Stella Mary's College of Engineering

MECHASM

DEPARTMENT OF

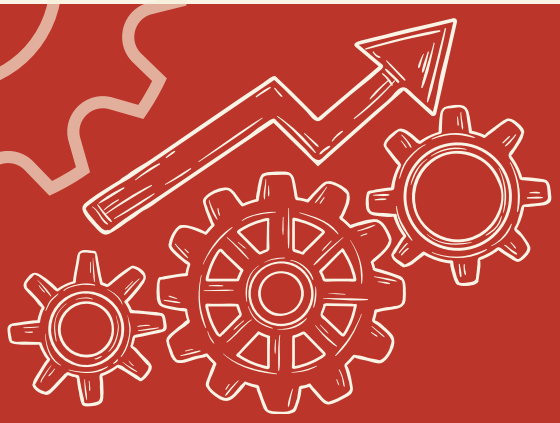
# MECHANICAL ENGINEERING

# MAGAZINE

2022 - 2023

## Engineering the Extraordinary

Every masterpiece begins with an engineer's blueprint.



# ABOUT DEPARTMENT

**The Department of Mechanical Engineering has been in existence since 2013 with the intake of 60 students. The department has excellent infrastructure by keeping on par with the latest trends. The Department is grown into a full-fledged one with well-equipped lab facilities, Infrastructure and faculty members of various specializations. The faculty members are not only committed to the teaching profession but also involve themselves in research and constantly, publish papers in conference proceedings, International and National Journals with respect to their field of specialization. The department has been producing excellent results with distinction in the university examinations consistently.**

**The Department provides high quality education along with discipline. The faculty members make it possible to give individual attention to the learners and to motivate them to achieve their professional goals. The curriculum structure of the department is designed to meet the present day requirement of Industries and corporate sectors. The interaction between the staff and students is excellent and all the laboratories are well equipped as per the requirements of the curriculum.**

**The department also organizes frequent industrial visits, subject related seminars, guest lectures, workshops, symposia etc. enhance the depth of the subject. Department of Mechanical Engineering offers a pavement for students to do innovative project work, by providing a separate lab, known as Design and Fabrication Laboratory".**

# ABOUT MECHASM

## The Student Association of Department of Mechanical Engineering

**“MECHASM” The student association of Department of Mechanical Engineering has been formed during the academic year 2015-2016. The Association is named after the abbreviation of "MECHANICAL Association of Stella Mary's College of Engineering".**

**The association is solely governed by the students; One president, Secretary from final year, vice president and treasurer from prefinal year, Joint Secretary from second year and steering committee members for various portfolios was formed in every academic year. Various activities like Workshop, Guest Lecture, Student Competitions, and Seminars are conducted every academic year by MECHASM. Especially Department symposium are completely planned, organized and conducted by the association.**

# INSTITUTION VISION AND MISSION

## Vision

**To be a beacon of academic excellence, empowering future innovators with technical mastery to harness technology for positive global change.**

## Mission

**To Cultivate a vibrant learning environment where students delve into the frontiers of technical knowledge, hone their problem-solving skills, and embrace innovation to transform ideas into solutions that address global challenges.**

**To bridge the gap between technical brilliance and real-world impact by forging strong industry partnerships, fostering cutting-edge research, and nurturing entrepreneurial drive in our students, empowering them to build a better future through technology.**

**To ignite the spark of intellectual curiosity within every student, equip them with the tools and knowledge. To become pioneers in their chosen fields, and guide them towards ethical and responsible use of technology for the betterment of humanity.**

# PROGRAM SPECIFIC OUTCOMES (PSOS)

- **PSO1: Apply the knowledge gained in Mechanical Engineering for design and development and manufacture of engineering systems**

- **PSO2: Apply the knowledge acquired to investigate research-oriented problems in mechanical engineering with due consideration for environmental and social impacts.**

- **PSO3: Use the engineering analysis and data management tools for effective management of multidisciplinary projects.**

# PROGRAM OUTCOMES (POS)

**PO1/Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.**

**PO2/Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.**

**PO3/Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.**

**PO4/Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems**

**PO5/Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.**

**PO6/The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.**

**PO7/Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.**

**PO8/Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.**

**PO9/Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.**

**PO10/ Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.**

**PO11/Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.**

**PO12/Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.**

# PROGRAMOUTCOMES(POS)

**PO1/Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.**

**PO2/Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.**

**PO3/Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.**

**PO4/Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems**

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**PO8/Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.**

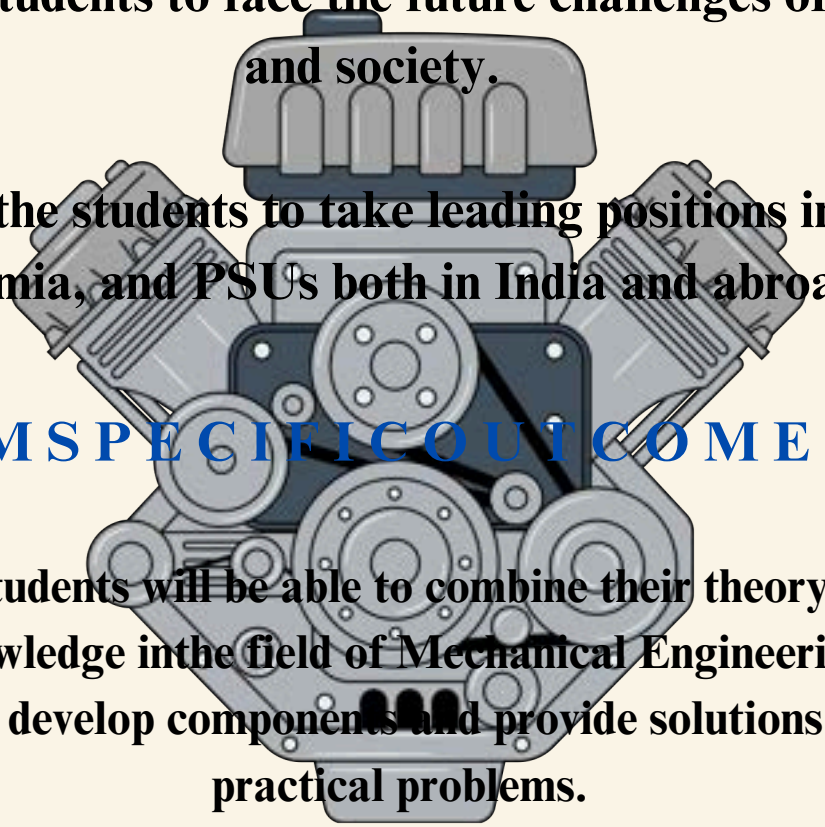
**PO9/Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.**

# Mission

**To provide an international class of education enabling the students to have the ability to design, plan, engineer, administer and manage the latest technologies in the field of Mechanical Engineering.**

**To train students to face the future challenges of industries and society.**

**To equip the students to take leading positions in industry, academia, and PSUs both in India and abroad.**



## PROGRAMSPECIFICOUTCOMES(PSOS):

**PSO1/The students will be able to combine their theory, hands-and software knowledge inthe field of Mechanical Engineering to design and develop components and provide solutions to practical problems.**

**PSO2/The students will be able to apply their knowledge in the field of Materials and Energy tosimulate and develop solution for the real time application.**

**PSO3/The students will be able to apply their knowledge and skills of various aspects ofproduction, and automation, to enhance productivity and cater to current industrial needs.**

# DEPARTMENT VISION AND MISSION

## Vision

**To excel in Mechanical engineering by producing skilled, innovative engineers who address societal challenges and develop impactful solutions through research, collaboration, and practical applications.**

## Mission

**M1: To equip students with the knowledge and skills necessary to become exceptional mechanical engineers, capable of solving complex problems and driving positive change through innovation and ethical leadership.**

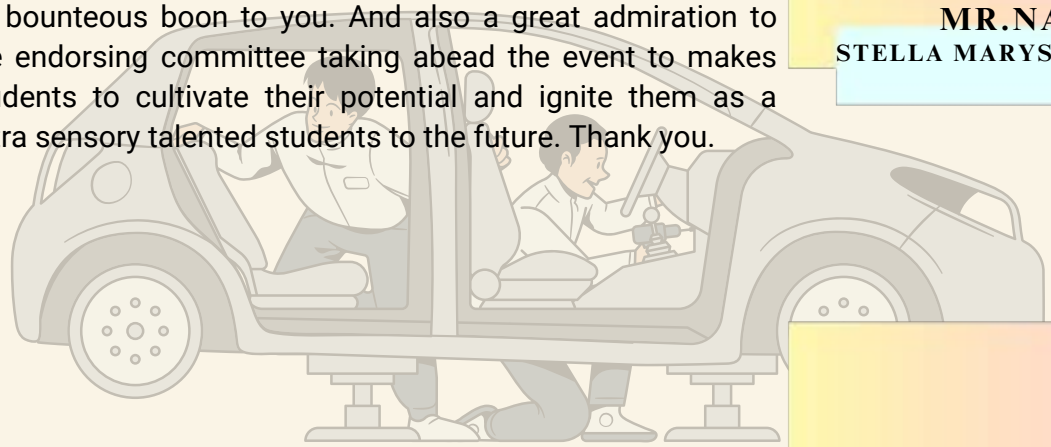
**M2: To conduct innovative research, develop advanced technologies, and collaborate with industry partners to address critical engineering challenges and build a sustainable future.**

**M3: To apply engineering knowledge to enhance communities, inspire future generations, and protect the environment through safe and responsible practices.**

# CHAIRMAN,

I thank to almighty for everything 1 get an complacency by hearing the provision of tech event mechazzam2K23. I can said it merely it's an golden opportunity for students to acquire and gather practical technical knowledge by this event. Probe more technical skills and observe technical nuances by technical events. Not only the books contain blend of information will give enough knowledge, more than that practical experience and practical skills are more prominent to an technical student in competitive world. Inhere you can make good contacts with various peoples may asily made a team and do some unanimous work and try to participate in the technical rivals. Don't be scared of failures before embarking into any competitions. because more than victory, sheer will and courage is key to success. never allow failures to break you allow them to teach you, what should not I do next because thinking about the unrealistic imagination will reduce you acceleration pace slower and weaker. Be courageous for your future it's really an bounteous boon to you. And also a great admiration to the endorsing committee taking abead the event to makes students to cultivate their potential and ignite them as a extra sensory talented students to the future. Thank you.

**MR.NAZERATH CHARLES,**
**STELLA MARYS COLLEGE OF ENGINEERING**



# Secretary

Mrs. Mary Stella Charles, the beloved Secretary of our college, was a pillar of dedication and commitment. Her graceful leadership and kind nature inspired everyone around her. She played a vital role in shaping our institution with love and care. Her memories will forever remain in our hearts.

**Mrs.Mary Stella Charles**
**STELLA MARYS COLLEGE OF ENGINEERING**

# CHIEF EXECUTIVE OFFICER,

Congrats for the mechazzam 2K23 technical symposium, the literal meaning of symposium is to exchanging the ideas in a wise congregation here we are emphasizing all you to engage yourself with the technical event for to acknowledge about your talent is the main vision of the institution not only to show the progression in curriculum but also to enhance the technical skills of students to the future is the goal and agenda of the institute Here we are providing the courses in prolific standard now we are emerging to the next step for the betterments, also 1 appreciate all the event orchestrating committee members for your unwavered support and heartfelt wishes for the technical magazine,glad for everything and proud about you all

**MR.CAROL JUDESON,**
STELLA MARYS COLLEGE OF ENGINEERING

# PRINCIPAL,

Warm greeting to all. It is a matter of great pride and satisfaction that the magazine, department of electronics communication engineering is released during the national level symposium "mechazzam2k23" on 03april 2023. I am confident that this issue of department magazine will send a positive signal to the staff, students and the person who are interested in the technical education and technology based activities. Department magazine is like a mirror which reflects the clear picture of all sorts of activities undertaken by a department and develops writing skills among students in particular and teaching faculty in general. I express my deep sense of gratitude & congratulate the editorial board who have played wonderful role in accomplishing the task. Also my heartfelt congratulations to faculty, staff and students for their fruitful effort. With best wishes.

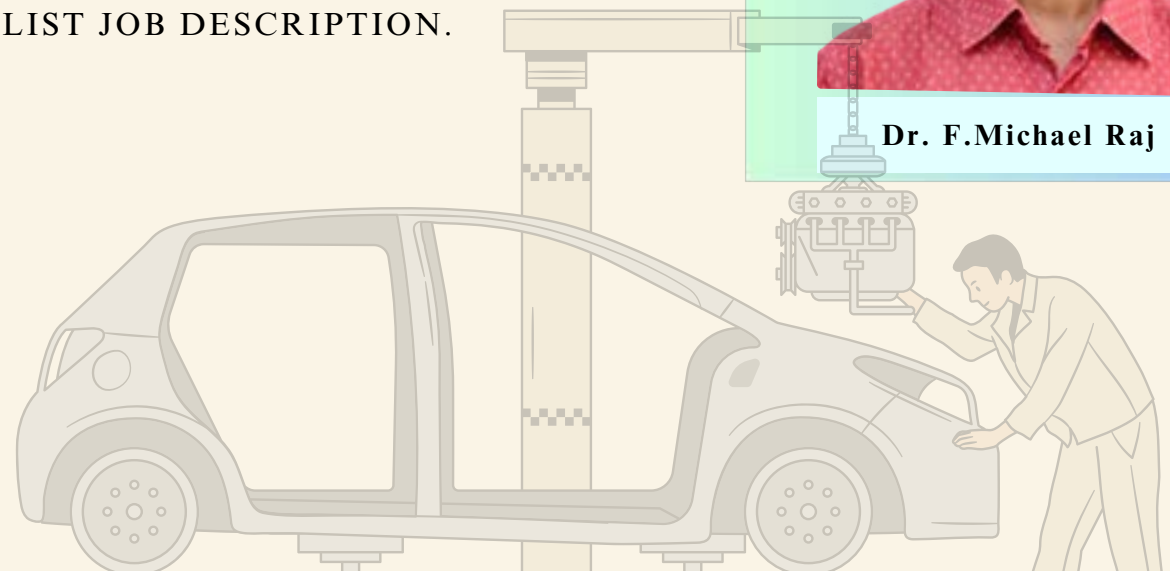
**DR.R. SURESH PREMIL KUMAR**
STELLA MARYS COLLEGE OF ENGINEERING

IT IS IMMENSE PLEASURE FOR ME TO GREET THE NOBLE TASK OF THE DEPARTMENT OF MECHANICAL ANDMECHANICAL ENGINEERING AND OUR OLD HEAD OF THE DEPARTMENT TO PUBLISH THEIR YEARLY ISSUE "MECHAZZAM 2K23". I WISH THIS MAGAZINE ESTABLISHES TO BE A FIRE FLINT TO THE DEPARTMENT STAKE HOLDERS. AND EXCITE THEIR MINDS FOR MANY INTRUSIVE INNOVATIONS AND INSPIRE PASSION AMONG THEM. I APPRECIATE THE EDITORIAL BOARD TO KEEP THE GOOD WORK.

**DR.R. JENIX RINO.J**

A MANUFACTURING SPECIALIST PLANS, DESIGNS, MODIFIES, AND OPTIMIZES THE PRODUCTION PROCESS. THEY ARE ALSO RESPONSIBLE FOR INSPECTING, MAINTAINING, AND REPAIRING EQUIPMENT AND COORDINATING WITH OTHER SPECIALISTS AND ENGINEERS TO IMPLEMENT ALL PRODUCT AND SYSTEM REQUIREMENTS, PER THE PRODUCTION SPECIALIST JOB DESCRIPTION.

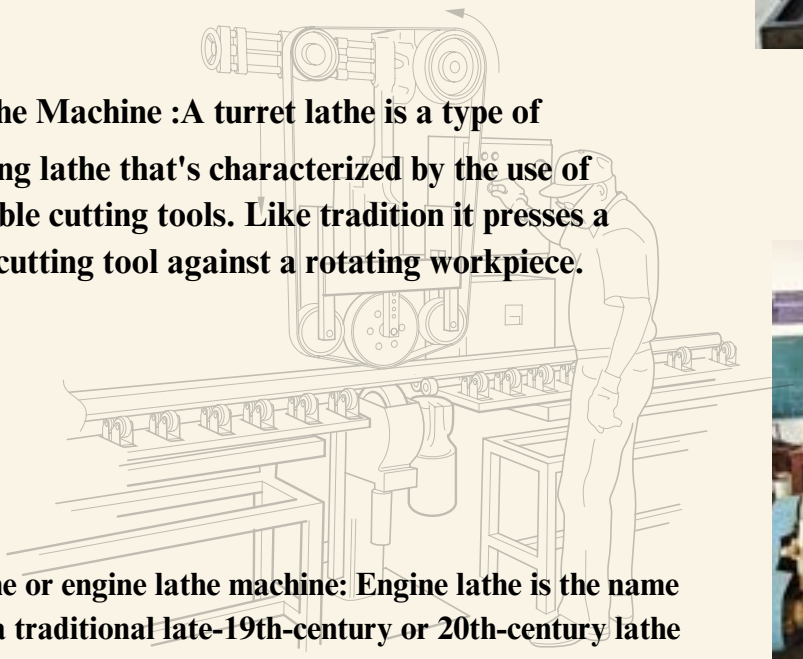
**Dr. F.Michael Raj**



| SI.NO | NAME | Degree (highest degree) | DESTINGUNATION | SPECIFICATION |
|---|---|---|---|---|
| 1. | Dr. R. Suresh Premil Kumar | Ph.D | Professor & Principal | Thermal Power Engineering |
| 2. | Dr. J. Jenix Rino | Ph.D | Associate Professor | Engineering Design |
| 3. | Dr. F. Michael Raj | Ph.D. | Professor | Manufacturing Engineering |
| 4. | Dr. M. Siva Prakash | Ph.D. | Professor | CAD |
| 5. | Dr. C. Dhayananth Jegan | Ph.D | Associate Professor | Thermal Engineering |
| 6. | Dr. M. Abeens | Ph.D | Associate Professor | Energy Engineering |
| 7. | Dr. M. L. Brabin Nivas | Ph.D | Associate Professor | CAD/CAM |
| 8. | Mr. S. R. RajKumar | M.Tech | Assistant Professor | Energy Engineering |
| 9. | Mr. S. Ajith Kumar | ME | Assistant Professor | Engineering Design |
| 10. | Mr. P. Vijayan | ME | Assistant Professor | Energy Engineering |
| 11. | Mr. E. Bravin Daniel | ME | Assistant Professor | Production Engineering |
| 12. | Mr. I. P. Rakhesh | ME | Assistant Professor | Thermal Engineering |
| 13. | Mr. M. Sujin | ME | Assistant Professor | CAD |
| 14. | Mr. L. K. Ajai | ME | Assistant Professor | CAD |
| 15. | Mr. K. Sarasa Kumar | ME | Assistant Professor | Thermal Engineering |
| 16. | Mr. S. Alex Wellesley | ME | Assistant Professor | CAD |
| 17. | Mr. R. Jein Sam Dhas | ME | Assistant Professor | Manufacturing Engineering |
| 18. | Mr. J. Libin | ME | Assistant Professor | Industrial Safety Engineering |

# LABORATORY

**LATHE MACHINE :A machine tool that rotates a workpiece about an axis of rotation to perform various operations such as cutting, sanding, knurling, drilling, deformation, facing, threading and turning,**



**Turret Lathe Machine :A turret lathe is a type of metalworking lathe that's characterized by the use of interchangeable cutting tools. Like tradition it presses a stationary cutting tool against a rotating workpiece.**

**Center lathe or engine lathe machine: Engine lathe is the name applied to a traditional late-19th-century or 20th-century lathe with automatic feed to the cutting tool,**

**Toolroom Lathe Machine: A toolroom lathe is a lathe optimized for toolroom work. It is essentially just a top-of-the-line center lathe, with all of the best optional features that may be omitted from less expensive models**

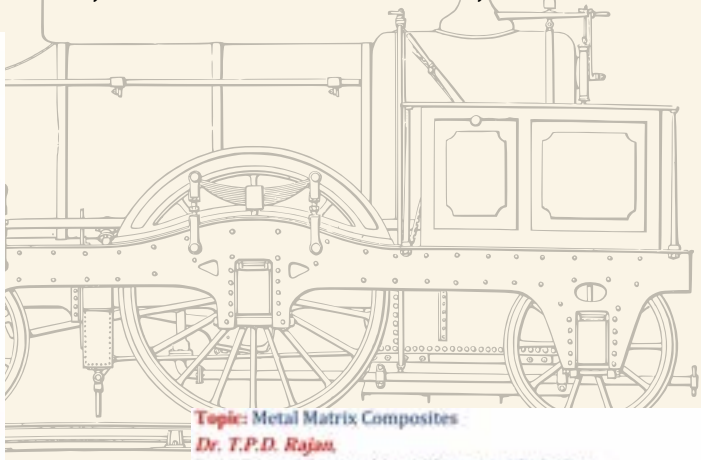
**Universal Governor Apparatus: The function of the governor is to regulate the mean speed of an engine, when there is a variation of loads. If the load on the shaft increases, the speed of the engine decreases unless the supply of fuel is increased by opening the throttle valve**

**Motorised Gyroscope Apparatus: This device consisting of a spinning mass, typically a disk or wheel, mounted on a base so that its axis can turn freely in one or more directions and thereby maintain its orientation regardless of any movement of the base.**

**Whirling of Shaft Apparatus:The rotational speed at which a shaft tends to bow out is called a whirling or whipping or critical speed of the shaft. The apparatus is used to determine the critical speed of the rotating shaft and its theoretical verification.**

# Two days National Level Joule's Fest-23 was held in a successful way with Ninety Five

external participants across Tamilnadu and One Hundred and Two internal participants. In the first day (05.05.2023) a workshop on "Composite Materials" was organized with four sessions comprises; An over view to composite Materials by Dr. S. Balasivanandha Prabu, Ceramic Matrix Composites by Dr. K. Kalaichelvan, Metal Matrix Composites by Dr. T. P. D Rajan and Polymer Matrix Composites by Dr. K. I. Suresh. In the second day the symposium was conducted with events like project expo, Paper Presentation, Poster Presentation, CAAD Modeling. Technical quiz, Lathe master, Photography, Logo design and Water rocketry were done. Dr. M. S. Starvin, and Dr. M. Uthayakumar delivered the key note address in Advanced Machining Process and Computational approach for Composite Materials. The participants from various reputed Institutions across the country have shared their knowledge and showcased their skills during the sessions. This program served an ideal platform for the students to update their technical knowledge as well as enhancing their innovative skills, administrative skills, teamwork ete.

| S. No. | Name of the Faculties | Topic | Institution | Date | | Cummulative days | Faculties Interaction with Outside World (Activities Type) | Faculties Interaction with Outside World |
|---|---|---|---|---|---|---|---|---|
| | | | | From | To | | | |
| 1 | Dr. R. Suresh Premil Kumar | Future Perspectives in Cold Spray Process and its Applications | Government College of Engineering, Bargur | 05-12-2022 | 06-12-2022 | 2 | Workshop | Participant |
| 2 | Dr. J. Jenix Rino | Leadership and Team effectiveness | NPTEL - FDP | January 2023 | April 2023 | | NPTEL - FDP | Participant |
| 3 | Dr. F. Micheal Raj | Future Perspectives in Cold Spray Process and its Applications | Government College of Engineering, Bargur | 05-12-2022 | 06-12-2022 | 2 | Workshop | Participant |
| 4 | Dr. M. Sivaprakash | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 5 | Dr. C. Dhayananth Jegan | Intellectual Property Rights | Dr. M. G. R Educational and Research Institute | 22-05-2023 | 26-05-2023 | 5 | FDP | Participant |
| 6 | Dr. C. Dhayananth Jegan | Emerging Research Trends in Block Chain & Data Science | Dr. M. G. R Educational and Research Institute | 08-05-2023 | 12-05-2023 | 5 | FDP | Participant |
| 7 | Mr. S.R. Rajkumar | A Step by Step Guide to write a Good Research Paper | Parul University Gujarath | 20-12-2022 | 29-12-2022 | 10 | FDP | Participant |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | Mr. S.R. Rajkumar | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 9 | Mr. S. Ajithkumar | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 10 | Mr. S. Ajithkumar | Education 5.0 | Dr. M. G. R Educational and Research Institute | 15-05-2023 | 19-05-2023 | 5 | FDP | Participant |
| 11 | Mr. S. Ajithkumar | Intellectual Property Rights | Dr. M. G. R Educational and Research Institute | 22-05-2023 | 26-05-2023 | 5 | FDP | Participant |
| 12 | Mr. S. Ajithkumar | Innovation & Entrepreneurship Development Programme | EDII - IEDP | 25-08-2022 | 27-08-2022 | 3 | FDP | Participant |
| 13 | Mr. E. Bravin Daniel | ICT for Teaching and Learning | NITTTR, Chennai | 09-01-2023 | 13-01-2023 | 5 | PDP | Participant |
| 14 | Mr. E. Bravin Daniel | Computer Integrated Manufacturing | NPTEL - FDP | January 2023 | April 2023 | | NPTEL - FDP | Participant |
| 15 | Mr. P. Vijayan | Education 5.0 | Dr. M. G. R Educational and Research Institute | 15-05-2023 | 19-05-2023 | 5 | FDP | Participant |
| 16 | Mr. P. Vijayan | Future perspectives in Cold Spray Process and its Applications | Government College of Engineering, Bargur | 05-12-2022 | 06-12-2022 | 2 | Worksh op | Participant |
| 17 | Mr. I. P. Rakhesh | How to write and get your research paper published | ESSGEE DIGISKILLS | 05-01-2023 | 15-01-2023 | 11 | Worksh op | Participant |
| 18 | Mr. I. P. Rakhesh | Waste to Energy Conversion | NPTEL - FDP | January 2023 | April 2023 | | NPTEL - FDP | Participant |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 19 | Mr. I. P. Rakhesh | Innovation Ambassador Training (Foundation Level) | AICTE - MoE | 30 contact hour | | 3 | AICTE - Training | Participant |
| 20 | Mr. I. P. Rakhesh | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 21 | Mr. M. Sujin | Education 5.0 | Dr. M. G. R Educational and Research Institute | 15-05-2023 | 19-05-2023 | 5 | FDP | Participant |
| 22 | Mr. M. Sujin | Future Perspectives in Cold Spray Process and its Applications | Government College of Engineering, Bargur | 05-12-2022 | 06-12-2022 | 2 | Workshop | Participant |
| 23 | Mr. M. Sujin | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 24 | Mr. L. K. Ajai | Education 5.0 | Dr. M. G. R Educational and Research Institute | 15-05-2023 | 19-05-2023 | 5 | FDP | Participant |
| 25 | Mr. K. Sarasa Kumar | Blooms Taxonomy in teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 26 | Mr. K. Sarasa Kumar | A Step by Step Guide to write a Good Research Paper | Parul University Gujarath | 20-12-2022 | 29-12-2022 | 10 | FDP | Participant |
| 27 | Dr. C. Pravin Tamil Selvan | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 28 | Mr. J. Starlin Deva Prince | Blooms Taxonomy in Teaching and Learning | SanSnow's Nobel Foundation | 16-02-2023 | | 1 | FDP | Participant |
| 29 | Mr. E. Prakash | Education 5.0 | Dr. M. G. R Educational and Research Institute | 15-05-2023 | 19-05-2023 | 5 | FDP | Participant |
| 30 | Mr. E. Prakash | Future Perspectives in Cold Spray Process and its Applications | Government College of Engineering, Bargur | 05-12-2022 | 06-12-2022 | 2 | Workshop | Participant |
| 31 | Mr. V. Jude Vinoth | EV design for Mechanical Engineers - TNSDC | Skill Lync | 13-02-2023 | 17-02-2023 | 5 | FDP | Participant |

# LIST OF STUDENTS PRESENTED IN THE INTERNATIONAL/NATIONAL CONFERENCES

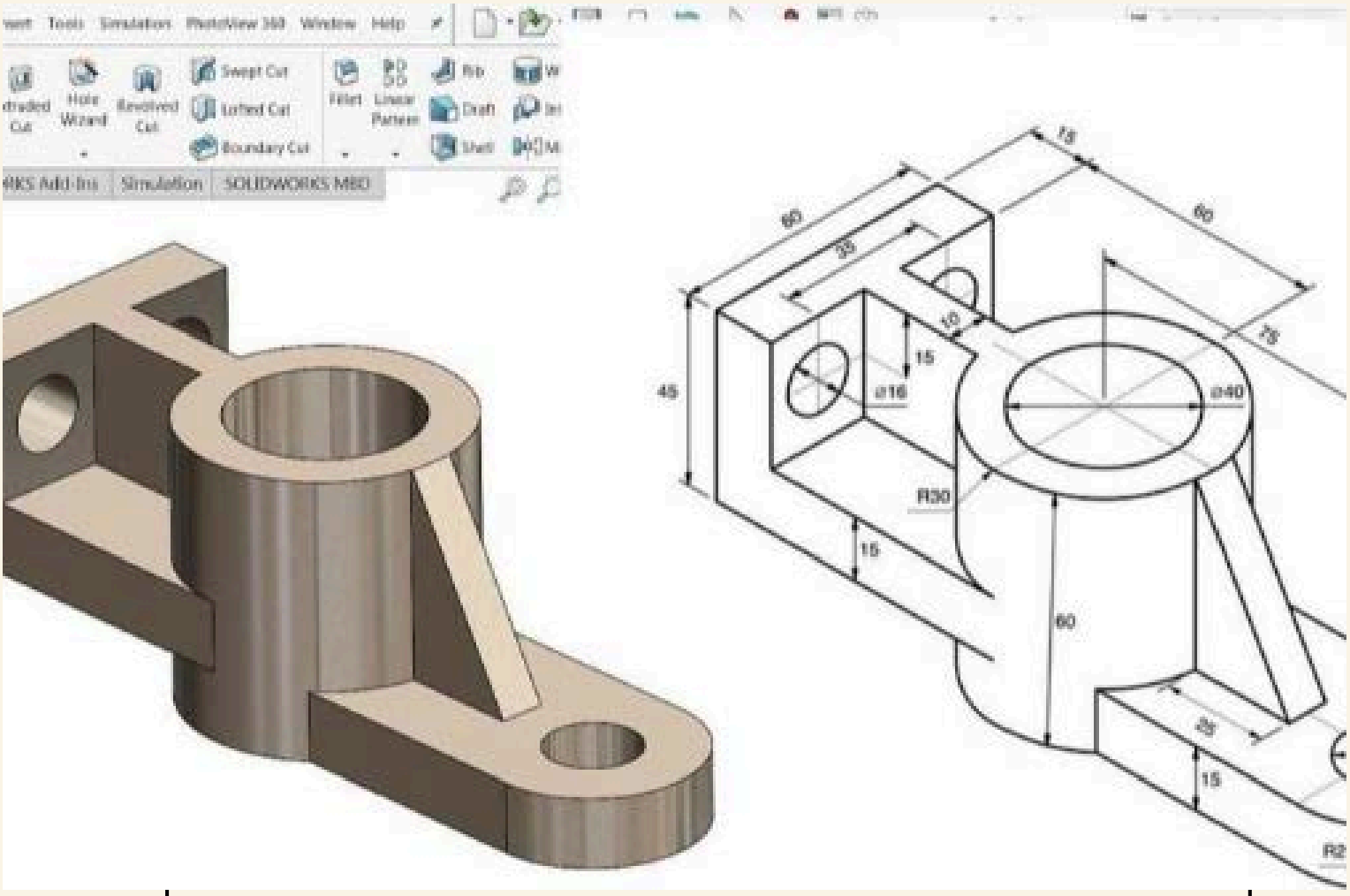
| Sl.No. | Authors | Title | Conference | Conducted By | Date |
|---|---|---|---|---|---|
| 2022-2023 | | | | | |
| 1. | Adharsh Gopi | Extraction of oil from Marotti Shell using Pyrolysis Process | International Conference – ICMCCT 2022 | Annai Vailankanni College of Engineering | 20-06-2022 |
| 2. | Sangeeth A.S | Extraction of oil from Marotti Shell using Pyrolysis Process | International Conference – ICMCCT 2022 | Annai Vailankanni College of Engineering | 20-06-2022 |
| 3. | Abdul Hakkim | Extraction of oil from Marotti Shell using Pyrolysis Process | International Conference – ICMCCT 2022 | Annai Vailankanni College of Engineering | 20-06-2022 |
| 4. | Alfin Denny T | Extraction of oil from Marotti Shell using Pyrolysis Process | International Conference – ICMCCT 2022 | Annai Vailankanni College of Engineering | 20-06-2022 |
| 5. | Sasthika .M | A Review on Pyrolysis of bio mass for bio fuel | National Conference NCMSGT-2023 | Noorul Islam Centre for Higher Education | 09,10-03-2023 |
| 6. | Dani M. Shaji | A Review on Pyrolysis of bio mass for bio fuel | National Conference NCMSGT-2023 | Noorul Islam Centre for Higher Education | 09,10-03-2023 |
| 7. | Abishek N.T | A Review on Pyrolysis of bio mass for bio fuel | National Conference NCMSGT-2023 | Noorul Islam Centre for Higher Education | 09,10-03-2023 |
| 8. | Ajin Kumar .R | A Review on Pyrolysis of bio mass for bio fuel | National Conference NCMSGT-2023 | Noorul Islam Centre for Higher Education | 09,10-03-2023 |

# LIST OF STUDENTS PARTICIPATED IN VARIOUS EVENTS CONDUCTED BY VARIOUS COLLEGES

| Sl. No. | Name | EVENT | Held At | Competition | Date |
|---|---|---|---|---|---|
| 2022-2023 | | | | | |
| 1. | Alfin Danny | Technical Symposium MECX22 | St.Xaviers Catholic College of Engineering | Paper Presentation/ Photography | 10-06-2022 |
| 2. | Sefinsha | Technical Symposium MECX22 | St.Xaviers Catholic College of Engineering | Paper Presentation | 10-06-2022 |
| 3. | Abdul Hakkim | Technical Symposium MECX22 | St.Xaviers Catholic College of Engineering | Paper Presentation | 10-06-2022 |
| 4. | Sangeeth A.S | Technical Symposium MECX22 | St.Xaviers Catholic College of Engineering | Paper Presentation | 10-06-2022 |
| 5. | Adharsh Gopi | Technical Symposium MECX22 | St.Xaviers Catholic College of Engineering | Paper Presentation/ Photography | 10-06-2022 |

# LIST OF AWARDED STUDENTS

| Sl.No. | Name of the Student | Organised / Conducted By | Date | Achievement |
|---|---|---|---|---|
| 2022-2023 | | | | |
| 1. | Mariyappan | Technical Symposium MECH KSHETRA 22 Loyola Institute of Technology and Science | 04-06-2022 | First Prize in Technical Quiz |
| 2. | Mariyappan | Technical Symposium MECH KSHETRA 22 Loyola Institute of Technology and Science | 04-06-2022 | First Prize in Paper Presentation |
| 3. | Manohar.R | Technical Symposium VEYRON KRIJUES- 2K23 | 15-03-2023 | First Prize in CAD Modelling |
| 4. | Shabin Raj | Technical Symposium CHEEMS 2K23 DMI Engineering College | 24-03-2023 | Second Prize in Quiz |
| 5. | G.S.Dhinesh | Technical Symposium MECHMONKZ 2K23 Ponjesly College of Engineering | 01-04-2023 | Second Prize in Technical Quiz |
| 6. | Jenish.N.J | Technical Symposium TECHNOVATION Narayanaguru College of Engineering | 31-03-2023 | Second Prize in Technical Quiz |




We are proud to highlight the exceptional work of our student in the field of CAD modeling and design. The above component was skillfully created using SolidWorks software, showcasing the student's talent in 3D modeling and technical drawing interpretation. The drawing perfectly illustrates the application of various features like Extrude Boss, Extrude Cut, and Fillet commands. The model is developed with precise dimensions as per industrial standards, reflecting accuracy and attention to detail.

This project not only enhances the student’s technical skills but also strengthens their design thinking and creativity. Such practice plays a vital role in developing future-ready engineers capable of meeting industry demands. Our department always encourages students to learn and apply advanced design tools like SolidWorks, fostering innovation and practical knowledge. We appreciate the dedication and hard work of the student and look forward to seeing more inspiring projects from our budding engineers.

# OPPORTUNITIES IN ELECTRIC VEHICLE INDUSTRY

**The Electric Vehicle (EV) industry is emerging as one of the fastest-growing sectors in the world. With increasing awareness of environmental pollution, rising fuel costs, and government policies promoting green energy, the future of transportation is moving towards electric mobility.**

For mechanical engineers in the EV industry include design and development of EV components, battery pack design, thermal management systems, structural analysis, and lightweight material development. anical engineering students, the EV industry offers a wide range of exciting career opportunities. Unlike traditional vehicles, EVs involve advanced technologies such as battery management systems, electric motors, power electronics,lightweight materials, and smart control systems.

This opens up various fields where mechanical engineers can contribute and innovate. Knowledge in 3D modeling, simulation, and manufacturing processes like CNC machining and 3D printing is also highly valuable.

Moreover, there is a growing demand for skills in electric motor design, powertrain integration, aerodynamics, and vehicle dynamics. Many leading companies like Tesla, Tata Motors, Mahindra Electric, Ather Energy, and Ola Electric are investing heavily in research and development, creating job opportunities in both core mechanical and interdisciplinary domains.

In addition, the EV sector also encourages entrepreneurship. Students with innovative ideas can develop start-ups focusing on EV charging stations, battery recycling, energy storage solutions, and electric mobility services.

To enter this booming industry, students should focus on upgrading their skills in CAD design, thermal analysis, battery technology, and electric power systems. Attending workshops, internships, and certification courses related to EV technology can provide a competitive edge.

In conclusion, the Electric Vehicle industry is not just the future of transportation but also a golden opportunity for mechanical engineers to apply their knowledge in innovative and sustainable ways.


# Rise of Automation,
# Robotics & Industry 4.0

**The world of engineering is undergoing a revolutionary transformation with the rise of Automation, Robotics, and Industry 4.0 technologies. These advancements are reshaping industries, creating smarter manufacturing systems, and opening up new opportunities for engineering students.**

For mechanical engineering students, this revolution offers exciting career paths. Knowledge of automation tools like PLC programming, robotics design, control systems, and simulation software is highly valuable. Additionally, understanding data analytics, machine learning basics, and smart manufacturing processes will give students an edge in this competitive field.

Industry 4.0 is not just limited to manufacturing; it is being implemented in healthcare, agriculture, automotive, and even smart cities. Companies are looking for engineers who can integrate mechanical systems with software, electronics, and data analytics.

In conclusion, the rise of Automation, Robotics, and Industry 4.0 is creating a new era of intelligent industries. Engineering students must adapt to these changes by upgrading their skills, learning emerging technologies, and participating in real-time projects. The future belongs to those who are ready to embrace innovation and contribute to the smart world of tomorrow.


# Role of IoT in MECHANICAL SYSTEMS

**The Internet of Things (IoT) is one of the most revolutionary technologies of recent times, creating a new era in mechanical systems and industries. IoT refers to the connection of physical devices, machines, and systems to the internet, enabling real-time data collection, monitoring, and control.**

In mechanical engineering, IoT plays a vital role in smart manufacturing, automation, predictive maintenance, and improving operational efficiency. With the help of sensors and smart devices, mechanical systems can communicate data like temperature, pressure, vibration, speed, and energy consumption to the cloud or central systems.

One of the key applications of IoT in mechanical systems is Predictive Maintenance.

In addition, IoT helps in Energy Management by analyzing energy consumption patterns and optimizing the use of resources. In HVAC (Heating, Ventilation, and Air Conditioning) systems, IoT ensures better temperature control and energy efficiency.

Moreover, IoT supports Smart Manufacturing through Industry 4.0 by integrating machines, data, and artificial intelligence. This leads to better decision-making, increased productivity, and improved product quality.

For mechanical engineering students, learning about IoT opens new career opportunities in areas like automation, smart product design, robotics, and industrial control systems. Basic knowledge of sensors, data analytics, and programming is essential to work in this field.

In conclusion, IoT is transforming traditional mechanical systems into smart, connected, and intelligent systems, creating a bright future for the next generation of mechanical engineers.

# "THE HEART OF A MECHANICAL ENGINEER"

With spanner dreams and iron will,
He shapes the world with craft and skill.
Gears and shafts, in hands so wise,
Turning thoughts into machines that rise.

Drawing lines on every page,
Designing wonders, age to age.
From bolts to beams, from nut to gear,
His vision builds what all admire.

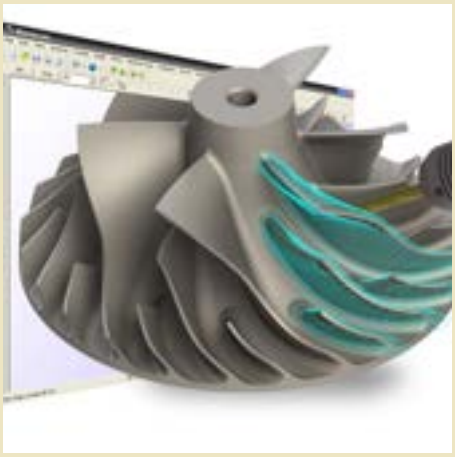
The engine roars, the turbine spins,
Behind the scene, his magic begins.
Machines may move, the world may fly,
But it's his passion that lifts them high.

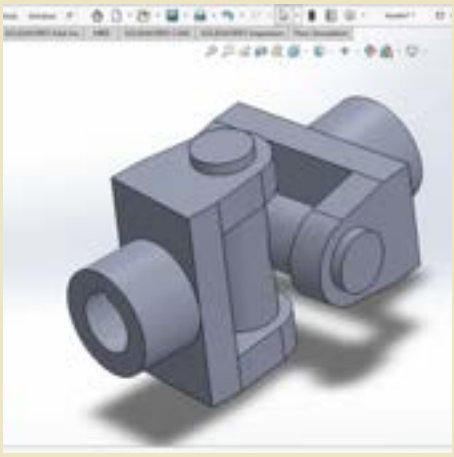
Calculations deep, designs so neat,
Facing every challenge, never in retreat.
Through heat, through force, through testing strain,
He builds with pride, through sweat and pain.

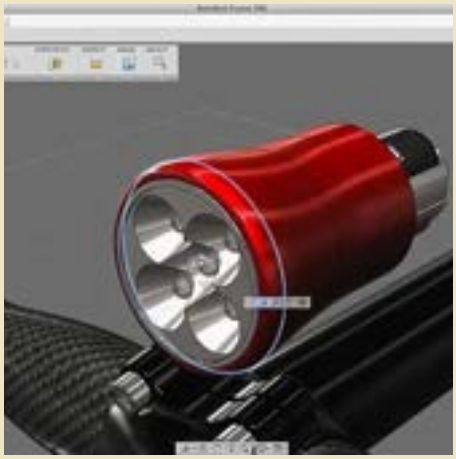
Not just metal, not just steel,
A Mechanical Engineer makes dreams real.
In every part, in every plan,
Lives the heart of a thinking man.

Salute to the creators, bold and bright,
The builders of dreams, the masters of might.
With knowledge sharp and vision clear,
We bow to every Mechanical Engineer!

# Importance of CAD/CAM/CAE Tools in Modern Engineering







**In today's fast-growing engineering world, the use of CAD, CAM, and CAE tools has become essential in designing and manufacturing high-quality products with greater accuracy and efficiency. These tools play a vital role in modern engineering industries by reducing human errors, saving time, and improving productivity.**

CAD (Computer-Aided Design) is widely used for creating 2D and 3D models of components and assemblies. It allows engineers to visualize their designs clearly before manufacturing. With CAD software like AutoCAD, SolidWorks, and CATIA, designers can easily modify, analyze, and improve their models.

CAM (Computer-Aided Manufacturing) is used to control machine tools and related machinery in the manufacturing process. CAM tools help in generating CNC codes that guide machines to produce parts with high precision. It reduces manual work and increases the quality and speed of production.

CAE (Computer-Aided Engineering) tools are used for the analysis and simulation of product performance. Using CAE tools like ANSYS, engineers can test their designs under various conditions like stress, heat, vibration, and fluid flow without creating a physical prototype. This helps in identifying design flaws at an early stage, saving cost and time.

For mechanical engineering students, learning CAD/CAM/CAE tools is highly important for career growth. Many companies prefer engineers with software skills along with technical knowledge. Participating in design competitions, internships, and certification courses in these tools will increase employability.

In conclusion, CAD/CAM/CAE tools have transformed traditional engineering practices into smart, faster, and more efficient processes. They are the backbone of modern engineering design and manufacturing.

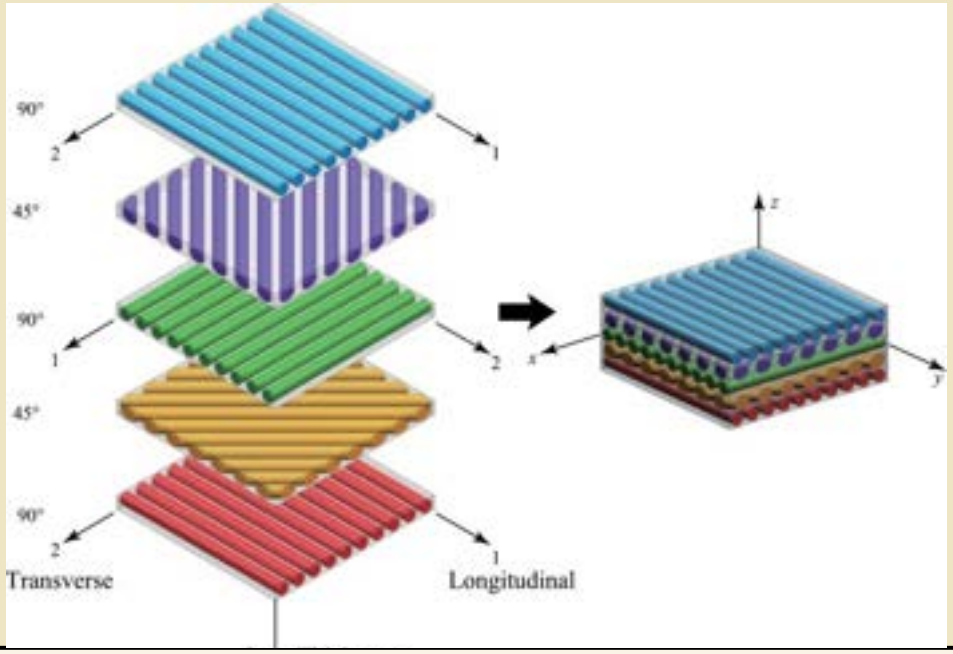
# Advances in Composite Materials

In recent years, composite materials have gained significant importance in the field of mechanical engineering due to their unique properties and wide range of applications. A composite material is made by combining two or more different materials to produce a material with superior properties compared to individual components.

The main advantage of composite materials is their high strength-to-weight ratio, corrosion resistance, durability, and flexibility in design. These properties have made composites an ideal choice in industries like aerospace, automotive, marine, sports equipment, and construction.

Modern advances in composite materials have led to the development of fiber-reinforced composites such as Carbon Fiber Reinforced Polymer (CFRP) and Glass Fiber Reinforced Polymer (GFRP). These materials are lightweight but possess extraordinary strength and stiffness, making them suitable for aircraft parts, car bodies, wind turbine blades, and even space structures.

Another recent development is Nano-composites, where nanoparticles are added to improve the mechanical, thermal, and electrical properties of materials. These composites are widely used in electronics, biomedical devices, and energy storage systems.



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