



## YEARLY ROUND UP 2023-'24:

### MARCHING TOWARDS SUSTAINABLE EXCELLENCE

The Department of Mechanical Engineering at BJI is well-equipped with faculty members who have expertise in various fields of Mechanical Engineering, such as Thermal Engineering, Material Science, Production Technology and Machine Design. The workshops and laboratories under the department provide state-of-the-art facilities to empower students in their training and research.

The Department has signed MoUs with leading technical training pioneers such as Habilete to provide students with hands-on training and industrial exposure, further enhancing their learning experience. The Department also boasts of alumni with excellent academic profiles, including those who have achieved high ranks in KTU. The Department of Mechanical Engineering at BJI is committed to providing its students with a comprehensive education in the field of Mechanical Engineering, with an emphasis on practical learning and industrial exposure.

#### DEPARTMENT VISION

“Fostering Mechanical Engineering professionals of unparalleled integrity, dedicated to leading social transformation for a brighter and innovative world.”

#### DEPARTMENT MISSION

- Position the Mechanical Engineering Department as a global leader and offer a dynamic learning environment focused on rigorous fundamentals, innovative thinking and hands-on experience.
- Equip students to make significant contributions to society through professional excellence, research, innovation, interdisciplinary collaboration and lifelong learning.

## FROM HEAD OF THE DEPARTMENT



**BEJOYS**

ASSOCIATE PROFESSOR & HOD

As the Head of the Mechanical Engineering Department, it brings me great pride to highlight the remarkable achievements of both our esteemed faculty and talented students. Over the past year, our department has seen tremendous growth and success, thanks to the dedication and hard work of our staff and the enthusiasm and innovation of our students.

Our faculty members have consistently demonstrated excellence in teaching, research and industry collaboration, resulting in groundbreaking advancements in various fields of mechanical engineering. Their efforts have not only enriched the learning experience of our students but have also contributed significantly to the academic community and industry. Our students have excelled in various competitions, Projects and internships, showcasing their passion for engineering and their ability to apply theoretical knowledge to real-world problems. Together, our department continues to uphold its reputation for excellence and innovation in the field of mechanical engineering and I am confident that we will continue to achieve even greater heights in the years to come.

## ASSOCIATION ACTIVITY

The association day of Mechanical Department, EXERGY 2024 was conducted in a splendid manner. The presidential address was delivered by the HoD Assoc. Prof Bejoy S and felicitations were offered by our Principal Dr. D Roshan Kumar and our manager Rev. Fr. Benjamin Palliyadiyil. The technical talk was conducted by Prof. Sumod Suman, Centre for Artificial intelligence TKMCE on the topic, 'Artificial Intelligence- a Big Picture'. The afternoon session of our association day was followed by a roller coaster of fun games and quizzes.



## EXERGY OFFICE BEARERS

### Staff Coordinator:

Asst. Prof. Laiju Thankachan

**Association Secretary:** Vinayak Manoj (S8 ME)

**Joint Secretary:** Adin Alex (S6 ME)

**Treasurer:** Abin K (S8 ME)

### Executive Committee Members:

Alan Mendez (S8 ME)

Ajina H S (S6 ME)

Swathy S (S4 ME)

Anto N (S2 ME)

## JOURNAL PAPER ON FRICTION WELDING GETS PUBLISHED

International Journal publication was done based on the project work done by the eighth semester students of the Mechanical Engineering department on the topic "Effect of Rotary Friction Welding Parameters on the Different Alloy's Joint Strength: A Review" in the International Journal of Innovative Science and Research Technology (ISSN No. 2456-2165) Volume 9, Issue 2, February 2024.

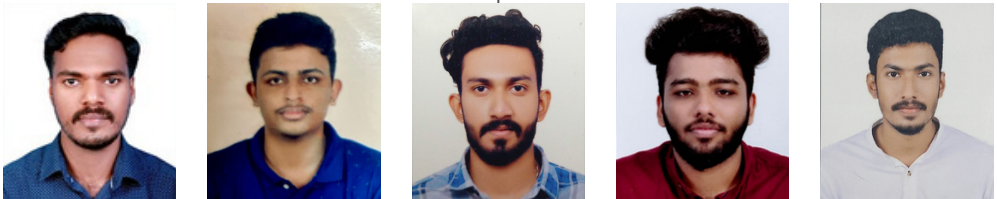
Using comical materials and production techniques is always necessary in India's manufacturing climate. One such technique that is more productive and affordable than other comparable welding methods is rotary friction welding. The manufacturing industry has made extensive use of the friction welding technology. It is a procedure that can combine the majority of engineering materials and is adaptable and tolerant. It is tried-and-true welding method that can create strung welds between materials that are comparable and dissimilar. Its versatility in using various materials has made it useful in a wide range of applications, including the automotive aerospace and other allied industries. This paper revives about the different types of rotary friction welding, principle and methodology of the rotary friction welding process, the welding parameters, Joint strength related to the same. Also discuss about the economic benefits and environmental impact of RFW as compared to conventional methods.

## NPTEL CERTIFICATE HOLDERS

### 2024

	ELITE	<b>ASST. PROF. NEVIN NELSON</b> IIT KANPUR Machining Science 4 Week Course.
	ELITE	<b>ADITHYAN S</b> IIT ROORKEE Inspection and Quality Control in Manufacturing. 4 Week Course.
		<b>EMMANUVEL SAMSON</b> IIT ROORKEE Inspection and Quality Control in Manufacturing. 4 Week Course.
		<b>AMAL PRASAD</b> IIT ROORKEE Inspection and Quality Control in Manufacturing. 4 Week Course.
		<b>DENNY DOUGLAS</b> IIT ROORKEE Inspection and Quality Control in Manufacturing. 4 Week Course.
		<b>ADITHYAN S R</b> IIT ROORKEE Inspection and Quality Control in Manufacturing. 4 Week Course.

Six scholars from the department successfully completed certificate MOOC courses conducted by NPTEL including Asst Prof Nevin Nelson and Adithyan S who bagged the prestigious elite classification. The Mechanical Engineering Department has a policy of mandatory enrolment to NPTEL courses for all students. Students and staff attend relevant courses that help them improve their skills.



**Journal Authors** (from left to right): Asst. Prof Nevin Nelson (Guide), Gilbert T G, Aravind Raj R, Aradhak S, Joshan George

## FACULTY DEVELOPMENT PROGRAMMES

**DR KIM J SEELAN**

Participated in 5 days Faculty Development program on "Developments in Renewal Energy Systems and Technologies" Conducted by Indian Society of Technical Education (ISTE) at MCET from 8th January to 12 January.

**ASST PROF NEVIN NELSON**

Attended "Short Term Training Program on Standards" (STTPS) conducted by Bureau of Indian Standards and NIT CALICUT. Dates: 15 Jan to 19 Jan, 2024 and attended "Hands-on workshop on OpenFOAM for large-scale CFD problems", Organized by NSM Nodal Centre for Training in HPC & AI, IIT Kharagpur, under the aegis of National Supercomputing Mission, March 16 - 17, 2024.

**ASSOC PROF BEJOY S**

Participated in 5 days Faculty Development program on "Developments in Renewal Energy Systems and Technologies" Conducted by Indian Society of Technical Education (ISTE) at MCET from 8th January to 12 January.

**ASST PROF TONY JOHN**

Attended National level Online Faculty Development Program on "Outcome Based Education and Essential AI Tools for Teachers" organised by St. Thomas College, Palai from 10th to 16th January 2024

**ASST PROF RONY MOHAN**

Attended FDPs on "Outcome Based Education" organised by SES College, Sreekandapuram in association with the Kerala state higher education Council and "Reshaping teaching learning process for digital Era" at Carmel college of engineering from 30th January to 3rd February.

**ASST PROF KEVIN FRANCIS**

attended a 3 day FDP on Data analytics for Engineers organised by ICT academy of Kerala.

## STUDENT ACHIEVEMENTS

### SPORTS

The Department of Mechanical Engineering bagged the overall championship at the BJI sports and athletics meet, ATHLON '24. The Football team became the champions for two consecutive years, 2023 and 2024. The department encourages the students to actively take part in extracurricular activities. The students from the department are also part of the college team in various games such as cricket, football, volleyball and basketball.



Athletes from Mechanical Engineering Department posing with the Overall Champions Trophy



Mechanical Engineering Department football team posing with the Championship Trophy

### AWARENESS PROGRAMMES

Asst. Prof Dhaneesh R I lead orientation sessions at Govt. Polytechnic College, Cherthala for 1st year NSS Volunteers, organized by National Service Scheme technical cell on 02.11.2023. He also conducted an orientation session at Mannam Ayurveda co-operative medical college, Pandalam for 2nd year BAMS students regarding awareness on stem cell donation on 02.05.2023.

He conducted an induction programme at MES Institute of technology and management, Chathanoor for 1st year KTU students on the topic "Be a responsible youth" on 13th September 2023. An orientation session for NSS volunteers at IHRD College of Engineering, Kidangoor was taken on awareness about blood and stem cell donations on 30th July 2023.



### INTERNSHIP DETAILS

- 6 students from 2020-2024 batch attended an internship at Kerala Minerals and Metals Ltd., Chavara on May 2023
- 10 students from 2021-2025 batch attended an internship at SMEC, Kochi June 2023

### EXTERNAL WORKSHOPS

- 10 Students from 2021-2025 batch completed Offline Workshop on EV VEHICLE FOUNDATION conducted by Tech Maghi Pvt. Ltd.
- 7 Students From 2021-2025 batch completed onsite workshop on Oil and Gas at SMEC Automation Private Ltd., Kochi

### ENGINEERING EDGE IS ON THE NEWS!

Department of Mechanical Engineering started publishing a monthly tabloid, the Engineering Edge, under the leadership of Asst Prof Tony John and Asst Prof Nevin Nelson. The January edition of the tabloid was featured in all major newspapers as it was completely based on Artificial intelligence generated content. This initiative was first of its kind and it was successful in providing the students a glimpse of the possibilities of the technology that is expected to drive the fifth phase of industrial revolution.



ബഹദൂർദിനം | Feb. 22 February 2023 | <https://paper.dehalhani.com/71746124>

### OBITUARY



**MR LAWRENCE F**  
1952-2023  
TRADE INSTRUCTOR

The staff and students of the Department of Mechanical Engineering deeply mourns the loss of our beloved trade instructor, Mr Lawrence F who passed away on 15th August, 2023.

## WEBINARS

### NON DESTRUCTIVE TESTING

A webinar on "Advancements and Applications in Ultrasonic NDT Techniques" was conducted on March 14, 2024 using Google Meet platform. All faculty members and 50 students attended the webinar.

The session was handled by Dr. Mahesh, an acoustic researcher with extensive technical knowledge and practical expertise in low-frequency noise reduction measures, computational and experimental studies of acoustic metamaterials, and inverse acoustic design problems employing deep learning approaches. He is currently working as a postdoctoral researcher at the Centre for Non-Destructive Evaluation (CNDE) at IIT Madras, where his research is focused on the development of phased array ultrasonic inspection procedures for austenite weld samples in collaboration with the Indian Navy and Larsen & Toubro. The event was coordinated by Asst Prof Nevin Nelson and Emmanuel Samson (S6).

### SOCIETY OF AUTOMOBILE ENGINEERS

The webinar was conducted by the Mechanical Engineering Department in association with SAE INDIA Southern section Cochin Division on 5th of March 2024 from 10.00 AM to 12.00 PM. The program was conducted as an online webinar. The topic of webinar was 'Software Defined Vehicles'. The session lasted for about 1.5 hours. There were about a total of 90 participants.

The event was coordinated by the faculty Rony Mohan (Asst Professor, Management committee member of SAE India Cochin Division). The student coordinator was Adithya Ajith (S6 Mechanical Engineering Student (2021-25 batch). The resource person was S. Shanmugham (Director of Design Desk India Pvt Ltd Company) he was a former chairman of SAE India southern section.

## UNIVERSITY SPORTS MEET PARTICIPANTS



**SIVADARSH M S**  
JAVELIN THROW, RELAY



**ABIN K**  
800M, RELAY



**M ARJUNKRISHNA**  
200M, 400M, RELAY



**ANANTHU C S**  
JAVELIN THROW

Sivadarsh M S, Abin K, M Arjunkerishna and Ananthu C S from final year Mechanical Engineering batch participated in various events in the University Sports Meet held at Chandrashekharan Nair Stadium, Thiruvananthapuram on

## EXERGY LOGO LAUNCH



## STAFF ACHIEVEMENTS

### ASSOC PROF ABHISHEK P

has submitted a Ph.D. thesis on Adsorption Desalination and has made significant contributions to research with five international papers to his credit. He has also authored a book chapter on Renewable Energy published by UNESCO, further enriching the academic community with his expertise. He published a paper titled "Performance investigation of silica gel based consolidated composite adsorbent effective for adsorption desalination system" in Elsevier Materials Today communication journal having an Impact factor value of 3.6

### ASST PROF RONY MOHAN

has been selected as a Management Committee Member of SAE India, Cochin division, showcasing his commitment to professional development. He has actively participated in faculty development programs focusing on reshaping teaching-learning processes for the digital era and outcome-based education.

### ASST PROF DHANEESH R I

holds the prestigious position of Kollam Pathanamthitta Regional Coordinator for the National Resource Protective Force under APJ Abdul Kalam Technological University NSS Cell, demonstrating his leadership and community engagement.

### ASST PROF NEVIN NELSON

presented a Paper "Numerical Analysis on the Effect of Aspect Ratio in a Diesel Injector Using Diesel and Diesel-Ethanol Blend" in the 9 th International Conference on Fluid Mechanics and Fluid Power, December at IIT Roorkee.

## WORKSHOPS

### PRODUCT DESIGN

Department of Mechanical Engineering in association with MecNovo Innovative solutions conducted a one day workshop on Product Design for the third year students. The workshop was conducted at the ground floor seminar hall on 23rd February, 2024. Asst. Prof Nevin Nelson and D Vinayak (Semester 6) were the staff coordinator and student coordinator of the workshop respectively. 40 students attended the workshop. The sessions were handled by Mr Deepanlal V, Technical Head, MeCNovo Innovative Solutions, Mr. Sandeep S, Design Engineer, General Mechanical, Mr. Achu Christopher, Business Development Officer, MeCNovo Innovative Solutions and Mr. Abdul Kareem, Business Development Officer, MeCNovo Innovative Solutions.



### HVAC, QC AND NDT

A workshop was conducted for the final year mechanical students in association with Capital Institute of technical studies on Introduction to HVAC systems, Shutdown QC and NDT systems. The workshop was conducted at the CAD laboratory on 20th March, 2024. The sessions were handled by Mr Sherin Hussain and Mr Nidhin who were well experienced in the industry. The event was coordinated by Asst Prof Tony John and Allen Anish Mendez of Eighth semester. 25 students attended the workshop.

## INDUSTRIAL VISITS

Students of the sixth, fourth and second semesters undertook industrial visits in the even semester of 2023-'24 academic year.

- The 2021-'25 batch visited Automobile Corporation of Goa Ltd., who is a major engineering unit set up in Goa, India, in 1980, jointly promoted by Tata Motors Ltd and EDC Ltd. It manufactures sheet metal components, assemblies, and bus coaches.



- The 2023-'27 batch visited the tea processing facility of Kannan Devan Hills Plantation Company Ltd., Munnar which offers a unique experience with its tea cultivation and processing demonstrations, historical exhibits, and a miniature tea factory.



- The 2022-'26 batch students visited SMEC labs, Kochi, which develops products in the Automation and training sectors.

## STUDENT ACHIEVEMENTS

- Abin N George of 2022-2026 batch got 1st runner up in 1200cc category autocross 2023 organized by keraliyam motorsport association
- Jayaraman J of 2020-2024 batch participated in an event called "Time attack" 1400-1650 CC category conducted on December 30, 2023 at Coimbatore and secured 3rd place.



## PEGASUS 2024

The department of Mechanical Engineering is gearing up for the techno-fest in association with Cogniz '24. This will be the second edition of PEGASUS, which will feature the prestigious Auto show Forza '24 along with five technical and non technical competition events each. Pegasus will also feature a technical workshop and military expo organised by the Indo Tibetan Border Police force. The promo video launch for the event was conducted on 08th April, 2024.

