

DEPARTMENT OF MECHANICAL ENGINEERING

# THE CRANK

2025



ST JOSEPH'S ENGINEERING COLLEGE

VAMANJOOR, MANGALURU-575028

• **Editorial Team** •

- Vishak V K • Suhas L Karinja
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• **Faculty Co-ordinators** •

- Dr. Shreeranga Bhat • Dr. Ashwin Shetty



## **VISION**

To be a value based Department committed to excellence in teaching and research, nurturing technically competent and socially responsible engineering professionals.

## **MISSION**

- Providing state-of-the-art technical knowledge in Mechanical Engineering.
- Promoting research, education, and training in frontier areas of Mechanical Engineering.
- Facilitating faculty development through quality improvement programmes.
- Initiating collaboration with industries, research organizations and institutes for internship, joint research and consultancy.
- Instilling social and ethical values in students, staff and faculty through personality development programmes.

## **PROGRAMME EDUCATIONAL OBJECTIVES**

- Graduates will engage in designing, manufacturing, testing, operating and/or maintaining systems in the field of Mechanical Engineering and allied industries.
- Graduates will be able to communicate and perform effectively in both individual and team-based project environments including multi-disciplinary settings.
- Graduates will apply knowledge and skills considering ethical practices, societal, economic and environmental factors and/or pursue higher education and research.
- Graduates will develop the practice of continuously updating with the latest knowledge and information in their field of specialization.

## **PROGRAMME OUTCOMES**

Graduates of the Mechanical Engineering program are able to:

- Apply the basic knowledge of mathematics, science, thermal, design, and manufacturing engineering.
- Identify, formulate and solve mechanical engineering problems .
- Design a mechanical system that meets desired specifications and requirements.
- Design and conduct experiments, analyze and interpret data, and report results.
- Apply modern engineering software tools and equipment to analyze mechanical engineering problems.
- Apply engineering solutions in global and societal context .
- Understand the impact of engineering on society and demonstrate awareness of contemporary issues.
- Understand the professional and ethical responsibilities.
- Work in a team of core competence or multidisciplinary teams.
- Communicate effectively in both verbal and written forms.
- Apply financial and project management skills in their professional ventures.
- Demonstrate inquisitiveness, novelty in thoughts and zeal towards lifelong learning.

## **PROGRAMME SPECIFIC OUTCOMES**

Graduates of the Mechanical Engineering program are able to:

- Gain competence to face various competitive examinations and succeed in seeking best opportunities in the corporate world and higher studies.
- Take up research programs on contemporary areas of mechanical engineering.

— *The Crank*

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# — *HOD'S Message*

Dear Esteemed Readers,

As Head of the Department of Mechanical Engineering, I am honored to inform you of some fascinating developments in our profession. I hope you will join me as we explore the current issue of our department's magazine and discover the achievements and activities.



I want to start by expressing my deepest gratitude to the hardworking faculty members, staff, and students in our department who have been expanding the limits of Mechanical Engineering. Their relentless pursuit of perfection has unquestionably improved our department's standing in the eyes of the public, both at home and abroad.

In this issue, we have included various pieces to highlight our faculty and students' innovative work and accomplishments. From renewable energy and automotive engineering to cutting-edge materials science and robotics, our academic members have contributed substantially to many different study areas. It gives me great pleasure to also acknowledge the outstanding work of our very brilliant students.

I would also want to thank our alums, whose unwavering enthusiasm and commitment have been important in the growth and development of our programme. Many of our alums have gone on to prominent positions in their fields, making groundbreaking contributions and expanding the bounds of possibility. Their success serves as an example to current students, demonstrating the breadth of possibilities and prospects available to them upon completion of their education.

Lastly, I sincerely appreciate everyone who helped make our department's magazine successful. We can release this book thanks to your undying enthusiasm, commitment, and support.

I wish you all an enlightening and inspiring reading experience!

Sincerely,

Dr. Shreeranga Bhat

Head of the Department of Mechanical Engineering

# — Editorial

Dear Readers,

Greetings from the Mechanical Engineering Department! It is with great pleasure that we present to you the latest edition of our departmental magazine, The Crank.

Within these pages, you'll find a reflection of the constant efforts toward learning and growth that our department values. The articles not only show the enthusiasm of our students and faculty but also remind us of the wide reach of mechanical engineering in today's world.

This magazine celebrates teamwork, dedication, and the exciting achievements of our department. You'll read about students creating smart solutions, faculty working on advanced research, and alumni making a strong impact in their careers.

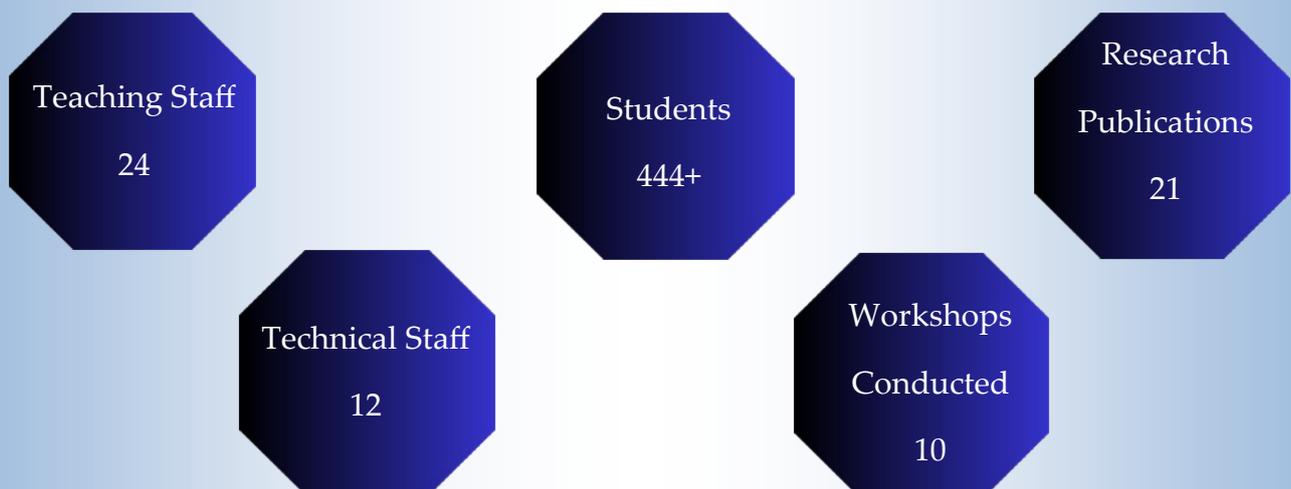
In today's fast-changing world, mechanical engineering plays a key role. It is the interest, hard work, and creativity of people like you that help solve real-world problems and move society forward.

We invite you to immerse yourself in the world of mechanical wonders within these pages. Let the ideas shared here ignite your curiosity and inspire you to engage with the exciting opportunities that lie ahead.

Thank you for being a part of our journey. Happy reading!

Warm regards,  
The Editorial Team

## Department Stats



# – Workshops Conducted



SJEC AICTE IDEA LAB in association with Department of Mechanical Engineering & Industry Innovation Group organized a three days ' **Smart Industrial Automation & PLC Programming**' from September 12 to 14, 2024 for the diploma students of Mechanical Engineering, Karnataka Polytechnic, Mangaluru at SJEC campus. A total of 28 students registered for the workshop and actively participated during the 3 days' schedule.

The Three Day Faculty Development Program (FDP) on "**Understanding OBE and Curriculum Design through Problem Based Learning**" was organized by Department of Mechanical Engineering in association with Internal Quality Assurance Cell (IQAC) and Quality & Governance Group (QGG), St. Joseph Engineering College, Mangaluru, as part of INTEGRA 2025.



The Department of Mechanical Engineering conducted a **Faculty Development Program on PLC Programming & Automation** on 18 - 19 July 2024 in the Festo Center for Industrial Automation. Dr Binu K G and Dr Rolvin D'Silva were the coordinators of the FDP. The FDP intended to strengthen the competency of our Faculty in handling the PLC systems in the FESTO Center for Industrial Automation. The FDP was delivered by Mr. Himanshu Kumar, Director, Indwell Automation.

# – Faculty

## Achievements

**Department:** Mechanical Engineering

- 1) **Total no. of Research Papers published by faculty in:**
  - a. National Journals: Nil
  - b. International Journals: 21
- 2) **Total no. of Papers presented by faculty at:**
  - a. National Conferences: Nil
  - b. International Conferences: 5

3) **Total No. of Conferences/Seminars/Workshops attended by the faculty:** 10

4) **Most Notable Paper Published/Workshop Attended:**

Shreeranga Bhat, Gijo, E.V. and Bhat, V.S.



(2025), "Benchmarking the best practices of Lean Six Sigma in the aerospace industry in India: a longitudinal multiple case analysis and roadmap for deployment", Benchmarking: An International Journal, Vol. ahead-of-print No. ahead-of-print.

<https://doi.org/10.1108/BIJ-06-2024-0511>  
(IF:4.5, Cite score:11.4)

5) **Faculty Achievements:**

- Ashwin Shetty, Rolvin Sunil Dsilva, and Ravikantha Prabhu Received the "Best Paper Award" for the paper titled "Des-



ign and Fabrication of Multi-grain De-husking and Cleaning Machine" presented at International Conference on "Materials, Energy, Environment and Manufacturing Sciences" (MEEMS-2024) organized at Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi on December 21st and 22nd 2024.

- Dr Shreeranga Bhat has been appointed as the Associate Editor of the International Journal of Lean Six Sigma (Q1, Impact Factor = 3.7).
- Dr Shreeranga Bhat has received the Outstanding Review Award from TQM Journal (Q1, Impact factor = 3.8).
- Dr Shreeranga Bhat has received the Highest Research Impact Award – 2024 from SJEC.

# *— Toppers : 2023-24*

## *BE - Fourth Year*



**Sreeraj P**



**Joshua Lawren Dsouza**



**Vijayesh M T**

## *BE - Third Year*



**Rynor Gawain Pinto**



**Prathik S Rao**



**Anujna M**

## *BE - Second Year*



**Karthik K**



**Samuel L Rasquinha**



**Kenneth M Noronha**

# – Industrial Visits



The Department of Mechanical Engineering has arranged an Industrial visit to the Government Tool Room and Training Centre (GTTC) Mangalore on 31 May 2024 for the IV M1 Students.

The Department of Mechanical Engineering has arranged an Industrial visit to the Shamili Hydel Power Project Pvt Ltd, Siddapura and Varahi Underground Power House Station, the powerhouse at the Mani Dam, and the Chakra Dam on 14 June 2024. The purpose of the visit is to provide students with experiential learning regarding turbines and power generation.



The Department of Mechanical Engineering has arranged an Industrial visit to Ace Micromatic Group, Bangalore and Mysore Polymers and Rubber Products Pvt. Ltd, Mysore from 8 December 2025 to 11 December 2025. The purpose of the visit is to provide students with practical exposure to advanced manufacturing technologies and industrial practices in the fields of precision machining and polymer product manufacturing.

# – Placements

**Placement Alert # 7**

**ST JOSEPH**  
ENGINEERING COLLEGE  
MANGALURU  
AN AUTONOMOUS INSTITUTION

Department of Mechanical Engineering

*Congratulates*



**Akhil P B**

for being placed in

**Rialto**  
**RIALTO ENTERPRISES**

**ST JOSEPH**  
ENGINEERING COLLEGE  
MANGALURU  
AN AUTONOMOUS INSTITUTION

Department of Mechanical Engineering

*Congratulates*



**Akash**



**Akshay P Nair**



**Anujna M**



**Sheikh M Humail**



**Sinchana K C**

for being placed in

**YAZAKI**

**ST JOSEPH**  
ENGINEERING COLLEGE  
MANGALURU  
AN AUTONOMOUS INSTITUTION

Department of Mechanical Engineering

*Congratulates*



**Akhil P B**

for being placed in



**PENTAGON SPACE™**  
*Mastering The Future*

**ST JOSEPH**  
ENGINEERING COLLEGE  
MANGALURU  
AN AUTONOMOUS INSTITUTION

Department of Mechanical Engineering

*Congratulates*



**Mohammed M Baji**



**Sheik M Safhan**



**Sourav M Joshi**



**Zakir Hussain**



**Gaurav**

for being placed in

**SYNNOVA™**  
SYNNOVA GEARS & TRANSMISSIONS PVT. LTD.

Placement Alert # 8



Department of Mechanical Engineering

*Congratulates*



Akash



Ashwith U Shetty



Sandesh Bekal



Sheik M Safhan



Sanket Naik



Amosh

for being placed in



Department of Mechanical Engineering

*Congratulates*



**Davood Hakeem**

for being placed in



Department of Mechanical Engineering

*Congratulates*



**Mohammed Shifan**

for being placed in



Department of Mechanical Engineering

*Congratulates*



**Mohammed Anas**

for being placed in



# – Student Associations

## SJEC AERO CLUB :



SJEC AERO is an aeromodelling club of St. Joseph Engineering College, established with an aim to create innovation in the field of aviation with regard to Unmanned Aerial Vehicles (RC planes and drones). The tagline of the club is "The lower you fall, the higher you fly", which is an epitome of how the club has taken shape over time. SJEC AERO takes part in various Aeromodelling competitions across India. Apart from competitions, we conduct research in this field and develop products beneficial to the society. We also conduct workshops to those interested in aeromodelling.

## ARC CLUB – SJEC :



The Automation and Robotics Club of SJEC is a Collegiate Club driven by the Department of Mechanical Engineering. The Club provides its members' opportunities to carry out projects related to Automation and Robotics, and related disciplines. The Club also conducts training programs and workshops on topics related to Industry 4.0. ARC-SJEC was initiated in the year 2016 as a club in the Department of Mechanical Engineering. The Club was then transformed into a Collegiate Club in the year 2017.

## TEAM DYNAMIC SJEC :



### Team Dynamic SJEC

for being selected among the  
**Top 25 Most Innovative Business Ideas**  
at the EMERGE 2025 Beach side Startup Festival  
held from January 31 to February 2, 2025.

#### PRESENTED PROJECTS:

##### Rail-Suraksha

An advanced railway safety project focussing on monitoring and alert systems

##### Geo-Vision

A geospatial technology-based solution for environmental monitoring and management

Out of over 150 entries, these two innovative ideas were chosen for their exceptional potential and creativity.

#### TEAM MEMBERS:

Rynor Gawain Pinto (4th year ME)  
Alma Roxanne Pereira (2nd year CSE)



### Team Dynamic SJEC

for securing  
**3<sup>rd</sup> PRIZE**  
in the **Senior Category of the Innovation Fair**,  
organized by Pilikula Regional Science Centre  
on 28 March 2025.

#### Project Title: ASTRAIOS

An AI enabled multi terrain rover for space exploration

#### TEAM MEMBERS

Rynor Gawain Pinto (4th year ME)  
Sharon Lanvy Sequeira (1st year ME)

## Team DynamicSJEC



for your outstanding performance at the  
**Nasa Space App Challenge 2024-Mangalore Division**  
and nominating for Global Judging.

#### Team Members:

Rynor G. Pinto – Team Leader (IV yr ME)  
Deona Rego (II yr AIML), Reola Mendonca (II yr CSBS)  
Kaavya Rao (II yr AIML), Kruthika K R (II yr AIML)

#### Team Mentor:

Dr Purushothama Chippar, Professor, Vice Principal and Dean R&D

DynamicSJEC is the official Innovation and Space-tech Club of St. Joseph Engineering College, founded in 2022 by Rynor Gawain Pinto, student of Mechanical Engineering Department, with a vision for developing innovative projects with a social impact. The club encourages its members to push the boundaries of technology through the development of projects such as inspection bots, surveillance VTOL planes, hovercrafts, swam bots and AI-enabled analysis software's. The club also undertakes the development of space-tech projects, including the design of space rovers and Cube-Satellites. The club has been recognised by the Space Robotics Society (SPROS) and AICTE.

In addition to project development, the club offers specialized training in presenting business ideas, refining presentation techniques, and mastering public speaking skills, ensuring that every member is well-prepared to communicate their groundbreaking concepts with clarity and confidence.



## SJEC EBAJA :

Team eSJEC Racing is a group of 27 students from St. Joseph Engineering College which was formed in March 2019 under the SAEINDIA SJEC Collegiate Club. The team comprises students from the departments of Mechanical Engineering, Electrical & Electronics Engineering, Electronics & Communications Engineering, and Computer Science Engineering. We participate in student-level competitions where teams from across India compete against each other in designing an off-road, all-terrain single-seater vehicle. We strive to design and build a vehicle that is both innovative and efficient, and we are proud to represent our college in this exciting competition.

## SJEC MBAJA :

BAJA SAEINDIA aims to educate undergraduates about industrial practices through designing and building all-terrain vehicles (ATVs). It enhances technical skills, problem-solving abilities, and practical knowledge. The competition includes virtual design showcases, physical performance tests, and a rigorous endurance race. Criteria for evaluation include cost-effectiveness, aesthetics, and vehicle performance in dynamic scenarios. The event fosters hands-on learning, innovation, and prepares students for real-world engineering challenges since its inception in 2007.



## SUSTAINABLE ENGINEERING CLUB :



St. Joseph Engineering College (SJEC), Mangaluru, witnessed the grand inauguration of its Sustainable Engineering Club, affiliated with the Bamboo Society of India, on November 22. The event, organized by the department of mechanical engineering in association with the Industry Innovation Group, was held at Prerana Hall and brought together academic and industry leaders to emphasize sustainability in engineering.

The event commenced with an invocation and the ceremonial lighting of the lamp, setting the tone for an inspiring session. Dr Vijay V S, faculty advisor and assistant professor, introduced the club and welcomed the dignitaries, followed by the official inauguration and the unveiling of the logo of the club.



Punati Shridhar, chairman of the Bamboo Society of India and former principal chief conservator of forests (IFS Retd), K P Murthy, NGC member of the Bamboo Society of India and former senior general manager at Bosch India and Dr. Shashikantha Karinka, controller of examinations and professor at Alva's Institute of Engineering and Technology, Moodbidri, and management council member of SAEINDIA Bangalore section graced the occasion.

Chief guests included Fr Kenneth Rayner Crasta, assistant director, SJEC, Dr Sudheer M (in-charge principal and dean academics), and Dr Purushothama Chippar (vice principal, dean R&D), while Fr Wilfred Prakash D'Souza, director, SJEC presided over the programme.

# – Torque



The "Torque", the Mechanical Engineering student association, has conducted "Mech Quest", a technical treasure hunt event on 28 June 2024. The event was intended to promote teamwork and technical knowledge in the field of Mechanical Engineering.



The Department of Mechanical Engineering, in collaboration with TORQUE Students' Association, organized an enriching Industrial Visit to Dakshina Kannada Co-operative Milk Producers' Union Limited - Mangalore Dairy Premises, Kulshekar on 8-11 July 2024. The visit aimed to provide students with practical insights into dairy processing equipment and packaging machinery.

# FAREWELL FOR OUTGOING MECHANICAL ENGINEERING STUDENTS



The Department of Mechanical Engineering inaugurated the new student council of the department students' association "Torque" for the academic year 2024-25 on 30 Nov 2024. Mr. Akthar Ahsan Sayeed (Senior Engineer, Bosch Limited, Alumnus of Batch 2022) was the chief guest of the event.

The Farewell Party commenced with Dr Shreeranga Bhat, Head of Department – Department of Mechanical Engineering, raising the toast. It was a nostalgic event filled with reminiscences and reflections on the students' time at SJEC.

Students shared their fondest memories and experiences during their years at the department. They delivered heartfelt speeches highlighting the bonds forged and the achievements attained during their time in the department.

Students who actively participated in various technical clubs and TORQUE association were recognized for their dedication and contribution to extracurricular activities. There were entertaining cultural performances by students and fun games.

Each student of the Batch of 2024 received a special memento as a token of appreciation for their academic journey and achievements. The event concluded with a lively DJ session, where students danced and celebrated their time together at SJEC.

The event was attended by the graduating batch of 2024 along with faculty members, staff, and TORQUE Committee Members.

We extend our sincere gratitude to all participants, organizers, and volunteers who contributed to making this event a success. Special thanks to the Batch of 2024 for their invaluable contributions to the department.

## — *Technical Article*

Mechanical engineering in 2025 is rapidly evolving with the integration of artificial intelligence, additive manufacturing, and sustainable design practices. AI-driven generative design enables engineers to create optimized components based on performance constraints, reducing development time and enhancing innovation. Additive manufacturing has advanced beyond prototyping, allowing for the production of complex metal and polymer parts with improved material efficiency.

Engineers are also adopting predictive maintenance through IoT sensors and digital twins, minimizing equipment downtime and improving reliability. Soft robotics, inspired by biological systems, is gaining traction for its flexibility and safety in medical and wearable applications. Sustainability remains a core focus, with eco-friendly materials and energy-efficient designs being prioritized across industries.

Advanced simulation techniques, including AI-enhanced finite element analysis, are improving the accuracy of design predictions, especially for complex structures. These developments highlight a shift from traditional mechanical design to a multi-disciplinary approach, positioning engineers at the forefront of technological innovation and environmental responsibility.



# — Alumni Message

We spoke to Jerin from the 2022 batch about his SJEC experience.

## 1. Reason behind enrolling for Mechanical Engineering at SJEC.

First of all SJEC is a well known college, here in Mangalore. Their reputation draws people towards them. They earned the reputation through all the facilities they provide, beautiful campus, high diversity etc.



## 2. Your experience at SJEC.

Wonderful nonetheless. Most importantly my friends. Also I would not forget the cultural events they organized, which played a huge role in growing within the college. I'd love to mention all my friends, the m4 batch. Being in SJEC never meant that we had to stay away from sports or our hobbies. We had competitive matches within the college and sports day to declare the victories and so on.

## 3. Your success mantra.

I was always a last minute guy and would not recommend that to anybody. I've even been at the movies the day before an exam. It's just that, do what you do sincerely and always complete what you start.

## 4. Advice to your juniors

Enjoy the time being there. They become the good old times later on. Attend all the placement drives and keep updating yourself.

## 5. About life after engineering.

Do not worry about it. Your destiny will find you and you will reach where you are meant to.

