

**Volume -I**  
**2024-2025**



# **ERODE SENGUNTHAR ENGINEERING COLLEGE**

**AUTONOMOUS**

(APPROVED BY AICTE, NEW DELHI AND PERMANENTLY AFFILIATED TO ANNA UNIVERSITY, CHENNAI  
ACCREDITED BY NBA, NEW DELHI, NAAC WITH GRADE "A", BANGALORE, IE(I), KOLKATA)

**PERUNDURAI, ERODE - 638 057, TAMILNADU.**

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **News Letter**

**Mech Tattva -The Truth in Depth**

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Visit us at <https://erode-sengunthar.ac.in/>

# Founder



**UDYOG RATTAN**  
**Thiru J Sudhanandhen**

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## COLLEGE VISION

Vision of Erode Sengunthar Engineering College is to become a World Class Technical Institution and Scientific Research Centre for the Benefit of the Society.

## COLLEGE MISSION

**Erode Sengunthar Engineering College will strive continuously to**

1. Create Positive difference to Society through Innovative Teaching – Learning Process.
2. Impart Value Based Technical Education to the Students from across various Socio Economic backgrounds.
3. Build State of art infrastructure for high quality Research and Development capabilities on par with the finest in the Globe and widen student's horizons beyond Class Room.
4. Bring out Competent, Ethically Strong and Quality Professionals.

## QUALITY POLICY

Erode Sengunthar Engineering College is committed to impart World Class Technical Know-How to the Students from diverse Socio Economic backgrounds and to transform their lives by nurturing Multi-Skills and facilitating them to develop holistically



## VISION

To become the premier department of excellence in the field of Mechanical Engineering, committed to provide global quality Mechanical Engineers to cater the needs of industries and the nation, in general.

## VISION

**DM1: Teaching – Learning Process:** To impart quality technical education through innovative teaching and learning mechanisms.

**DM2: State of Art Infrastructure:** To build the state-of-the-art infrastructure facilitating the faculty and students to learn and disseminate knowledge and innovate in their career.

**DM3: Research and Development:** To mould the aspiring young minds to emerge as successful practitioners of quality education through entrepreneurship, consultancy and research.

**DM4: Core values & Ethics:** To instill core values and strong ethics, nurturing the intellectual, socio-cultural and economic development of our diverse community.

## PEO

**PEO1: Basic knowledge:** To prepare the students with strong fundamental knowledge in Mathematics, Science, English and Engineering Sciences so as to enable them to analyze the Mechanical Engineering related problems

**PEO2: Core competence and professionalism:** To develop ability among the students for acquiring technical knowledge in the Subjects and gaining the technical skills in classical software packages, applying the same for design, fabricate and install the machines.

**PEO3: Research and Consultancy:** To provide opportunities for the students to carry out research and consultancy activities by understanding the different industrial environments.

**PEO4: Continuous Learning:** To promote the students for continuous learning and higher studies with strong professional, moral and ethical values.

## PSO

**PSO1: Materials and Methods:** An ability to choose the appropriate materials, the manufacturing process to design, model, simulate, analyze and fabricate the mechanical and thermal systems using suitable tools and techniques.

**PSO2: Standardization:** An ability to adopt various standard practices pertaining to design, manufacturing, operation and testing.

**PSO3: Publication:** An ability to document the inferences, interpretation of the results and publish the output in different forums.



## PO'S



**PO1:Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

**PO2:Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

**PO3:Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

**PO4:Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis& interpretation of data to provide valid conclusions. (WK8).

**PO5:Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

**PO6:The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal frame work, culture and environment. (WK1, WK5, and WK7).

**PO7:Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

**PO8:Individual and Collaborative Teamwork:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

**PO9:Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

**PO10:Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

**PO11:Life-Long Learning:** Recognize the need for, and have the preparation and ability for  
i) Independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

## About the Department

As industries move towards greater efficiency and environmental responsibility, mechanical engineering continues to play a crucial role in shaping modern technology and infrastructure.

The **Department of Mechanical Engineering** was established in the year **1996**. It is equipped with the state-of-the-art laboratories and computing facilities with high caliber equipment and machinery. The department has highly qualified and experienced faculty members. Accredited by **NBA in 2009** the Department has been recognized as a research centre by Anna University. The department also offers a Postgraduate Programme (M.E.) in Industrial Safety Engineering and M.E Manufacturing Engineering.

The Department has **modern facilities**, enabling **cutting edge research** in a wide spectrum of technological areas. The department actively assists local industries in product design, complex-part manufacturing etc.,

The faculty members actively engage in research and constantly publish papers in International and National Journals. Guest lectures and industrial visits are periodically arranged for the students to enhance their curriculum. The department is well known for its vibrant club activities and professional chapters. The students are trained through the incubation centre, **CNC Training** cum Machining center and **Drone development** center to carry out real time projects.

The students are exposed to latest developments in the field of Mechanical Engineering by means of organizing symposia, seminars, workshops to enrich their knowledge. Apart from that, the students are **trained in language laboratory** to enhance their communication skills and in **software packages** to design and simulate and analyses the mechanical components. It strives for all round excellence in students, encouraging them in all extra-curricular activities.

# Faculty Achievements



Dr. N. Saravanan, Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, is delighted to announce that he has successfully completed the prestigious AICTE Quality Improvement Programme – Post Graduate (QIP-PG) Certificate Programme on “Artificial Intelligence & Data Science” conducted by the Indian Institute of Information Technology (IIIT) Kottayam.

Mr. V. P. Krishnamurthy, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed the prestigious AICTE Quality Improvement Programme – Post Graduate (QIP-PG) Certificate Programme on “3D Printing and Additive Manufacturing” conducted by the Indian Institute of Information Technology Tiruchirappalli (IIIT Trichy).



Dr. J. Balaji, Associate Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed the prestigious AICTE Quality Improvement Programme – Post Graduate (QIP-PG) Certificate Programme on “3D Printing and Additive Manufacturing” conducted by the Indian Institute of Information Technology Tiruchirappalli (IIIT Trichy).

S. Karthikeyan, Assistant Professor, Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed (ATAL) Academy Faculty Development Programme on “Next Generation Green Energy powered Electric Vehicle and Renewable Energy Integration using Solar Micro Grid” organized by the EEE, Holy Mary Institute of Technology & Science, Hyderabad, from 09 December 2024 to 14 December 2024.





Mr. K. S. Mohanraj, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed the Online Faculty Development Programme on “Smart Manufacturing Systems from Industry 5.0 Perspective” organized by the National Institute of Technology (NIT) Puducherry from 11 December 2024 to 17 December 2024.

.Mr. V. P. Krishnamurthy, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has published a research paper titled “Enhancing Mechanical Performance and Heat Treatment Response in AA2024 Alloys Through B4C and Alumina” in the Journal of Physics: Conference Series (December 2024)



Dr. N. Saravanan, Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has published a research paper titled “Innovative surface engineering of sustainable polymers: Toward green and high-performance materials” in the Applied Chemical Engineering Journal (December 2024)

Mr. K. S. Mohanraj, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed the Online Faculty Development Programme on “Digital Manufacturing Technology” organized by the National Institute of Advanced Manufacturing Technology, Trichy, from 02 December 2024 to 07 December 2024.





Mr. N. S. Mohan, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, presented a research paper titled “Optimized Photocatalytic Degradation of Methylene Blue Using Sm and Ag Doped Strontium Titanate Under UV Light” at the International Conference on Frontiers in Materials Science and Technology held at SRM TRP Engineering College, Trichy, on 05 and 06 December 2024.

.Mr. S. Karthikeyan, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has achieved a remarkable research milestone by publishing five SAE Technical Papers in the year 2024.



.Dr. N. Saravanan, Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has authored the book titled “Python Machine Learning”, published by Lunar Publications in 2025



Mr. A. Prabhakaran, Assistant Professor, Department of Mechanical Engineering, Erode Sengunthar Engineering College, has successfully completed the Online Faculty Development Programme on “Pioneering the Sustainable Future of Automation: Robotics, Embedded System and Smart Manufacturing” organized by Sri Krishna College of Engineering and Technology from 09 December 2024 to 13 December 2024.



# Student Internships

The Department of Mechanical Engineering, Erode Sengunthar Engineering College, consistently provides students with opportunities to gain practical exposure and understand the functioning of modern industries. As part of this initiative, nine students underwent **Industrial Training at Lakshmi Precision Technologies Limited, Coimbatore**, during the academic year 2024–2025.

## Student Participation

**Training Period: 17.10.2024 – 17.12.2024**

- ✓ Mohanraj N
- ✓ Avinash Yadav

**Training Period: 17.10.2024 – 28.02.2025**

- ✓ Ranjith Kumar E
- ✓ Sathees Kumar D
- ✓ Vasanth Shankar M P
- ✓ Aman Kumar
- ✓ Dharshan B

The Department of Mechanical Engineering, Erode Sengunthar Engineering College, is committed to providing students with valuable industrial exposure and practical learning opportunities. As part of this initiative, a group of Mechanical Engineering students successfully completed their **Industrial Training at KIN Railway Equipment Pvt. Ltd., Coimbatore**, from 08.09.2024 to 08.11.2024

The following students participated in the industrial training programme:

- R. Bhagat Singh
- M. Iniyavan
- B. Mohan
- K. Ragul Kannan
- K. Saravanakumar

The Department of Mechanical Engineering, Erode Sengunthar Engineering College, is pleased to announce the participation of its II Year students—Karan P, Gokul Y, and Gokulmurugan L—in the national-level technical programme titled “Future-Driven Trends in Mechanical Engineering.”

The programme was organized by KSR College of Engineering, Namakkal, on 27 September 2024. It provided the students with valuable insights into emerging technologies, modern engineering practices, innovation, automation, and the future directions of the mechanical engineering profession.

The Department of Mechanical Engineering students continue to demonstrate academic excellence and active participation beyond the classroom. Recently, students attended key national-level technical programs across prestigious institutions to broaden their technical horizons in emerging engineering fields.

**Robotics & Automation Focus:** A four-member team comprising **Kumaravel D (II Year)**, **Dhayanithi A (II Year)**, **Gokul Krishnan N (II Year)**, and **Navin Kumar S (II Year)** attended the national seminar on "Recent Trends and Challenges in Robotics" organized by Sri Krishna College of Engineering and Technology, Coimbatore, on October 18, 2024.

**Cyber Security Integration:** Expanding their cross-disciplinary knowledge, **Kishore Kumar B (II Year)** and **Pavithiran M (II Year)** participated in the national-level program on "Cyber Security" conducted at SNS College of Engineering, Coimbatore, on October 18, 2024.

The Department of Mechanical Engineering students actively participated in a 1-day **National-Level Event on Artificial Intelligence & Machine Learning**, hosted at Sree Sakthi Engineering College, Coimbatore, on **November 16, 2024**.

**Student Delegates:**

- **Thimusi Arasan I.**
- **Gokulmurugan L.**



# Value Added Courses

Students mastered advanced 3D modeling and fluid system layouts through 60-hour intensive workshops on **Simulation-Driven Product Development using CATIA and NX for Piping Design**. Complementing technical domain expertise, a 64-hour

**Prathmic Level Hindi Course** was organized from August to December 2024 to strengthen multilingual communication and improve career readiness for global opportunities.

## Program Summary

| Course Title                                   | Duration | Schedule                       |
|------------------------------------------------|----------|--------------------------------|
| Simulation Driven Product Development by CATIA | 60 Hours | Sept 10, 16, 17, 18, 24 (2023) |
| NX for Piping Design                           | 60 Hours | Sept 28 – Oct 15 (2023)        |
| Prathmic Level - Hindi Course                  | 64 Hours | Aug 17 – Dec 15                |



# Student Projects

The Department of Mechanical Engineering at Erode Sengunthar Engineering College continues to drive meaningful student research in sustainable technology and modern manufacturing.

**Project Mentor- Dr. J. Balaji**

**STUDENT TEAM - SOFTWARE & DOMAIN**

- ✓ Elangovan R (ES21ME09) - ANSYS Mechanical (FEA)
- ✓ Hariprasath A.S (ES21ME11) - Type-IV Composite Liner
- ✓ Saravanakumar V (ES21ME30) - Additive Manufacturing
- ✓ Yugender R (ES21ME42) - Alternative Fuel Safety

The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully designed and developed a **Footstep Generator** based on the piezoelectric principle integrated with a microcontroller.

**Student Team**

- Sakthivel M (ES21ME28)
- Sasidharan V (ES21ME31)
- Srijai M (ES21ME35)
- Boopathi A (ES21ME04)

**Guide: Mr. S. Karthikeyan**



The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully completed impactful research on **sustainable biodiesel production from waste cooking oil** using a zinc ferrite magnetic nanocatalyst.

## Student Team

- Dhinakaran B (ES21ME07)
- Nishak J (ES21ME21)
- Tamilselvan K (ES21ME36)
- Thaveethu Raj B (ES21ME37)

**Guide:** Mr. N.S. Mohan

The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully designed and developed an **Automated Vehicle Speed Control System** that automatically regulates vehicle speed in restricted zones.

## Student Team

- Dharmaraj K (ES21ME05)
- Kandasamy R (ES21ME13)
- Kavibharathi V (ES21ME15)
- Vishwa S (ES21ME40)

**Guide:** Dr. M. Elango



The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully developed **lightweight safety helmets** using eco-friendly natural fiber-reinforced composite materials.

## Student Team

- Dharshan B (ES21ME06)
- Mohanvel S.R (ES21ME17)
- Rajadurai G (ES21ME24)
- Wesly Jose J (ES21ME41)

**Guide:** Mr. L. Boopalan

The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully completed a research study on the development and investigation of composite materials reinforced with natural fibers.

## Student Team

- Liyakath Nijamudeen J M (ES22LME05)
- Mohan Ram P (ES22LME07)
- Shanmugavel K (ES22LME08)
- Tamilselan V (ES22LME10)

**Guide:** Dr. N. Saravanan



The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully completed a research study on the influence of nozzle diameter variation in the additive manufacturing process.

## Student Team

- Balasurya M (ES21ME03)
- Mohan Babu K (ES21ME18)
- Mohamed Naveeth N (ES22LME06)
- Sri Sakthivel P (ES22LME09)

**Guide:** Mr. G. Dhayanithi

The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully completed a research study on analysing and testing the characteristics of CNG samples with different composite materials.

## Student Team

- Murugan S (ES21ME19)
- Robert Rajan L (ES21ME36)
- Vishnu A (ES21ME43)
- Alagarsamy P (ES21ME01)

**Guide:** Mr. V.P. Krishnamurthy



The Department of Mechanical Engineering students of Erode Sengunthar Engineering College have successfully completed a research study on the thermal performance of a shell and spiral coil heat exchanger at different spiral coil inclination angles.

## Student Team

- Gowtham S (ES21ME10)
- John Ebinesar J (ES21ME12)
- Kavin R.K (ES22LME04)
- Dinesh M (ES21ME08)

**Guide:** Dr. P. Thangavel



# Events Organized

The Department of Mechanical Engineering successfully conducted the **Inaugural Function of the Mechanical Engineering Association (MEA)** along with an Expert Lecture on the topic “Scope of Mechanical Engineers in Armed Forces” on 5th September 2024.



Commander Rige Bagra, Officer in-charge, Service Training Team, Indian Naval Academy, Ezhimala. Alumni of Dept of Mech Engg, ESEC (2007-11 Batch)



The expert lecture was delivered by **Commander Rige Bagra**, Officer In-Charge, Service Training Team, Indian Naval Academy, Ezhimala. The speaker enlightened the students on the various technical and leadership roles available for Mechanical Engineers in the Armed Forces, with special focus on the Indian Navy.

The Department of Mechanical Engineering organised an expert talk on “Career Opportunities in Manufacturing Industries” by Mr. M. Palanisamy, Deputy General Manager, Laxshmi Precision Technologies Limited, Coimbatore.



The Department of Mechanical Engineering organised an inspiring **Guest Lecture** on the topic “**Start Up Opportunities in India**” on 18th October 2024 (Forenoon).

The session was delivered by **Mr. K. M. Mohanraj**, Managing Director, Crazy Brain International, Tiruppur. Drawing from his entrepreneurial experience, Mr. Mohanraj shared practical insights on the growing start-up ecosystem in India, the support systems available for young innovators, and the key factors that contribute to building a successful venture.



**ERODE SENGUNTHAR ENGINEERING COLLEGE**  
(AUTONOMOUS) Perundurai, Erode - 638 057, Tamilnadu

**DEPARTMENT OF MECHANICAL ENGINEERING**  
Mechanical Engineering Association  
*Organizes*  
**Guest Lecture on**  
**START-UP OPPORTUNITIES IN INDIA**

**Resource Person**



**Mr. K. M. Mohanraj**  
Managing Director, Crazy Brain International,  
Tiruppur.

**18-10-2024** **10:00 am** **Mechanical Seminar Hall**

**Thiru. G. Kamalamurugan,**  
Correspondent, ESEC

**Thiru. S. N. Thangaraju,**  
Secretary, ESET

**Dr. V. Venkatachalam**  
Principal, ESEC

**Dr. N. Saravanan,**  
Prof & HoD

**Convenor**  
**Dr. M. Vijay Anand**  
Professor / Mech.



The Department of Mechanical Engineering successfully conducted a Guest Lecture on “Design and Innovation” on 19th November 2024.

The lecture was delivered by **Mr. B. Jaffer Sadik**, Centre Head, C-CUBE CAD Centre, Erode. The speaker provided valuable insights into the significance of design, creativity, and innovation in the field of Mechanical Engineering.

**ERODE SENGUNTHAR ENGINEERING COLLEGE**  
(AUTONOMOUS) Perundurai, Erode - 638 057, Tamilnadu

**DEPARTMENT OF MECHANICAL ENGINEERING**  
*Organizes*  
**Guest Lecturer on**  
**DESIGN AND INNOVATION**

Resource Person

**Mr. B. Jaffer Sadik**  
Centre Head, C CUBE CAD Centre, Erode

**19-11-2024** **10:00 am** **Mechanical Smart Class**

**Thiru. G. Kamalamurugan, Thiru. S. N. Thangaraju, Dr. V. Venkatachalam**  
Correspondent, ESEC Secretary, ESET Principal, ESEC

**Dr. Y. ROBINSON**  
HoD / Mech.

**Staff co-ordinators**  
**Mr. L. Boopalan, AP/Mech.**  
**Mr. C. Chelladurai, AP/Mech.**  
**Mr. G. Dhayanithi, AP/Mech.**

The Department of Mechanical Engineering successfully conducted a Guest Lecture on “**Career Opportunities in Design**” on 8th October 2024 (Forenoon).

The lecture was delivered by **Mr. P. Gokulraj**, Design Engineer, SAN Engineering Solutions. The speaker provided valuable insights into career prospects, required competencies, and industry practices in the field of engineering design.

The Department of Mechanical Engineering organised a valuable **Leadership Talk** on the topic “**Scope for Mechanical Engineers in Design**” on 8th October 2025 (Afternoon).

The session was delivered by **Mr. R. Gurunisanth**, CADD Engineer, Diagonal CADD, Perundurai. Drawing from his professional experience in the design and CADD domain, Mr. Gurunisanth shared practical insights on the wide range of career opportunities available for Mechanical Engineering graduates in product design, drafting, modelling, and related fields.

The Department of Mechanical Engineering successfully conducted a Leaders Talk on “**Navigating Job Opportunities in the AWS DevOps Space: Skills, Trends, and Career Growth**” on 18th October 2024 (Afternoon).

The talk was delivered by **Mr. Jaisankar Selvam**, an alumnus of the 2017–2021 batch, currently serving as Packed App Development Analyst at Accenture Solution Pvt Ltd., Coimbatore. The speaker provided valuable insights into the skills, industry trends, and career growth opportunities available in the AWS DevOps domain.



The Department of Mechanical Engineering successfully conducted a workshop on “**Simulation Driven Product Development by CATIA Software**” on 10th, 16th, 17th, 18th and 24th September 2023.

The programme aimed at equipping students with practical knowledge of simulation-driven product development processes using CATIA software. A total of **60 students** participated and gained hands-on experience in advanced design and simulation techniques.

The Department of Mechanical Engineering organised a specialised hands-on workshop on “**NX for Piping Design**” during September–October 2023.

The training sessions were conducted on **28th September, 1st October, 8th October, 14th October and 15th October 2023**, providing students with practical exposure to advanced piping design using Siemens NX software. The workshop focused on industry-relevant skills in creating, routing, and managing piping systems within a 3D digital environment.

The Department of Mechanical Engineering organised a **Prathmic Level Hindi Course** to enhance the language skills of students and promote multilingual proficiency.

The course was conducted from **17th August 2024 to 15th December 2024**, spanning several months to provide structured and progressive learning. Designed at the elementary (Prathmic) level, the programme focused on building foundational skills in Hindi reading, writing, speaking, and comprehension.

The Department of Mechanical Engineering successfully conducted an Expert Talk on “**Opportunity in Information Technology**” on 26th September 2024.

The session was delivered by **Mr. P. Chinnasamy**, CEO of White Stone Software Solution. The speaker provided valuable guidance on career prospects available for engineering graduates in the IT sector and the relevance of cross-disciplinary skills.

# Thank you!

