Sri Venkateswara College of Engineering

Department of Mechanical Engineering

JUNE 2024

IGNITION NEWSLETTER

ISSUE 06

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About the Department

The department of Mechanical Engineering started its successful journey in 1985 and has been accredited by the NBA since 1998. It is recognized as a research center approved by Anna University, as well. The UG/PG courses offered by the department cover the thrust areas such as Thermal,Design, Manufacturing and Industrial Engineering and is supplemented by well – equipped laboratories, reputed research supervisors and dedicated faculty members. The department has the privilege of housing research cells– namely the Fibre Reinforced Composite (FRP) Cell, Engine Testing and Bio – Fuel Research cell, Tribology research cell,Welding research cell which are used extensively for research and consultancy projects.The department has completed sponsored research projects for a worth of more than 1.5 crore and consultancy projects for more than 75 lakhs. The department has established a center of excellence in Additive Manufacturing and Computer Integrated Manufacturing, which houses the facilities such as Digital Manufacturing, Robotics and HMI based Automation and 3D printers. The department has published more than 150 papers in peer reviewed journals during the last 4 years.

The following programs are offered by the department

1. B.E. Mechanical Engineering
2. B.E. Mechanical and Automation Engineering
3. M.E. Industrial Automation and Robotics

Vision

To be a leader in Higher Technical Education and Research by providing the state of the art facilities to transform the learners into global contributors and achievers.

Mission

1. To be renowned for offering Programs in the field of Mechanical Engineering that imparts competent technical knowledge along with skill, research& innovation, leadership and life skills needed for the students to contribute and achieve at global level.
2. To provide quality education encompassing recent technological developments by continuously upgrading the academic infrastructure thereby enhancing the technical knowledge of students, teachers and supporting staff which facilitates technical assistance to industrial and societal needs.
3. To offer need based training to the students in tools relevant to mechanical engineering.
4. To continuously upgrade the research facility and provide a conducive environment leading to continuous learning, development and transfer of knowledge.
5. To inculcate in students minds about Professional ethics, Human Values and Environmental issues in Engineering.

DISCOVERY DIGEST

"Navigating the Frontiers"

PREDICTIVE MAINTENANCE

Predictive maintenance is a sophisticated approach to device and device management, harnessing the power of data analytics and machine learning to predict when maintenance is needed This prioritization process is designed to prevent unexpected equipment failure, reduce downtime, and save costs by performing maintenance work only when necessary

Understanding Remediation Provisions:

At its core, predictive maintenance (Pd-M) uses real-time data and historical trends to predict potential device failures in advance. This approach is in contrast to traditional preventive maintenance, which follows a set schedule regardless of the actual condition of the equipment.

How predictive maintenance works :

Predictive maintenance leverages technologies, such as the Internet of Things (IoT), predictive analytics, and artificial intelligence (AI). Sensors attached to the device continuously monitor key performance parameters such as temperature, vibration and sound. This data is then analyzed using advanced algorithms to identify anomalies that could indicate imminent failure.. Benefits of predictive maintenance The advantages of using a predictive maintenance plan are many:

DISCOVERY DIGEST

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PREDICTIVE MAINTENANCE

Predictive maintenance methods:

Several techniques are used in predictive maintenance to check the quality of the equipment:

- ***Vibration analysis:*** *Detects changes in vibration patterns that can indicate issues such as imbalance or abnormality.*
- ***Thermal Imaging:*** *Identifies hot spots caused by electrical faults or friction.*
- ***Oil analysis:*** *Detects impurities and chemicals in lubricants and determines wear patterns.*
- ***Ultrasonic Acoustic Detection:*** *Captures ultrasonic sounds from leaks or electric currents.*

The role of machine learning:

Machine learning models play an important role in predictive refinement by processing large amounts of sensor data to identify patterns that might be missed by human analysts These models can learn from historical data to improve their accuracy over time, and provide predictions is reliable and practical.

Conclusion

Predictive maintenance represents a major advance in equipment management, offering smarter and more efficient ways to maintain devices. By harnessing the power of data and technology, businesses can optimize their maintenance processes, reduce costs and improve efficiency. As technology advances, predictive maintenance will inevitably become an integral part of modern manufacturing and production strategies.

FACULTY ACHIEVEMENT

"A Glimpse of Remarkable Achievements"

Book Chapeter Published: ***Dr. Prem Ananth M, Mr. J. Sivaramapandian,*** *along with UG Mechanical Engineering students Rohit Antony R, Prathish Srimen R, and Prathap A, have published a book chapter titled "**Tribological Study on Automotive Braking Using the Effect of Laser Surfaces Texturing**" in "**Futuristic Trends in Mechanical Engineering,**" **Volume 3, Book 6**. The chapter is published by Iterative International Publishers (IIP), Selfypage Developers Pvt Ltd, with the **e-ISBN**: 978-93-5747-709-3.*

Futuristic Trends in Mechanical Engineering
e-ISBN: 978-93-5747-709-3
IIP Series, Volume 3, Book 6, Part 4, Chapter 2
TRIBOLOGICAL STUDY ON AUTOMOTIVE BRAKING
USING THE EFFECT OF LASER SURFACES TEXTURING

TRIBOLOGICAL STUDY ON AUTOMOTIVE BRAKING USING THE EFFECT OF LASER SURFACES TEXTURING

Abstract

Most commercial vehicles use disc brake system for braking. Brake pads are usually worn out due to frictional force caused on material surface. Increasing WR (WR) enhances life of the brake pad material. Hence, laser engraving method is used to improve the WR of the braking material. It is highly practical to investigate friction and wear. Any mechanical system's capability to perform needs adequate friction and wear characteristics. Improving the WR of braking system by studying the wear properties of materials like Aluminum Alloy and Mild steel material is also of great importance. In this paper, different patterns of dimples are inscribed on the surface of the material and an experiment investigation carried out using 'pin on disc' (POD) tribometer to study the wear characteristics and also to find the most efficient material-pattern combination.

Keywords: Pin-on-disc, COF, Surface Engraving, Sliding Friction, Wear.

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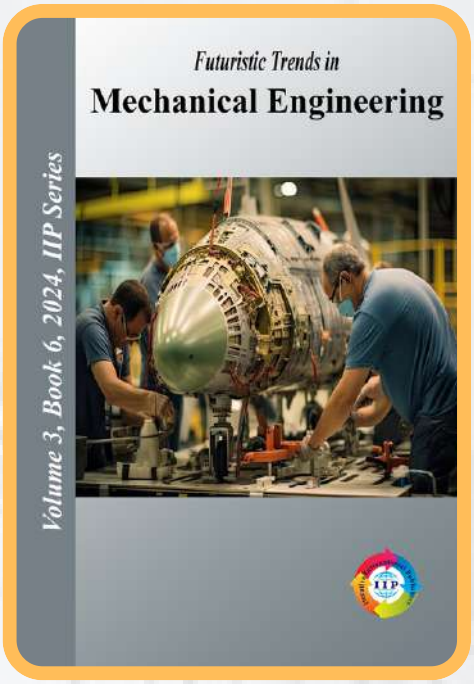
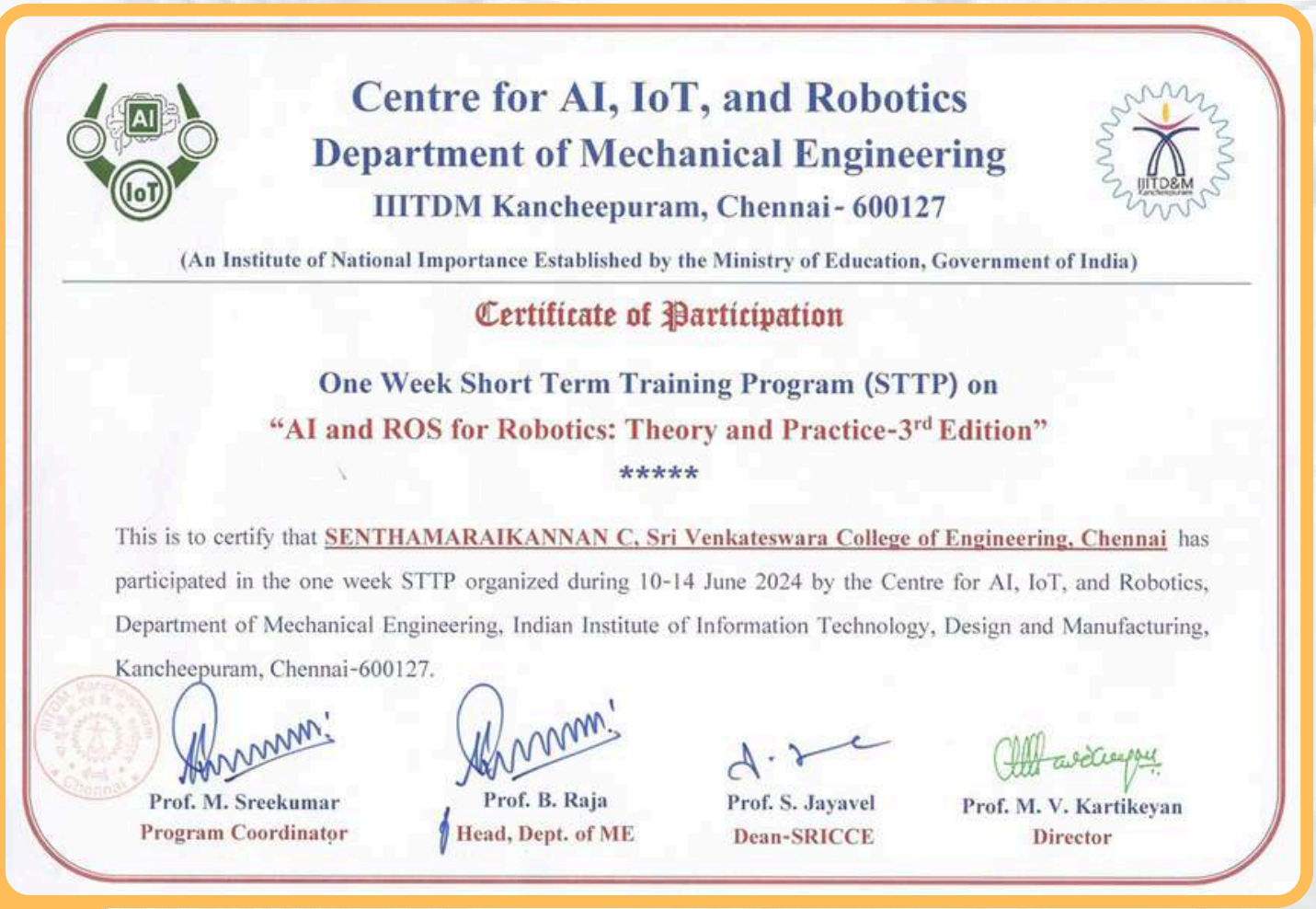


FACULTY ACHIEVEMENT

"A Glimpse of Remarkable Achievements"

STTP Attended: ***Dr. C Senthamaraikanann*** *attended a* ***one-week STTP*** *titled "****AI and ROS for Robotics: Theory and Practice****" during* ***June 10–14, 2024****, organized by the Centre for AI, IoT, and Robotics, Department of Mechanical Engineering,* ***Indian Institute of Information Technology, Design, and Manufacturing,*** *Kancheepuram, Chennai*



Centre for AI, IoT, and Robotics
Department of Mechanical Engineering
IIITDM Kancheepuram, Chennai - 600127

(An Institute of National Importance Established by the Ministry of Education, Government of India)

Certificate of Participation

One Week Short Term Training Program (STTP) on
"AI and ROS for Robotics: Theory and Practice-3rd Edition"
*****

This is to certify that SENTHAMARAIKANNAN C, Sri Venkateswara College of Engineering, Chennai has participated in the one week STTP organized during 10-14 June 2024 by the Centre for AI, IoT, and Robotics, Department of Mechanical Engineering, Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, Chennai-600127.

Prof. M. Sreekumar
Program Coordinator

Prof. B. Raja
Head, Dept. of ME

Prof. S. Jayavel
Dean-SRICCE

Prof. M. V. Kartikeyan
Director

FACULTY ACHIEVEMENT

"A Glimpse of Remarkable Achievements"

FDP Attended: ***Mr. G. Kirubakaran*** *actively participated in the One Week Online Faculty Development Program on "**AI/ML Tools for Advanced Materials, Manufacturing, and Thermal Systems (ATAMMTS-2024),**" organized by the Department of Mechanical Engineering at Lakireddy Bali Reddy College of Engineering, Mylavaram, NTR District, Andhra Pradesh, India. The program took place from **June 24 to June 28, 2024**.*

VIT-AP UNIVERSITY

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr.P.Raghu

Sri venkateswara College of Engineering

has participated in the 5 Day International Faculty Development Program on Advances in Non-linear Dynamics: Methods and Applications (ANDMA 2024) organized virtually by the Department of Mathematics, School of Advanced Sciences (SAS), VIT-AP University, from 11th to 15th June 2024.

DR. ASWATHY R K	DR. SHAH PARTH	DR. V RAMAKRISHNA REDDY	PROF. S. SRINIVAS	DR. S V KOTA REDDY
Convener, ANDMA 2024 VIT-AP University	Convener, ANDMA 2024 VIT-AP University	HoD, Mathematics, SAS VIT-AP University	Dean, SAS VIT-AP University	Vice Chancellor VIT-AP University

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (ASE,CE,CSE,IT, EEE,ECE & ME)

Approved by AICTE, New Delhi & Affiliated by JNTUK, Kakinada

L.B.Reddy Nagar, Mylavaram, Andhra Pradesh 521230

Certificate of Participation

This is to Certify that

Mr. G KIRUBAKARAN

ASSISTANT PROFESSOR, SRI VENKATESWARA COLLEGE OF ENGINEERING

has actively participated in the One Week online Faculty Development Program on "AI/ML Tools for Advanced Materials, Manufacturing and Thermal Systems (ATAMMTS-2024)" organized by the Department of Mechanical Engineering, Lakireddy Bali Reddy College of Engineering, Mylavaram, NTR (Dt.), Andhra Pradesh, India organized from 24/06/2024 to 28/06/2024.

Organized by Department of Mechanical Engineering LBRCE

Dr.P.VijayKumar, Dr.K.Murahari (Co-ordinators) | Dr. M.B.S.Sreekra Reddy (Convenor) | Dr. K.Appa Rao (Principal)

FDP Attended: ***Dr. P Raghu*** *participated in the 5 Day International **Faculty Development Program** on **Advances in Non-linear Dynamics: Methods and Applications** (ANDMA 2024) organized virtually by the Department of Mathematics, School of Advanced Sciences (SAS), **VIT-AP University**, from **11th to 15th June 2024.***

STUDENTS ACCOLADES

"Diverse Talents, One Campus Spirit"

Internship Experiences of Our Students: [2023-24 Even Sem]

We are proud to share the internship achievements of our students who have gained valuable industry experience across various reputed companies. These internships provide them with practical exposure and enhance their learning beyond the classroom. Below is a summary of the companies our students have interned with, along with their details:

Company Name	Students Name	Register No.	Branch & Year
SCORPIO SEALINGS PVT. LTD., Sriperumbudur, Tamil Nadu	Ahamed Mohideen Maluk	2127211001004	ME III Year
NLC INDIA LIMITED, Neyveli, Tamil Nadu	Adithya S, GOWSHIC M, ROHITH KRISHNA N, SHAKIL AHAMED S, Udhaya Kumar R, VISHAL E	2127221001001, 2127221001013, 2127221001026, 2127221001032, 2127221001040, 2127221001043	ME II Year
SRV Engineering Pvt Ltd, Chennai, Tamil Nadu	GOWRISH H	2127201001019	ME IV Year
Weboin Technologies Pvt Ltd, Chennai, Tamil Nadu	LOHESH M V	2127201001034	ME IV Year

STUDENTS ACCOLADES

"Diverse Talents, One Campus Spirit"

Company Name	Students Name	Register No.	Branch & Year
WHEELS INDIA LIMITED, Sriperumbudur, Tamil Nadu	SOMESHWARAN S	2127221001035	ME II Year
Hyundai Motor Limited India Ltd., Sriperumbudur, Tamil Nadu	DAKXIN SHASWATH HARAN Y	2127221002009	MN II Year
SUSEE ENGINEERS, Madurai, Tamil Nadu	MOHAMED AMMAR.S, PRABHURAM N, PRAVEEN KUMAR.V, SARVESHRAM RR, SRIMANO S	2127201001307, 2127201001311, 2127201001312, 2127201001316, 2127201001317	ME IV Year
Vertpro Technologies, Chennai, Tamil Nadu	SRIRAM S S	2127201001318	ME IV Year
Majestic Enterprises Private Limited, Chennai, Tamil Nadu	Manu Raghav M	2127201001039	ME IV Year
Ashok Leyland Limited, Hosur, Tamil Nadu	SYLENDRA FRABANJAN S	2127201001073	ME IV Year
Brakes India Private Limited, Padi, Tamil Nadu	PRATUL V.S.	2127221002028	MN II Year

STUDENTS ACCOLADES

"Diverse Talents, One Campus Spirit"

Company Name	Students Name	Register No.	Branch & Year
NSIC - Technical Services Centre, Chennai, Tamil Nadu	SANJAY R, PRANOY P JYOTHIRAJ, VRISHANK C THAKER, Anandha Ram S, PRIYESH S	2127221002031, 2127221001024, 2127221001044, 2127221001002, 2127221001025	MN II Year
TUBE PRODUCTS OF INDIA, Avadi, Chennai, Tamil Nadu	VRISHANK C THAKER, Anandha Ram S	2127221001044, 2127221001002	ME II Year
Howden Air and Gas India Private Limited, Chennai, Tamil Nadu	SAI SANTHOSH J, PRATUL V.S.	2127221001027, 2127221002028	MN II Year
Caterpillar India Private Limited, Thiruvallur, Tamil Nadu	SAMUEL FRANKLIN R	2127221001029	ME II Year
SSP Engineering Services, Pondicherry	VISHAL E, SHAKIL AHAMED S	2127221001043, 2127221001032	ME II Year
Tube Investments of India, Limited, Chennai, Tamil Nadu	ARAVINDA KRISHNAN K	2127221002005	MN II Year
New Tech Auto Components Pvt Ltd, Thirumudivakkam, Tamil Nadu	SHIVA SAI RAM R R	2127211001319	ME III Year

PLACEMENTS

"Opening Doors to Career Opportunities"

Congratulations!

Soma Siva E
(2127211001069)

Gurunathraj E
(2127211001021)

Soma Siva E *(2127211001069) and* ***Gurunathraj E*** *(2127211001021) has been selected for an* ***internship training*** *in ISRO, Government of India, Department of Space at Satish Dhawan Space Centre SHAR, Shriharikota. The internship will take place from* ***June 27, 2024, to July 26, 2024.***

EDITORIAL TEAM

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Professor & Head
Mechanical Engineering

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Associate Professor
Mechanical Engineering

Dr. S. MUNIRAJ
Assistant Professor
Mechanical Engineering

Mr. A. Ranjith Raj
Assistant Professor
Mechanical Engineering

STUDENT EDITORIAL TEAM

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IV Year
Mechanical Engineering

Mr. Mithun Aravind O
IV Year
Mechanical Engineering

Mr. G Bharath Kumar
III Year
Mechanical Engineering

Mr. Bharath Vigneshwar R
III Year - Mechanical and Automation Engineering

Mr. M Sanjay
II Year
Mechanical Engineering

Mr. Lithesh C
II Year - Mechanical and Automation Engineering