing industry where digital twin technology may be applied Quality management

Here are the examples of its usage in manufacturing units

·Product redesign -The digital twin can provide specific product data to the production equipment to allow it to initiate changes in the current product without stopping assembly, the line for days.

·System planning-The analysis of historical data from similar systems enables a company to make predictions regarding the potential performance of a manufacturing system that has not been set up yet. Different scenarios may be developed to model these new production systems.

In practice, Singapore has applied this technology to plan a major port.



SELVA NATHEYA R
727621BME027
III YEAR MECH-A

DIGITAL TWIN DIGITAL THREAD



RECAP 2023 - 2024

STUDENT ACHIEVEMENTS

F/C V SHREE BHUVANESH
II- Year Mechanical
2[TN]AIR SQN NCC

Participated in Prestigious Republic Day Camp 2024
at New Delhi

NCC
NM 100
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AN AUTONOMOUS INSTITUTION

Dr. MAHALINGAM
COLLEGE OF ENGINEERING AND TECHNOLOGY
Udumalai Road, Pollachi, Coimbatore District 642003

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Service with Smile..!

F/C V SHREE BHUVANESH
II – Year Mechanical
2 [TN] AIR SQN NCC

Selected to participate in prestigious Republic Day Camp 2024 at
New Delhi !
Your Dedication and Commitment makes us proud.
Best Wishes for a memorable experience on the Republic Day
2024.



Mr. KIRISH S K
20BME007



**First Prize with a Cash
Award in
CAD Modeling and
Drafting using UG / NX**
(National Level Technical Event)



NLCMD -2023

Organized by
SAEINDIA Southern Section, Chennai
held on **07.10.2023 & 08.10.2023**



Ms. PRAKASINI SV
727621BME037

**First Prize in
Sneaking Suspicion
Non - Technical Event**



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on **11.10.2023**



Mr. SELVA BOOPATHY K
727621BME031

**First Prize in
CAD Master
Technical Event**



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on **11.10.2023**



Ms. SELVA NATHEYA R
727621BME027

First Prize in
Sneaking Suspicion
Non - Technical Event



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on 11.10.2023



Mr. ABDUL KALAM M
727622BME003

MEXPLODE - 2024



Treasure Hunt
Non -Technical Event



Mr. ABDUL RAHMAN S
727622BME019

Organized by
Department of Mechanical Engineering
Sri Krishna College of Engineering and
Technology
held on 12.03.2024 & 13.03.2024



Mr. BHARANIDHARAN M
727621BME044

UDHAYAM - 2024

Technical Event

First Prize in
Technical Quiz



Organizes by
Intra collegiate - Technical and Cultural Fest
Kalaigarkarunanidhi Institute of Technology
held on 01.03.2024



Mr. MANOJ N
20BME001



First Prize with a Cash
Award in
**CAD Modeling and
Drafting using UG / NX**
(National Level Technical Event)



NLCMD -2023

Organized by
SAEINDIA Southern Section, Chennai
held on **07.10.2023 & 08.10.2023**



Mr. NAVANEETHAN S
20BME002



First Prize with a Cash
Award in
**CAD Modeling and
Drafting using UG / NX**
(National Level Technical Event)



NLCMD -2023

Organized by
SAEINDIA Southern Section, Chennai
held on **07.10.2023 & 08.10.2023**



Mr. SANJAY K
20BME023



First Prize with a Cash
Award in
**CAD Modeling and
Drafting using UG / NX**
(National Level Technical Event)



NLCMD -2023

Organized by
SAEINDIA Southern Section, Chennai
held on **07.10.2023 & 08.10.2023**



Mr. RATHEESH M
727622BME044



Idea Presentation
Technical Event



Paper Presentation
Technical Event

OPTIMUS - 2024

Organized by

Department of Artificial Intelligence and
Data Science

Karpagam Academy of Higher Education
Coimbatore

held on **07.02.2024**



Ms. SELVA NATHEYA R
727621BME027



First Prize in
Paper Presentation
Technical Event

For the Paper Titled:

"Design for drainage cleaning system"

MEQUEST -2023

Organized by

Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore

held on **06.10.2023**



Mr. RATHEESH M
727622BME044



First Prize in
Thought Stash
Technical Event

Organized by

Department of Artificial Intelligence and
Data Science

Sri Krishna College of Engineering and
Technology, Coimbatore

held on **26.09.2023**

First Prize in
Water Rocketry Event

Mr. LOGESH S Mr. GUGAN SF

Mr. SASIKUMAR T

Batch: 2021-2025

JET MECH 2k22

Organized by
Department of Mechanical Engineering
St. Joseph's College of Engineering,
Chennai
held on **17.09.2022**



S.No	Roll No	Name of the Students	Yr	Sec	Title of the Program	Nature of the Program	Event Venue	Date	P/A
1	20BME001	MANOJ N	IV	B	UG/NX CAD Modeling and Drafting	National Level Competition	SAE India, Sothern Section		A
2	20BME002	NAVANEETHAN S	IV	A					1st Prize
3	20BME007	KIRISH S K	IV	A					A
4	20BME023	SANJAY K	IV	A					1st Prize



Mr. ANSON VIJAY R

727622BME310

Second Prize in
CAD Master
Technical Event



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on 11.10.2023



Mr. RATHEESH M

727622BME044



Project Pitch
Technical Event



Techie Talky
Non- Technical Event

ADDICT - 2024

Organized by
Department of Computer Science and
Engineering
P.A. College of Engineering and
Technology
held on 24.02.2024



Mr. NITHISH ADHITHYAA S

20BME022

Second Prize in
Slogan Writing
Non - Technical Event



Organized by

Indira Gandhi Centre for Atomic Research
Kumaraguru College of Technology
Coimbatore

held on 07.08.2023 & 08.08.2023

Second Prize in
Auto Mania (CAD)
Technical Event



Mr. TRISHUL S
727623BME035

Student Mentor



Mr. Nachimuthu S
Assistant Professor - Mechanical



Mr. VARUN V
727623BME050

KRIYA - 2024

Organized by
Student Union - Core Engineering
PSG College of Technology, Coimbatore
held on **23.02.2024 - 25.02.2024**



MS. TARIKA M
727623BME056

Second Prize in
3D Modeling
Technical Event



Mr. SELVA BOOPATHY K
727621BME031



MEQUEST -2023

Organized by
Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore
held on **06.10.2023**

RECAP 2023 - 2024

STUDENT ACHIEVEMENTS



Mr. ROHITH KUMAR S
727622BME308

Third Prize in
CAD Master
Technical Event



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on 11.10.2023



Ms. SWETHA K
727622BME033

Third Prize in
CONNECTION
Non - Technical Event



MEQUEST -2023

Organized by
Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore
held on 06.10.2023



Mr. DHANUSU KUMAR M
727621BME069

Third Prize in
3D Modeling
Technical Event



MEQUEST -2023

Organized by
Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore
held on 06.10.2023



Mr. ROHITH KUMAR S
727622BME308

Third Prize in
CAD Master
Technical Event



MXCEL -2023

Organized by
Department of Mechanical Engineering
Kongu Engineering College, Erode
held on 11.10.2023



Ms. SWETHA K
727622BME033

Third Prize in
CONNECTION
Non - Technical Event



MEQUEST -2023

Organized by
Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore
held on 06.10.2023



Mr. DHANUSU KUMAR M
727621BME069

Third Prize in
3D Modeling
Technical Event



MEQUEST -2023

Organized by
Department of Mechanical Engineering
Sri Ramakrishna Engineering College,
Coimbatore
held on 06.10.2023

BAJA SAEINDIA

STUDENT ACHIEVEMENTS

RECAP 2023 - 2024



RECAP 2023 - 2024

STUDENT ACHIEVEMENTS

Congratulations!



Office of Dean Research and Innovation

ANVESHANA – 2024
SCIENCE EXPO

TITLE

Walking into watts:Footstep energy



Rs. 25,000/-

Organized by

Dr. Mahalingam College of Engineering
and Technology, Pollachi & Agastya
Foundation, Bangalore.

Date: Held on 05 - 06 March 2024.

TEAM MEMBERS

PROJECT GUIDE



Ms. SWETHA K
727622BME033



Ms. MANJARIKA N
727622BME024



Mr.S.V. GURUPRANES
AP - Mechanical

Department of Mechanical Engineering

Congratulations!



Office of Dean Research and Innovation

BEST PAPER PRESENTATION AWARD

TITLE

EVALUATING MECHANICAL PROPERTIES OF NOVEL CELLULOSIC FIBER WITH NATURAL FILLER FOR INDUSTRIAL APPLICATIONS

Conference Name

Conference on

Emerging Trends in Engineering and Technology (ETET),
Organized by SAE Club, NIT Puducherry
Date: Held on 15-16th February 2024.

TEAM MEMBERS



Mr.S.V. GURUPRANES
AP



Mr.K.VIJYAKKANNAN
AP(SS)



Dr.N.SHANMUGA SUNDARAM
AP(SG)

Department of Mechanical Engineering

Congratulations!

Faculty Achievement in



Dr. Ayyappan S
ASP_Mech

Course Name:
Waste to Energy
Conversion

Grade: Elite + Silver

8 Weeks



Elite
NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

AYYAPPAN S

for successfully completing the course

Waste to Energy Conversion

with a consolidated score of **82 %**

Online Assignments: 23.75/25 Proctored Exam: 58.16/75

Total number of candidates certified in this course: 924

Prof. Kanchi Sheeh,
Professor (Chemical),
Coordinator IITC

Jan-Mar 2024
(8 week course)

Prof. Rangana Pathania,
Professor (ISEE),
Coordinator (NPTEL)



Indian Institute of Technology Roorkee



Ref No: NPTEL24CH29S35200246

To verify the certificate



No. of credits recommended: 2 or 3

AY: 2023-2024 (EVEN)

JAN - MAR - 2024

Congratulations!

Faculties Achievement in



Dr. Ayyappan S
ASP_MECH

Course Name:

Sustainable Energy Technology

Grade: Elite + Silver (Topper 5%)



Elite
NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

AYYAPPAN S

for successfully completing the course

Sustainable Energy Technology

with a consolidated score of **77 %**

Online Assignments: 23.25/25 Proctored Exam: 53.75/70

Total number of candidates certified in this course: 183

Prof. Kanchi Sheeh,
Professor (Chemical),
Coordinator IITC

Jul-Oct 2023
(12 week course)

Prof. Rangana Pathania,
Professor (ISEE),
Coordinator (NPTEL)



Indian Institute of Technology Roorkee



Ref No: NPTEL23CH29S35200246

To verify the certificate



No. of credits recommended: 2 or 3



Mr. Gnanakumar S
AP_MECH

Course Name:

Design, Technology and Innovation

Grade: Elite.



Elite
NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

Gnanakumar S

for successfully completing the course

Design, Technology and Innovation

with a consolidated score of **61 %**

Online Assignments: 18.40/20 Proctored Exam: 42.16/70

Total number of candidates certified in this course: 792

Prof. Kanchi Sheeh,
Professor (Chemical),
Coordinator IITC

Jul-Sep 2023
(8 week course)

Prof. Rangana Pathania,
Professor (ISEE),
Coordinator (NPTEL)



Indian Institute of Technology Roorkee



Ref No: NPTEL23CH29S35200246

To verify the certificate



No. of credits recommended: 2 or 3

AY: 2023-2024 (ODD)

JUL - OCT - 2023

Congratulations!

Faculty Achievement in



Mr. Venkatesh J
AP - MECH.

Course Name:
MCDM Techniques Using R
Grade: Elite + Silver

4 Weeks



Elite
NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

J VENKATESH

for successfully completing the course

MCDM Techniques Using R

with a consolidated score of 81 %

Online Assignments	21.42/25	Proctored Exam	59.29/75
--------------------	----------	----------------	----------

Total number of candidates certified in this course: 42

Prof. Kavitha Ghosh
Professor/Chairperson
Coordinator IIT

Jan-Feb 2024
(4 week course)

Prof. Ranjana Pathania
Professor (S&T)
Coordinator (NPTEL)



AY : 2023-2024 (EVEN)
JAN - FEB -2024

Congratulations!

Faculty Achievement in



Dr. Jayaraj M
AP(SG)_MECH

Course Name:
Introduction on Intellectual
Property to Engineers
and Technologists
Grade: Successfully Completed

8 Weeks



NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

JAYARAJ M

for successfully completing the course

Introduction on Intellectual Property to Engineers
and Technologists

with a consolidated score of 52 %

Online Assignments	21.08/25	Proctored Exam	31.13/75
--------------------	----------	----------------	----------

Total number of candidates certified in this course: 357

Jan-Mar 2024
(8 week course)

Prof. Naimanti Banerji
Coordinator, NPTEL
IIT Kharagpur



AY : 2023-2024 (EVEN)
JAN - MAR -2024

Congratulations!

Faculties Achievement in



Dr. Jayaraj M
AP(SG)_MECH

Course Name:
Patent Drafting for Beginners
Grade: Elite



Mr. Dinesh Kumar J
AP_MECH

Course Name:
Manufacturing Processes - Casting and Joining
Grade: Successfully Completed



AY: 2023-2024 (ODD)

JUL - OCT -2023

Congratulations!

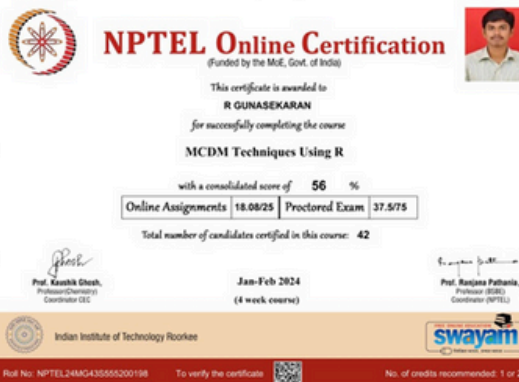
Faculty Achievement in



Mr. Gunasekaran R
AP - MECH

Course Name:
MCDM Techniques Using R
Grade: Successfully Completed

4 Weeks



AY: 2023-2024 (EVEN)

JAN - FEB -2024

Office of Dean Research and Innovation

Congratulations



Dr.N.Bala Murali, AP/ Mech.

for Successful completion of Ph.D.

University : Vellore Institute of Technology, Vellore
Faculty: Mechanical Engineering

THESIS TITLE: STUDIES ON DISSIMILAR WELDING OF METAL TO POLYMER USING SOLID STATE WELDING TECHNIQUE

 **DATE OF COMPLETION: 10.04.2024**

Office of Dean Research and Innovation

Congratulations



Dr.S.V.Gurupranes, AP/Mech

for Successful completion of Ph.D.

University : Anna University
Faculty: Mechanical Engineering

THESIS TITLE: PROPERTIES OF ZIZIPHUS NUMMULARIA FIBER REINFORCED EPOXY COMPOSITES

 **DATE OF COMPLETION: 16.04.2024**

COMMUNITY ENGAGEMENT

100% VOTING AWARENESS CAMPAIGN



NSS Students have conducted 100% voting awareness campaign in various parts of pollachi & coimbatore, To achieve 100% voting. its important that all the adult citizens of the country have the right to vote without any discrimination on the basis of caste, colour, creed or religion.It makes possible the involvement of all the citizens in the governance of the state.

COMMUNITY ENGAGEMENT

NSS CAMP - SOCIETY WELFARE



NSS Students conducted society welfare Camps to explore the information about volunteers collecting and disposing of waste, such as plastic, tea cups, weeds, and dry leaves. They may also include information about planting trees and educating participants on the importance of separating waste into biodegradable and non-biodegradable categories.



COMMUNITY ENGAGEMENT

ROAD SAFETY AWARENESS



Road Safety awareness was conducted by NSS Students on 15.09.2023, The idea of road safety awareness was to teach people how to behave while driving or crossing roads. Road safety measures, such as road barriers, can reduce the risk of accidents, injuries, and property damage.



COMMUNITY ENGAGEMENT

BLOOD DONATION AWARENESS



To raise awareness about the need for safe blood and blood products, and to thank unpaid blood donors for their life-saving gifts. The global theme for WBDD changes each year. For example, the themes for 2023, 2022, and 2021 were "Give blood, give plasma, share life, share often", "Donating blood is an act of solidarity. Join the effort and save lives", and "Give blood and keep the world beating"

COMMUNITY ENGAGEMENT

FIRE SAFETY AWARENESS



Fire Safety awareness was conducted by NSS Students. Fire safety is the set of practices intended to reduce destruction caused by fire. Fire safety measures include those that are intended to prevent the ignition of an uncontrolled fire and those that are used to limit the spread and impact of a fire



COMMUNITY ENGAGEMENT

TREE PLANTATION ACTIVITY



Trees provide cooling through evapotranspiration and shading that decreases temperatures along walkways. Increasing vegetation provides numerous co-benefits like reducing pollution, improving the public realm, and decreasing energy costs. A tree planting campaign can encourage private property owners and businesses to plant more trees. Through a campaign, governments can also recruit volunteers and raise funds to plant trees on public land.

RESEARCH HIGHLIGHTS

1. Dr.Rama Thirumurugan



Dr.Rama Thirumurugan

Professor

Verified email at drmcet.ac.in

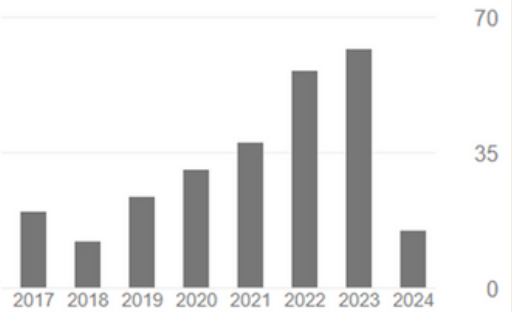
[Gear Engineering](#) [Machine design](#) [Fatigue and Fracture](#)

TITLE	CITED BY	YEAR
Investigation of mechanical and tribological behavior of Al-Ni-Co-MWCNT composites prepared by powder metallurgy technique R Thirumurugan, M Padmanaban, T Ramkumar, D Shanmugam Proceedings of the Institution of Mechanical Engineers, Part E: Journal of ...		2024
Investigation of acoustic, mechanical, thermal, and moisture properties of milled alkali-treated coconut tree secondary flower leaf stalk fiber-reinforced polymer composite J Mahalingam, S Rajendran, N Shanmugasundram, H Kuppuswamy, ... Polymer Composites		2023
Effect of alkali treatment on properties of Palmyra palm tree primary flower leaf stalk fiber-reinforced polymer composites J Mahalingam, R Thirumurugan, S Dharmalingam, SS Roy, S Phuvi, ... Biomass Conversion and Biorefinery, 1-12	1	2023
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Experimental investigation on the mechanical, thermal and acoustic characteristics of cellulose/synthetic fiber/nano clay hybrid composites: Influence of treatment, moisture ... D Shanmugam, R Thirumurugan, M Thiruchitrambalam, C Latha, ... Composites Part A: Applied Science and Manufacturing 168, 107497	3	2023
Investigation of Static and Dynamic Mechanical Properties of Coconut Tree Primary Flower Leaf Stalk Fiber Reinforced Polymer Composites J Mahalingam, R Thirumurugan, S Dharmalingam, G Nataraj Journal of Natural Fibers 20 (1), 2166645	2	2023
Experimental characterization of surface modified Palmyra Palm Leaf Stalk Fiber (PPLSF)/polymer composites-Mechanical, Crystallinity and Acoustic properties D Shanmugam, R Thirumurugan, M Thiruchitrambalam, B Maheshkumar Journal of Natural Fibers 19 (14), 7778-7796	3	2022

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Citations	316	226
h-index	9	9
i10-index	9	9



2. S.Ayyappan



S Ayyappan

Professor of Mechanical Engineering, Dr.Mahalingam College of Engineering and Technology, Pollachi

Verified email at drmcet.ac.in - [Homepage](#)

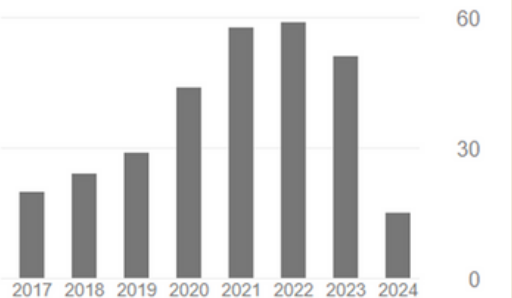
[Thermal Sciences](#)

TITLE	CITED BY	YEAR
Energy and exergy analyses of coconut drying in a solar tunnel drier S Ayyappan, M Selvakumar, Muthukannan, Karunaraja, T Ram Kumar Proceedings of the Institution of Mechanical Engineers, Part E: Journal of ...	2	2021
Analysis of solar tunnel dryer performance with red chili drying in two intervals N Ragul Kumar, M Natarajan, S Ayyappan, K Natarajan Res. J. Chem. Environ 24, 125-129	8	2020
Performance and CO₂ mitigation analysis of a solar greenhouse dryer for coconut drying S Ayyappan Energy & environment 29 (8), 1482-1494	38	2018
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Experimental studies on drying characteristics of tomato in a solar tunnel greenhouse dryer S Arun, S Ayyappan, VV Sreenarayanan International Journal of Recent Technology and Engineering 3 (04), 32-37	19	2014
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	All	Since 2019
Citations	383	256
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i10-index	6	6



3. Dr.T.Ramkumar



Dr. T. RamKumar

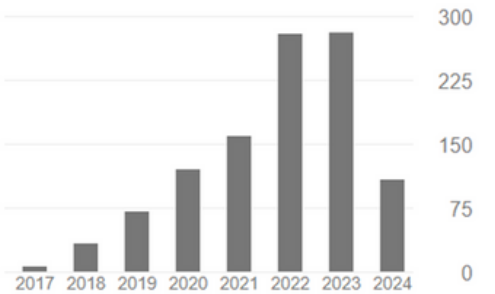
Dr.Mahalingam College of Engineering and Technology
Verified email at drmcet.ac.in

Powder Metallurgy Nano Composites Surface Engineering Tribology Corrosion

TITLE	CITED BY	YEAR
Cell viability and bioactive coating on additive manufactured polycaprolactone substrate for osteointegration applications K Hariharan, M Selvakumar, T Ramkumar, P Chandramohan Chemical Physics Impact 8, 100409		2024
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Effect of graphene on the tribological behavior of Ti6Al6V2Sn/Gn composite produced via microwave sintering UV Akhil, N Radhika, T Ramkumar, A Pramanik International Journal of Lightweight Materials and Manufacture 7 (1), 1-13		2024
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Citations	1073	1028
h-index	18	17
i10-index	27	26



4. Hariharan Kuppusamy



Hariharan Kuppusamy

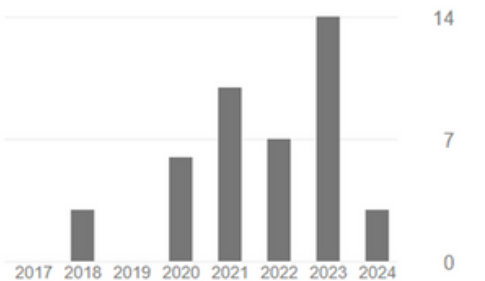
Dr Mahalingam College of Engineering and Technology, Anna University
Verified email at mcet.in

Additive Manufacturing Biomaterials Material Characterization

TITLE	CITED BY	YEAR
Cell viability and bioactive coating on additive manufactured polycaprolactone substrate for osteointegration applications K Hariharan, M Selvakumar, T Ramkumar, P Chandramohan Chemical Physics Impact 8, 100409		2024
Investigation on Mechanical Properties of ER70S-6 Copper-Coated Steel Wire Sample Produced by Wire Arc Additive Manufacturing (WAAM) MG Ganesh, I Rajendran, K Hariharan, SN Kumar, M Rajeswaran SAE Technical Paper		2024
Effect of Various Surface Modifications on Characterization of New Natural Cellulosic Fiber from Coconut Tree Secondary Flower Leaf Stalk Fiber (CSF) T Ramkumar, K Hariharan, M Selvakumar, M Jayaraj Journal of Natural Fibers 19 (16), 13362-13375	7	2022
Experimental investigation of bioceramic (Hydroxyapatite and Yttrium stabilized zirconia) composite on Ti6Al7Nb alloy for medical implants K Hariharan, CC Sastry, M Padmanaban, M Gideon Ganesh Materials and Manufacturing Processes 35 (5), 521-530	14	2020
Material stability investigation of polyamide material before and after laser sintering K Hariharan, G Arumaikkannu, T Ramkumar, M Selvakumar International Journal of Polymer Analysis and Characterization 25 (3), 158-165	5	2020
Electron Beam Deposition of Hydroxyapatite Coating on Polyamide Substrate for Biomedical Application S Thomas, N Kalarikkal, CV Pious, Z Ahmad, JT Haponiuk Functionalized Engineering Materials and Their Applications, 243-254		2018
Hydroxyapatite Coating on Selective Laser Sinter Polyamide Substrate by Electron Beam Deposition HKAND ARUMAIAKKANNU G	1	2018

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Citations	45	40
h-index	4	4
i10-index	2	1



5. Dr.N. Shanmuga Sundaram



Dr.N.Shanmuga Sundaram

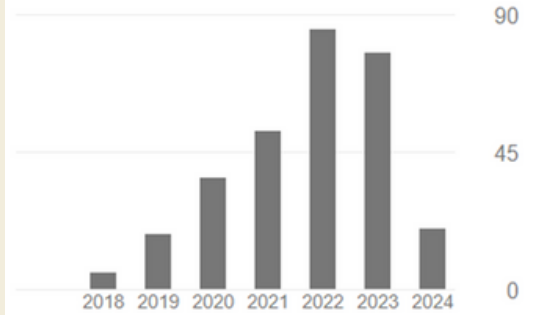
Assistant Professor (SG), Department of Mechanical Engineering, Dr. Mahalingam College of Engineering
Verified email at drmcet.ac.in

Composite materials

TITLE	CITED BY	YEAR
Characterization of Natural Cellulose Fibers from the Barks of <i>Ziziphus nummularia</i> as a Reinforcement for Lightweight Composite Applications G Sivaraj Vjaya, Rl Gounder, SS Natarajan Journal of Natural Fibers 19 (17), 15663-15679	1	2022
Suitability assessment of raw-alkalized <i>Ziziphus nummularia</i> bark fibers and its polymeric composites for lightweight applications G SV, R I, SS N Polymer Composites 43 (8), 5059-5075	8	2022
Investigation of static and dynamic mechanical properties of short Palmyra palm leaf stalk fiber (PPLSF) reinforced polymer composites T Muruganrama, J Mahalingam, S Dharmalingam, S Natarajan Journal of Natural Fibers 19 (5), 1908-1924	10	2022
Characterization of untreated and alkali treated new cellulosic fiber from an Areca palm leaf stalk as potential reinforcement in polymer composites N Shanmugasundaram, I Rajendran, T Ramkumar Carbohydrate Polymers 195, 566-575	214	2018
Static, dynamic mechanical and thermal properties of untreated and alkali treated mulberry fiber reinforced polyester composites N Shanmugasundaram, I Rajendran, T Ramkumar Polymer Composites 39 (S3), E1908-E1919	32	2018
Mechanical and Water Absorption Behavior of Continuous Untreated and Alkali Treated Areca Palm Leaf Stalk Fiber Reinforced Polymer Composites MJIAIR N. Shanmugasundaram Ecology, Environment and Conservation 24, 63-66		2018
Characterization of raw and alkali-treated mulberry fibers as potential reinforcement in polymer composites N Shanmugasundaram, I Rajendran Journal of Reinforced Plastics and Composites 35 (7), 601-614	32	2016

Cited by

	All	Since 2019
Citations	297	290
h-index	5	5
i10-index	4	4



6. Dr.M.Jayaraj.



Dr.M.Jayaraj

Assistant Professor (SG) of Mechanical Engg. at Dr. Mahalingam College of Engineering and Technology
Verified email at drmcet.ac.in - [Homepage](#)

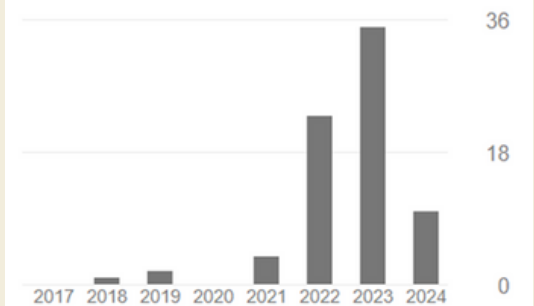
Composite Material Design & Manufacturing Finite Element Analysis

TITLE	CITED BY	YEAR
Mechanical, thermal, and water absorption properties of hybrid short coconut tree primary flower leaf stalk fiber/glass fiber-reinforced unsaturated polyester composites for ... J Mahalingam Biomass Conversion and Biorefinery 14 (6), 7543-7554	15	2024
Investigation of acoustic, mechanical, thermal, and moisture properties of milled alkali-treated coconut tree secondary flower leaf stalk fiber-reinforced polymer composite J Mahalingam, S Rajendran, N Shanmugasundram, H Kuppuswamy, ... Polymer Composites		2023
An examining the static and dynamic mechanical characteristics of milled ramie root reinforced polyester composites T Varunkumar, M Jayaraj, N Nagaprasad, JL Tesfaye, R Shanmugam, ... Scientific Reports 13 (1), 17054	1	2023
Effect of alkali treatment on properties of Palmyra palm tree primary flower leaf stalk fiber-reinforced polymer composites J Mahalingam, R Thirumurugan, S Dharmalingam, SS Roy, S Phuvi, ... Biomass Conversion and Biorefinery, 1-12	1	2023
Effect of alkali treatment on novel natural fiber extracted from palmyra palm primary flower leaf stalk for polymer composite applications J Mahalingam, R Thirumurugan, S Dharmalingam, V Kaliyappan Biomass Conversion and Biorefinery, 1-9	1	2023
Investigation of mechanical, thermal and water absorption behaviour of MWCNT's with AL ₂ O ₃ reinforced polymer composite. T Varunkumar, M Jayaraj, R Sivakumar, N Manikandan Digest Journal of Nanomaterials & Biostructures (DJNB) 18 (3)		2023
Investigation of Static and Dynamic Mechanical Properties of Coconut Tree Primary Flower Leaf Stalk Fiber Reinforced Polymer Composites J Mahalingam, R Thirumurugan, S Dharmalingam, G Nataraj	2	2023

Cited by

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	All	Since 2019
Citations	78	74
h-index	6	5
i10-index	3	3



7. Venkatesh J



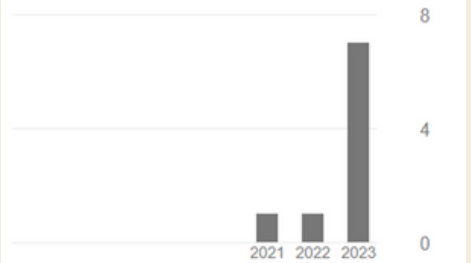
Venkatesh J

Anna University Chennai
Verified email at drmcet.ac.in
Renewable Energy Resour...

TITLE	CITED BY	YEAR
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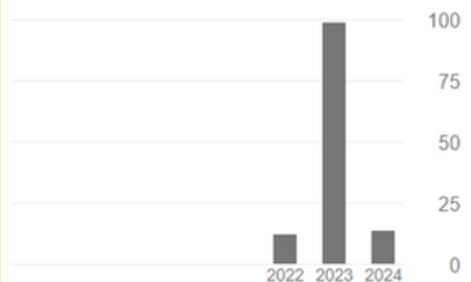
GURUPRANES SV

Assistant Professor , Dr. Mahalingam College of Engg and Tech
Verified email at drmcet.ac.in
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MadhuSudhanan S

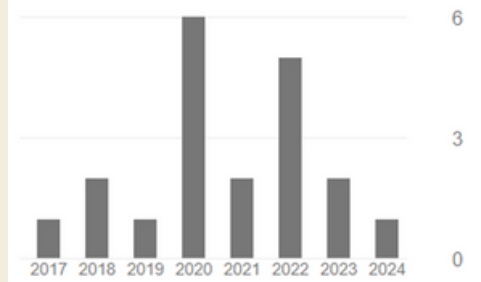
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10. Dr.R.Gnanaguru



Dr.R.Gnanaguru

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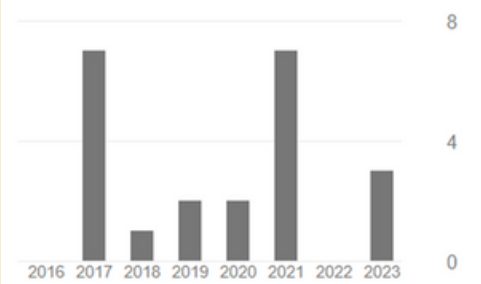
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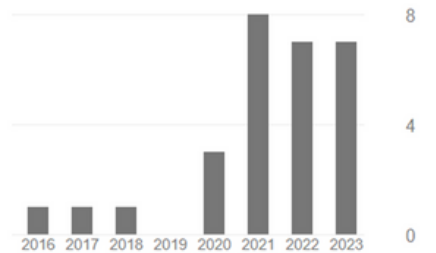
Assistant Professor (SS) of Mechanical Engineering, Dr.MCET
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Sreejith S Nair

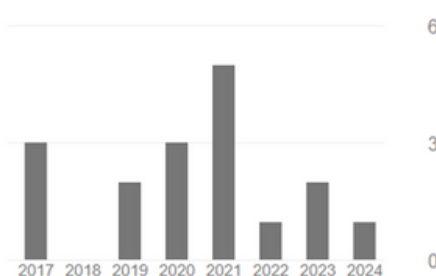
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Mr.M.Padmanaban

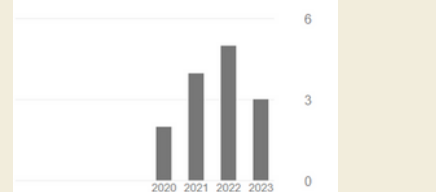
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Manufacturing


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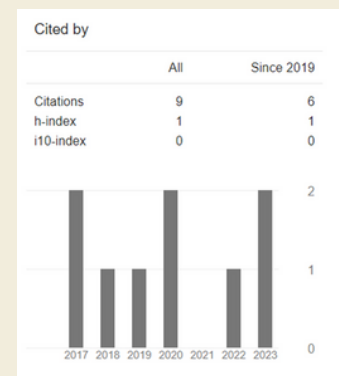


14. Nathan Dhanapalan




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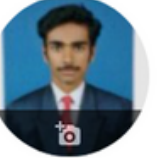


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[Composite Materials](#)

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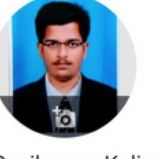
16.Naveen Kumar



Naveen Kumar ✎
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Verified email at drmcet.ac.in
[Manufacturing design](#)

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17.Sasikumar Kalimuthu



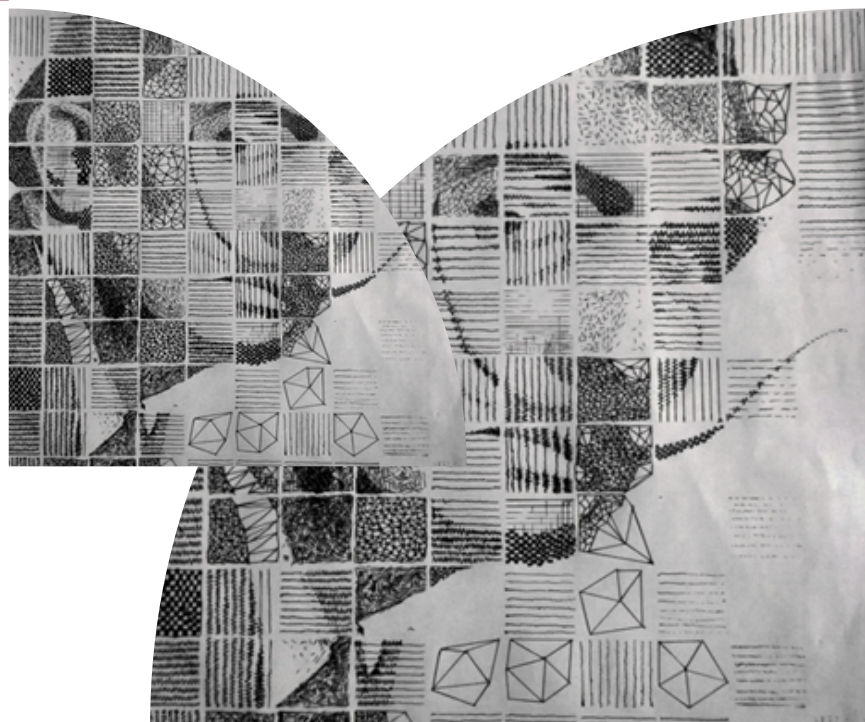
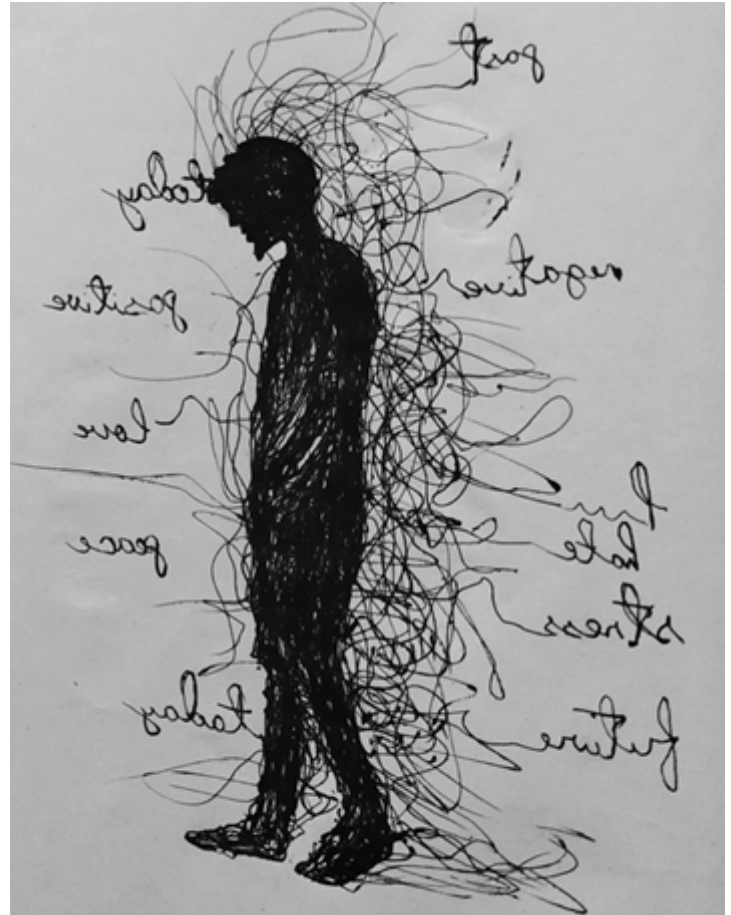
Sasikumar Kalimuthu
Assistant Professor
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Artist of the Month

Student Spotlight



PradeepKumar R
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Artist of the Month

Student Spotlight



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Artist of the Month

Student Spotlight



PradeepKumar R
21BME304



Artist of the Month

Student Spotlight

1) யான்

உயரமான விநாயக்கா

நினைத்தவாங்கிறதெல்லாம் போதிரும் ?

♡

நியாதலை நியாடு !



2) அவரின் மகரந்தச் சொர்க்கை

சீமன் , 45 போட்ட உடை

அணியும் போடுகிறவரும்

மகரந்தச் சொர்க்கைகளை நியாடுகிற

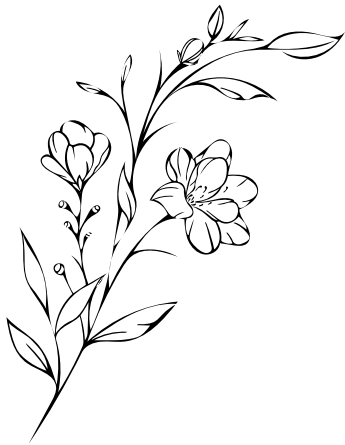
வாடுகின்றன உலகம் முக்கால் ♡

Abdul Wahid A
727622BME048

Artist of the Month

Student Spotlight

திருவி வந்தவர்களை மூலம்
திருவி வந்தவர்களின் ம.பயலில்
மீயம் சேர்ப்பா?



திருவி வந்தவர்களை

மீயம் சேர்ப்பா? ம.பயலில்
மீயம் சேர்ப்பா? ம.பயலில்
?

மீயம் சேர்ப்பா!



Abdul Wahid A
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சேர்ப்பா

மீயம் சேர்ப்பா, ம.பயலில்

மீயம் சேர்ப்பா, ம.பயலில்

மீயம் சேர்ப்பா! ம.பயலில்

