



FRANCIS XAVIERTM
ENGINEERING COLLEGE
AN AUTONOMOUS INSTITUTION

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DEPARTMENT OF MECHANICAL ENGINEERING

MONTHLY NEWS – FEBRUARY 2024

About Department of Mechanical Engineering

The department offers UG program in B.E Mechanical engineering from the year 2005. The department started a PG program M.E Industrial Safety Engineering from this academic year 2018- 2019. This course has wide range of job opportunity in the Industrial and Academic sector of India as well as abroad. The Department aims at providing the students with a perfect blend of intellectual and practical experiences with the support state-of the-art laboratories and well-defined academic structure. The UG program is accredited by National Board of Accreditation (NBA). The special feature of the Department has established three applied laboratories, in addition to the regular labs.

Vision of the Department

To produce competent Mechanical Engineers of excellent technical and managerial skills with profound morality for global, national and confront societal development.

Mission of the Department

1. To provide quality education in Mechanical Engineering with an interdisciplinary approach, encouraging innovation, research, and Entrepreneurship through world-class infrastructure and proficient teachers.
2. To make the department self-reliant through multiple programs with excellent curricula, best practices, and industry exposure.

3. To inculcate technical, professional, and leadership skills, moral ethics, and lifelong learning.

Programme Educational Outcomes

The Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill, and Attitude to the graduates to

PEO 1: Have a successful professional career in Mechanical Engineering and allied industries, either by employment or through entrepreneurship.

PEO 2: Establish competency in Design, Thermal, Materials, and Manufacturing system with ethics and social responsibility.

PEO 3: Have a continual receptiveness for leadership and social challenges.

Message from the Head of the Department

**Dear Colleagues,
Greetings!**

I have great pleasure and pride in announcing that the Department of Mechanical Engineering is publishing the newsletter for the month of November 2023. Amidst the COVID-19 pandemic situation, we strived hard to keep the students engaged and utilize the time not only for quality education but for self-development. We are steadfast in our progress as it involved various activities that enabled the hidden talents of the department students and faculty members to be brought to light. Besides the lockdown, our faculty members are continuously attending various training programs, publishing research papers, and book chapters, and are also working on getting patents.

This newsletter is the reflection of department activities that showcase all the events held in the department, the contributions of faculty members, and students, and the best practices adopted. I would like to congratulate all the members of the editorial board for their sincere effort to realize this venture.

Dr. R. Samuel Hansen, M.E., Ph.D.
Professor & Head
samuel.hansen@rediffmail.com



EDITORIAL BOARD

Dr. Dr. R. Samuel Hansen, Professor & Head of Department, Editor – in – Chief.

GUEST LECTURE / SEMINAR / SKILL TRAINING

Expert Talk on Technology Readiness Level

FX Alumni Association organized online guest lecture in association with department of Mechanical Engineering for the Third year Mechanical students. **Er.M.Nagarajan,, Proprietor.,Bright CNC Tech, Chennai** delivered the guest lecture on “**Efficiency Optimization Strategies for Modern Power Plant**”. A heartfelt greeting to the resource person is extended by Dr. R. Samuel Hansen, HOD-MECH. The expert resource thanked the management for offering him this opportunity.

First of all resource person said that TRL is a method for estimating the maturing of technologies during the acquisition phase. It provides a common understanding and language for tech development. He said TRLs are a scale ranging from 1 to 9, representing different stages of technology maturity and also TRL assess critical aspects of a technology, including functionality, performance & integration capabilities. The talk elaborated on each TRL from TRL 1 where basic principles are observed, to TRL 9, where the technology is proven through successful mission operations.

Additionally examples were provided to illustrate each TRL stage and its characteristics. Next he discussed about the importance of TRLs, it serves as a crucial tool for risk management, resource allocation & decision making in technology development projects. The talk highlighted various applications of TRLs across industries, including aerospace, defense, energy & healthcare. Examples were discussed, showcasing how TRLs are used in research & development, funding allocation, technology transfer & regulatory compliance.



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INDIA RANKINGS 2023
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Expert Talk on Technology Readiness Level (TRL)

17
SATURDAY
FEB 2024
09:30 AM to 12:30 PM

Resource Person ::::

Er. M. Nagarajan
Alumni Entrepreneur,
Bright CNC Tech,
CHENNAI.



Google Meet Link
meet.google.com/amz-bzvw-jca

Organised by

Entrepreneurship Development Cell &
Institution's Innovation Council

Co-ordinator

Dr. R.K.A. Bhalaji
Assistant professor,
Dept. of Mechanical Engineering
Francis Xavier Engineering College.

In association with

Department of
Mechanical Engineering

Convener

Dr. R. Samuel Hansen
HOD, Dept. of Mechanical Engineering
Francis Xavier Engineering College.

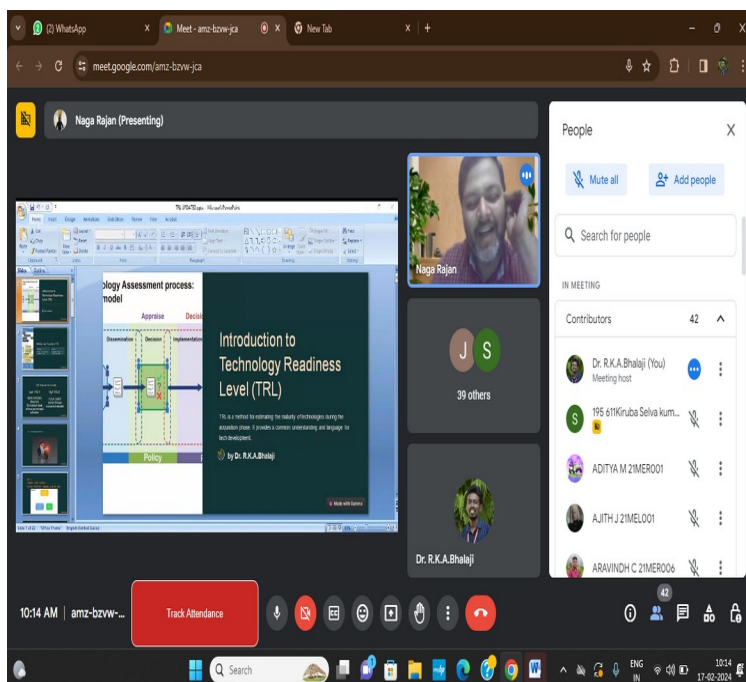


Dr. Lourdes Poobala Rayen
EDC Director & IIC President

Mr. S. Krishnakumar
Director - FXAA

Dr. K. Jeyakumar
Genera Manager - Development

Dr. V. Velmurugan
Principal



The screenshot shows a Google Meet interface during a presentation. The main window displays a slide titled "Introduction to Technology Readiness Level (TRL)" with a diagram of the TRL process. The presenter, Naga Rajan, is visible in a small video window. The right sidebar shows a list of participants, including Dr. R.K.A. Bhalaji (Meeting host), and a "Track Attendance" button is visible at the bottom.

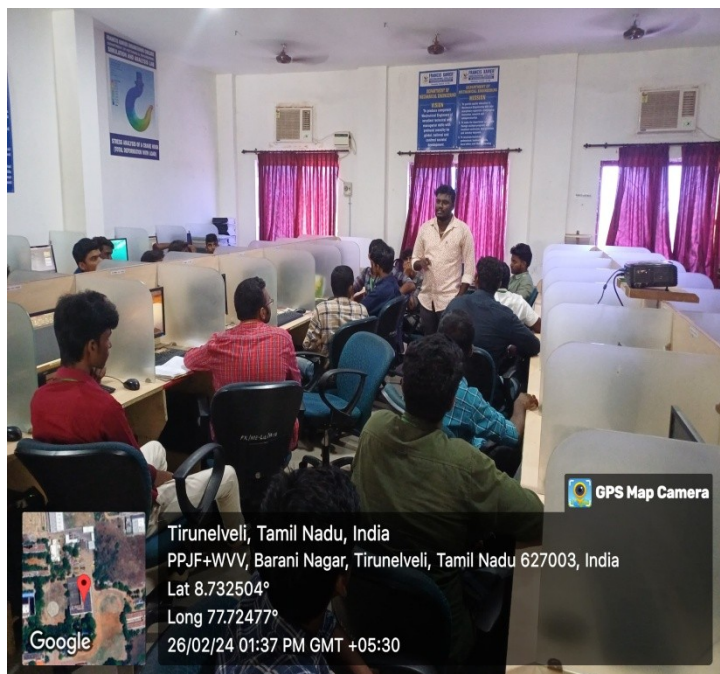
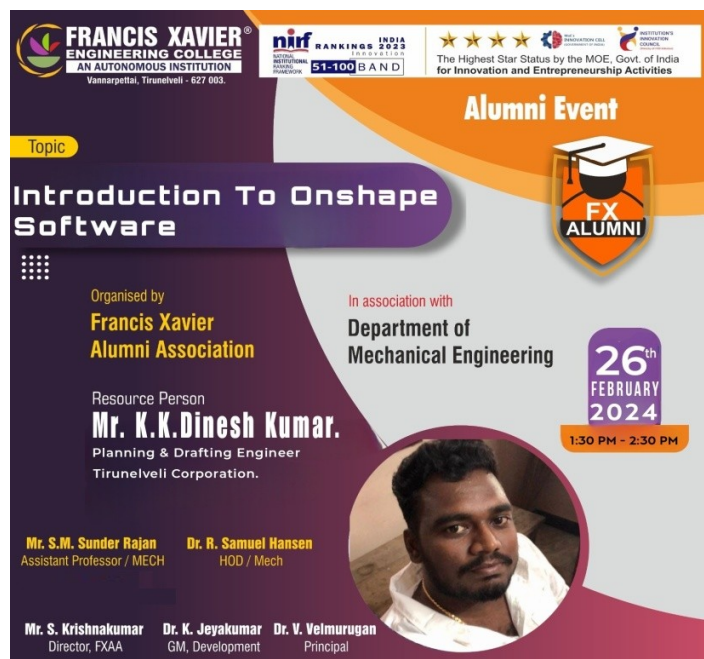
Finally best practices for implementing TRLs were discussed, emphasizing the importance of setting clear milestones, engaging stakeholders & adapting the framework to specific project

needs and also challenges such as subjective interpolation of TRLs, lack of standardized methodologies & difficulties in transition b/w TRL stages were discussed.

Guest Lecture: Introduction to Onshape Software

FX Alumni Association organized a guest lecture in association with department of Mechanical Engineering for the First year Mechanical students. . **K.K.Dinesh Kumar., Planning and Drafting Engineer., Tirunelveli Corporation** delivered the guest lecture on “**Introduction to Onshape Software**”. A heartfelt greeting to the resource person is extended by Dr. R. Samuel Hansen, HOD-MECH. The expert resource thanked the management for offering him this opportunity.

The guest lecture provide attendees with a comprehensive overview of Onshape, a cutting-edge cloud-based computer-aided design (CAD) software. The lecture aimed to familiarize participants with the fundamental features and functionalities of Onshape, highlighting its significance in modern design and engineering workflows. Onshape software, a pioneering cloud-based solution in the realm of Computer-Aided Design (CAD). Onshape redefines traditional CAD practices by offering a fully cloud-based platform accessible from any internet-enabled device, eliminating the need for software installations and enabling seamless collaboration among design teams. Key features include parametric modeling for flexible design iterations, built-in version control for tracking changes, real-time collaboration capabilities, and robust data management functionalities. Onshape's intuitive interface and mobile accessibility empower users to create, edit, and collaborate on 3D models with unprecedented ease and efficiency.



The guest lecture provided attendees with a comprehensive overview of the software's features, capabilities, and practical applications. Through a combination of theoretical explanations, practical demonstrations, and interactive discussions, participants gained valuable insights into how Onshape can streamline design workflows and enhance collaboration in modern engineering and design environments.

Effective Communication Skill & Basic Electrical Wiring & Home appliances

In order to enhance the school visit and Branding in other districts on (Feb 16, 2024) Dr.R.K.A.Bhalaji & Dr.J.Sangilimuthukumar from the Department of Mechanical Engineering organised the skill training for school students about Effective Communication Skill & Basic Electrical Wiring & Home appliances in APMS Modern CBSE School, Rajapalayam. The above skill training was conducted by Prof. Sathish & Prof. Shala from English Department and Prof.Selvakumar & Prof.Laxmi from EEE Department.

Seminar: Work Place Safety

The Seminar was organized by Safety Club in association with Department of Mechanical Engineering with the entitled 'Work Place Safety' held on Feb 06, 2024 at 01.30 PM. The

resource person for the event is Er.M.Ganesh, Safety Engineer, Cape Electric Pvt Ltd, Chennai. The seminar on "Workplace Safety" aimed to educate students on the importance of maintaining a safe and healthy work environment, equipping them with knowledge and strategies to identify hazards, mitigate risks, and promote a culture of safety in their respective workplaces. Resource person covered the major topics such as common work place hazards, safety policies & procedures, emergency preparedness & response and safety training & education. The seminar on "Workplace Safety" provided a valuable opportunity for students to enhance their understanding of key principles and practices related to maintaining a safe and healthy work environment. By bringing together experts, industry professionals, and stakeholders, the seminar facilitated knowledge sharing, collaboration, and networking, contributing to the collective efforts aimed at fostering a culture of safety in workplaces.



The poster for the "Workplace Safety" seminar features the Francis Xavier Engineering College logo at the top left, with the text "AN AUTONOMOUS INSTITUTION" and "Vannarpettai, Tirunelveli - 627 003." To the right is the NIRF India Innovation Rankings 2023 logo, showing a "51-100 BAND". A "SAFETY CLUB" logo with a hard hat icon is in the top right corner. The central graphic includes a construction warning sign and orange traffic cones. The title "Workplace Safety" is prominently displayed in blue. Below the title, a portrait of the resource person, Er. M. Ganesh, is shown. To the left of the portrait, the date and time "06 TUESDAY FEB' 2024 01.30 pm - 02.30 pm" are listed. To the right of the portrait, the text "Resource Person :::::" is followed by "Er. M. Ganesh", "Safety Manager, Cape Electric Pvt Ltd, Chennai". Below the portrait, the text "Organised by Safety Club" is present. To the right, it says "In association with Department of Mechanical Engineering". At the bottom, three roles are listed: "Co-ordinator" (Dr. R.K.A. Bhalaji, Assistant professor, Dept. of Mechanical Engineering, Francis Xavier Engineering College.), "Overall Club Co-ordinator" (Mr. A. Santiago Stephen, Associate Professor / Mathematics, Francis Xavier Engineering College.), and "Convener" (Dr. R. Samuel Hansen, HOD, Dept. of Mechanical Engineering, Francis Xavier Engineering College.). At the very bottom, two more names are listed: "Dr. K. Jeyakumar, Genera Manager - Development" and "Dr. V. Velmurugan, Principal".

Field Visit to LED Bulb Manufacturing Unit

A "Field Visit to LED Bulb Manufacturing Unit" was organized by Entrepreneurship Development Cell & Institution's Innovation Council in association with the Department of Mechanical Engineering on 27th February, 2024 at 09:30 am to 04.30 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/MECH inaugurated the session with

welcome address.

Forenoon Session

First of all resource person commenced with an overview of Light Emitting Diode (LED) technology, highlighting its fundamental principles and advantages over traditional lighting sources. Students gained an understanding of the various components of an LED bulb, including LED chips, heat sinks, drivers & housings. Also resource person provided a detailed explanation of the manufacturing process involved in producing LED bulbs, from the procurement of raw materials to the final assembly. Students learned about the importance of quality control measures at each stage of production to maintain product reliability and consistency. Additionally expert discussed recent technological advancements in LED bulb manufacturing, including developments in chip design, thermal management and driver efficiency. Finally a significant portion of the visit focused on sustainability practices adopted by leading manufacturers to minimize environmental impact.

Afternoon Session

Students went to LED Bulb Manufacturing Unit, where they had opportunity to observe the various stages of production firsthand. Key manufacturing process including chip mounting, encapsulation, testing & packaging were demonstrated to students, allowing them to gain insights into the intricacies of LED bulb manufacturing. Resource person conducted interactive sessions with students, providing detailed explanations of the manufacturing process, quality control measures and sustainable practices adopted by the manufacturing unit. Based on the guidance from resource person, students manufactured 5 set of LED bulbs in a successful manner. From that field visit, students understood the idea to develop the tech start-up using LED Bulbs. Finally students had the opportunity to ask questions, seek clarification and engage in discussions on topics related to LED Technology & Manufacturing.



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INDIA RANKINGS 2023
Innovation
51-100 BAND



Field Visit to LED Bulb Manufacturing Unit

27

TUESDAY
FEB' 2024
09.30 AM to 04.30 PM

Resource Person ::::

Mr. S. Selvakumar

Assistant Professor,
Dept. of Electrical & Electronics Engg.
FXEC.



Organised by
**Entrepreneurship Development Cell &
Institution's Innovation Council**

Co-ordinator
Dr. R.K.A. Bhalaji
Assistant professor,
Dept. of Mechanical Engineering
Francis Xavier Engineering College.

In association with
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Dr. R .Samuel Hansen
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Francis Xavier Engineering College.

Dr. Lourdes Poobala Rayen
EDC Director & IIC President

Dr. K. Jeyakumar
Genera Manager - Development

Dr. V. Velmurugan
Principal

Igniting Young Minds towards Innovation: A Discussion

A “Igniting Young Minds towards Innovation: A Discussion” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the Department of Mechanical Engineering on 28th February, 2024 at 09:30 am to 12.30 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/MECH inaugurated the session with welcome address.

First of all resource person emphasized the importance of understanding what innovation truly means. He was highlighted that innovation is not just about technology or groundbreaking ideas but also about problem-solving, creativity & adaptability. Resource person encouraging curiosity among young minds was a recurring theme throughout the talk and also he stressed the significance of asking questions, exploring new concepts and challenging conventional thinking to foster innovation. He addressing the fear of failure was another crucial aspect discussed during the expert talk and also he shared personal anecdotes & examples to illustrate that failure is an inherent part of the innovation process and should be embraced as a learning opportunity. Then he highlighted education as a powerful tool for nurturing innovation and also discussed the role of educational institutions, teachers & parents in providing a conducting environment for young individuals to explore their creative potential. Additionally he gave practical tips & strategies for igniting innovation such as fostering collaboration, encouraging experimentation & promoting a growth mindset. Finally he concluded the talk with their own innovation idea “Home Automation” and its importance.



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INDIA RANKINGS 2023
INNOVATION
51-100 BAND




Igniting Young Minds towards Innovation: A Discussion

28

WEDNESDAY
FEB 2024
09.30 AM to 12.30 PM

Resource Person ::::

Mr. A. Amith

Third Year Mechanical Student,
Design, Modelling & Analysis Applied Lab,
FXEC



Organised by
Entrepreneurship Development Cell &
Institution's Innovation Council

Co-ordinator
Dr. R.K.A. Bhalaji
Assistant professor,
Dept. of Mechanical Engineering
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General Manager - Development

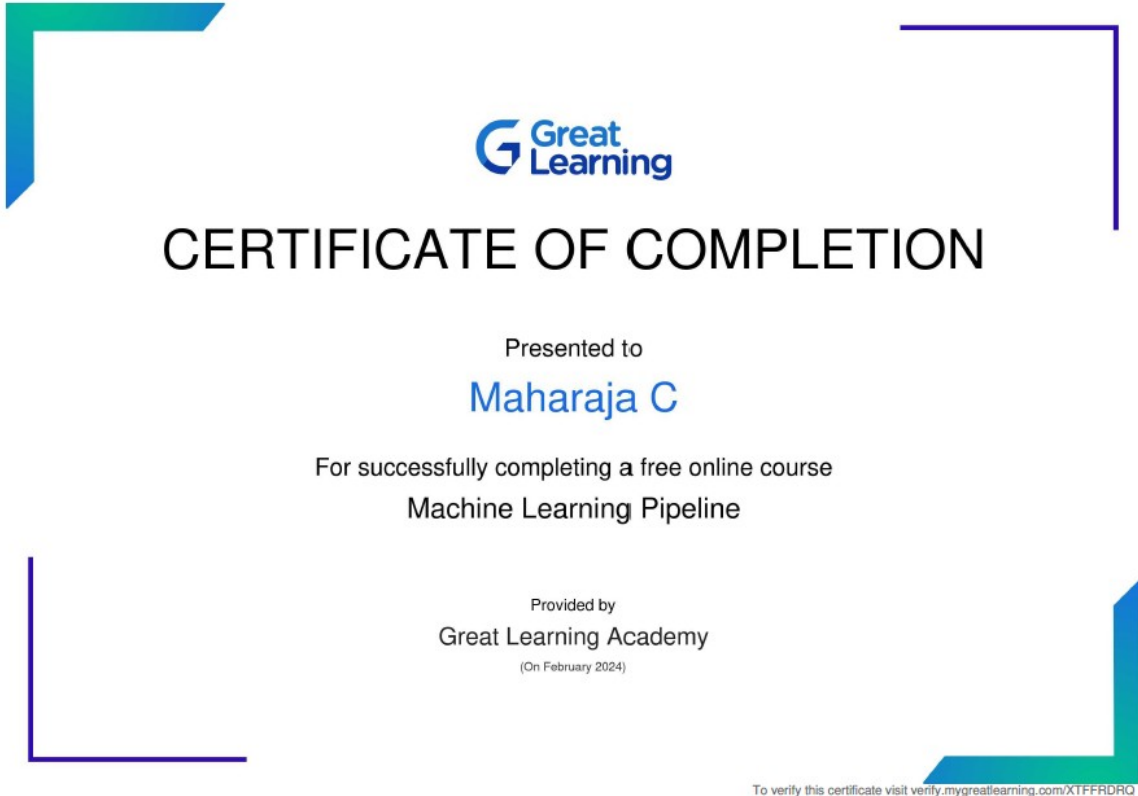
Dr. V. Velmurugan
Principal

INTERNSHIP/ PLACEMENT/ FUNDING

- ✚ That's great news! Congratulations to the following students (MOHAMED HALITH, AKASH SELVIN RAJ, ASHWIN KUMAR G, DOMNIC WIN ROSHAN, MATHAN, SIVA SUBRAMANIAN, IMMANUEL, PRADEEP ADDRIN, MANOJ KUMAR B, JAMIN SURIYAN R) has been placed at LG. BALAKRISHNAN & BROS LTD in Chennai. Securing a job is a significant achievement, and it marks the beginning of a new phase in their professional journey.
- ✚ The innovative project of Dr. V Velmurugan, Professor/Mechanical Engineering entitled, "Development and performance analysis of a new solar desalination system to address water scarcity problem," has received funding from SERB CRG. With a funding amount of Rs. 25 Lakhs allocated for the period of 2023-24 to 2026-27, it demonstrates a significant commitment to advancing research in the field of mechanical engineering and

addressing critical issues like water scarcity through innovative solutions like solar desalination system

- ✚ MAHARAJA C , BALAJI S, JERSON I (III Mech) have received Great learning Academy on line course certificates in Machine learning pipeline, Introduction to Management and Python for Machine learning.



- ✚ Dr.S.M.Rajkumar has participated in the AICTE Recognized Faculty Development Programme on Curriculum Design and Evaluation from 05/02/2024 to 09/02/2024 (One Week) at NITTTR, Chandigarh.
- ✚ Dr. J. Sangilimuthukumar has been published one SCI journal (IF: 3.531) paper entitled “Experimental investigation on the mechanical and acoustic performance of hemp/kenaf hybrid composites: Influence of different stacking sequences”.

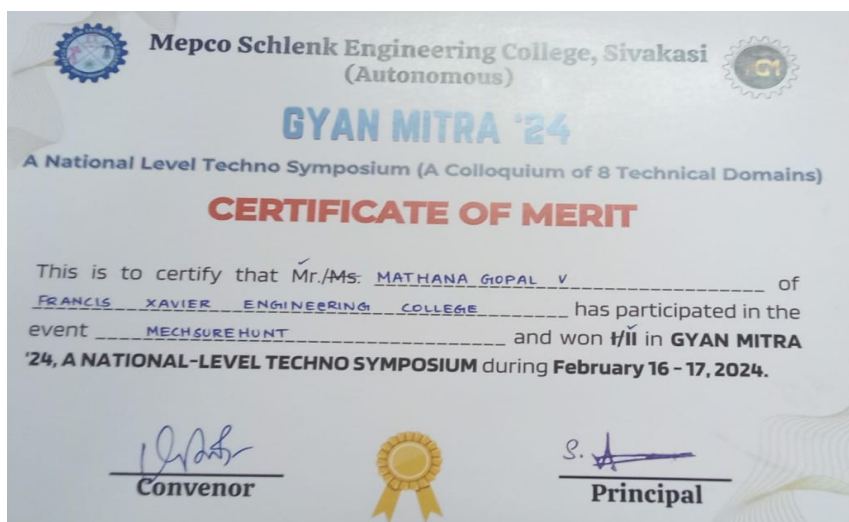
SYMPOSIUM

- ✚ That's fantastic news! Congratulations to the Mechanical Engineering students for their outstanding achievements in the National Symposium GYAN MITRA 24. Winning the trophy in the Mechanical Engineering domain and securing top positions in various contests is truly commendable. Christruraja Kumar and Selvakumar's success in CAD modeling and modeling with kinematic checks reflects their proficiency in these areas.

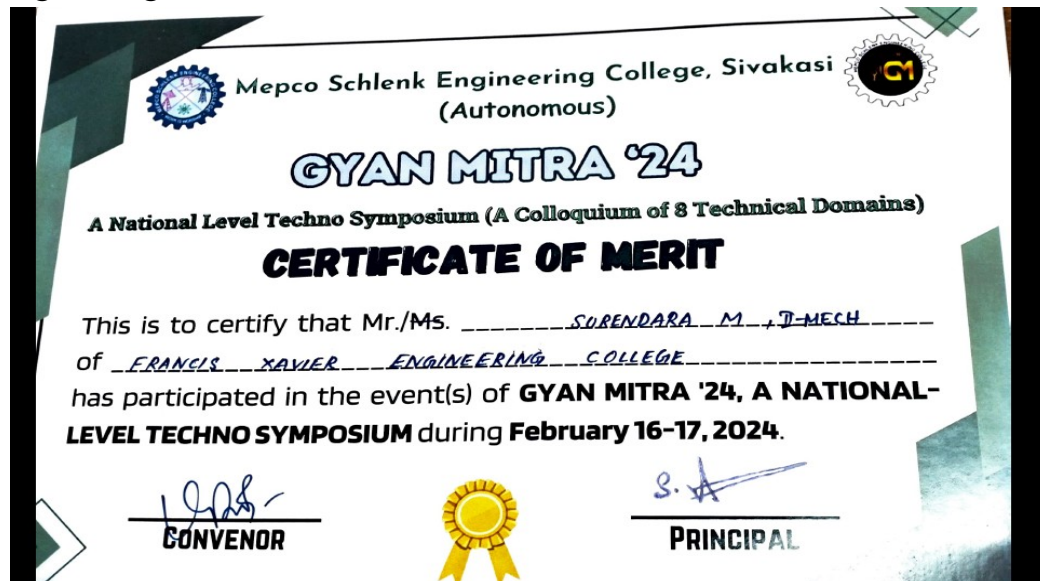
Their dedication and skills have earned them well-deserved recognition and cash prizes. Additionally, kudos to Venkadesh S, Venkatesh Perumal S, Krishna A, and Mathana Gopal V for clinching the 2nd prize in MECHSURE HUNT. Their teamwork and effort have contributed to this accomplishment. Such victories not only highlight the talent and hard work of the students but also reflect positively on the quality of education and guidance provided by the institution. Well done to everyone involved!



- ✚ Congratulations on another remarkable achievement! Winning the First Prize in the Paper Presentation event at MECH ERA 2K-24 organized by PSR Engineering College is truly impressive. A.Krishna and Joseph Nevil's success highlights their expertise and innovation in their respective fields of Design and Analysis Applied Lab and Innovation and Product Development Applied Lab. Their dedication to research and presentation skills have undoubtedly played a significant role in securing this prestigious award. This accomplishment not only brings recognition to the students but also reflects positively on the Mechanical Engineering Department and the institution as a whole. Wishing A.Krishna, Joseph Nevil, and the entire department continued success in their academic and professional endeavors. Keep up the excellent work!
- ✚ MATHANA GOPAL V - III Year Mechanical Engineering won IInd prize on Mechsure Hunt Event “GYAN MITRA - National Level Techno Symposium” at Mepco Schlenk Engineering College held on 17.02.2024.



- II Year Mechanical students SRI RAMA SUBRAMANIAN S, SURENDARA M, ESSAKI RAJ S, NITHISH M have received participation certificates on Mechsure Hunt Event “GYAN MITRA - National Level Techno Symposium” at Mepco Schlenk Engineering College held on 17.02.2024.



- MOHAMED HABEES ISMAIL P, SUBAIR IBRAHIM J, MOHAMED AFRITH R, RAMAKRISHNAN V S, AHAMED UNAIS A M and SRITHAR T of Second year mechanical students have received participation certificates “Tech talks becrez carnival -24”, B.S.Abdur rahman crescent Institute of science and technology, Chennai dated 22 & 23.02.2024.



- III-Year Mechanical - S MUTHURAJ, VIGNESHWARAN S, MEERAN MAIDEEN S, MUTHU SURYA S, JEBAKUMAR, SANJAYKUMAR S and SRIRAM S have received participation certificates on BEAT BASH at CBEYONZ'24, a National Level Technical Symposium at Bannari Amman Institute of Technology dated 15.02.2024.



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Ph: 04295-226000/221289 Fax: 04295-226666 Email: stayahead@bitsathy.ac.in Web: www.bitsathy.ac.in

Certificate of Participation

This is to certify that

S MUTHURAJ

had participated in the event **BEAT BASH** at **CBEYONZ'24**, a National Level Technical Symposium held on 15th February, 2024 organized by Department of Computer Science and Business Systems, Bannari Amman Institute of Technology.

Dr Priya J
Convenor

Mrs Madhumitha A
Co-ordinator

- MATHANA GOPAL V - III Year Mechanical Engineering have received participation certificates on Paper Presentation and CAD Modelling events "GYAN MITRA - National Level Techno Symposium" at Mepco Schlenk Engineering College held on 17.02.2024.

